

# Jianming Liang, PhD

**Professor, Arizona State University; Adjunct Associate Professor, Mayo Clinic**

Biomedical Informatics and Data Science; Computer Science; Computer Engineering; Robotics and Autonomous Systems; Data Science, Analytics, and Engineering; Software Engineering; Biomedical Engineering; and Radiology

**Office:** Health Futures Center, 6161 E Mayo Blvd, Phoenix, AZ 85054

I have a background in both academia and industry; after six years at Siemens, I joined the faculty of Arizona State University (ASU) in December 2008, where I am currently a full professor with chair privileges in the graduate faculties of biomedical informatics and data science; computer science; computer engineering; data science, analytics, and engineering; robotics and autonomous systems; software engineering; and biomedical engineering.

Funded by an NIH R01 grant and multiple state and local grants, my research is highly interdisciplinary, meshing *multiple* branches of science and engineering with medical specialties and social sciences and targeting direct advances in human welfare. I advocate *learning foundation models from domain foundations and anchoring their fairness, explainability, and trustworthiness within embedding sociotechnical systems*. My lab is focusing on *developing medical foundation models that learn from the foundation of medicine, serving the patient's best interest within the healthcare system*.

I have published [100+ peer-reviewed publications](#) in some of the most prestigious journals and conferences in my field, such as *Nature*, *IEEE Transactions on Medical Imaging (TMI)*, *Medical Image Analysis (MedIA)*, *CVPR*, *ICCV*, *MICCAI*, and *IPMI*. Our publications have been honored in my research area, including a [MICCAI Best Paper Runner Up \(2023\)](#), a [DART Best Paper Award Runner Up \(2023\)](#), the [Elsevier Media Best Paper Award \(2020\)](#), a [MICCAI Young Scientist Award \(2019\)](#), a [Finalist for the MICCAI Best Presentation Award \(2019\)](#), and a [Finalist for the MICCAI Young Scientist Award \(2015\)](#). Moreover, I have been awarded [50+ US patents](#) with an additional [70+ patents pending](#).

I have been known for my holistic and meticulous approach to teaching and mentoring. I have been [nominated for the Faculty Teaching Award](#) four times in 2019, 2020, 2023, and 2024 and for the [2024-2025 Graduate College Outstanding Mentor for Doctoral Students in 2024](#). The students in my lab have received 70+ awards and recognitions for their accomplishments during their time at ASU, including the [NCWIT Collegiate Award \(2022\)](#) and the [AMIA Doctoral Dissertation Award](#) [the best dissertation in biomedical informatics worldwide] (2022).

I currently serve as an [Associate Editor](#) on the Editor Board of *Medical Image Analysis*, the best journal in my field, and as an [area chair](#) for *MICCAI*, *MIDL*, and *CVPR*, the top conferences in my area. I have served as a Guest Editor for the *IEEE Transactions on Medical Imaging* (2020-2021). I have also served on [NIH study sections](#).

In recognition of my contributions, I have been elected a [Fellow of the National Academy of Inventors \(NAI\) \(2021\)](#) and received the [Distinguished Faculty Award \(2023\)](#), the [Faculty Mentoring Award \(2020\)](#), and the [Faculty Innovation Award \(2019\)](#). My team was honored *twice* with the [President's Award for Innovation](#) in 2015 and 2024 and also won the [Elsevier Media Best Paper Award \(2020\)](#), one of the most prestigious awards in the field.

**New accomplishments since 2023 are highlighted in blue**

## POSITIONS

- **Arizona State University, Tempe, AZ, USA**

August 2022 – Present: Full Professor (tenured)

August 2016 – August 2022: Associate Professor (tenured)

December 2008 – August 2016: Associate Professor (tenure track)

Graduate Faculties: *Computer Science; Computer Engineering; Biomedical Informatics and Data Science*;

*Robotics and Autonomous Systems; Data Science, Analytics, and Engineering; Software Engineering; and Biomedical Engineering*

- **Mila – Quebec Artificial Intelligence Institute<sup>1</sup>, Montreal, Canada**  
**Centre de recherche du CHUM (CRCHUM)<sup>2</sup>, Montreal, Canada**  
 January 2018 – July 2018: Invited Professor (sabbatical)  
 Topic: *Deep Learning in Biomedical Imaging across Diseases, Modalities, and Specialties*
- **Mayo Clinic, Rochester, MN, USA**  
 January 2018 – Present: Adjunct Associate Professor  
 May 2010 – Present: Research Affiliate  
 Faculty: *Radiology*
- **Arizona Cancer Center, Tucson, AZ, USA**  
 December 2009 – Present: Full Investigator  
 Program: *Cancer Imaging*
- **Siemens Medical Solutions USA, Inc., Malvern, PA, USA**  
 December 2002 – December 2008: Staff Scientist  
 Topic: *Computer-aided Diagnosis and Therapy in Medical Imaging*
- **Advanced Research Group, Analog Design Automation Inc. (ADA)<sup>3</sup>, Ottawa, Canada**  
 January 2001 – December 2002: Senior Research Scientist, NSERC Industrial Research Fellow  
 Topics: *Intelligent Systems, Visualization, and Optimization*
- **North China Institute of Computing Technology (NCI)<sup>4</sup>, Beijing, P. R. China**  
 March 1990 – February 1992: Principal Investigator & Project Manager  
 Project: *“Support Techniques for Decision Making” funded by the National 8:5 Program, The Ministry of Science and Technology, Beijing, P. R. China*

## EDUCATION

- **Turku Centre for Computer Science (TUCS)<sup>5</sup>, Turku, Finland**  
 Doctor of Philosophy in Computer Science, January 2001  
 Thesis: *Dynamic Chest Image Analysis: New Model-based Computer Methods for Dynamic Pulmonary Imaging and Other Applications*  
 Advisors: Prof. Timo Järvi, PhD (Computer Science, University of Turku, Finland)  
     Prof. Martti Kormano, MD (Diagnostic Radiology, University of Turku, Finland)  
     Prof. Tim McInerney (currently at Ryerson University, Toronto, Canada)  
     Prof. Demetri Terzopoulos<sup>6</sup> (currently at the University of California, Los Angeles, USA)
- **Department of Computer Science, University of Toronto, Toronto, Canada**  
 Visiting PhD Student, April 1998 – March 1999  
 Topic: *Deformable Models in Medical Image Analysis*  
 Advisors: Prof. Demetri Terzopoulos<sup>6</sup> (currently at the University of California, Los Angeles, USA)  
     Prof. Tim McInerney (currently at Ryerson University, Toronto, Canada)
- **Department of Computer Science, University of Aalborg, Denmark**  
 Visiting Scholar, March 1992 – August 1994

<sup>1</sup> Mila ([mila.quebec/en](http://mila.quebec/en)) is led by Prof. Yoshua Bengio (A. M. Turing Award Laureate), one of the three pioneers in deep learning.

<sup>2</sup> CRCHUM ([crchum.com](http://crchum.com)) is the largest biomedical and healthcare research center at Université de Montréal and one of the largest in Canada.

<sup>3</sup> ADA was acquired by Synopsys Inc. ([www.synopsys.com](http://www.synopsys.com)) in February, 2004.

<sup>4</sup> NCI ([www.nci.ac.cn](http://www.nci.ac.cn)) is a top computer science and engineering research institute and affiliated with the Ministry of Electronics, China.

<sup>5</sup> TUCS ([www.tucs.fi](http://www.tucs.fi)) is a center of excellence and a founding member of the European Educational Forum (EEF).

<sup>6</sup> Prof. Terzopoulos ([cs.ucla.edu/~dt](http://cs.ucla.edu/~dt)) is a pioneer of deformable models in computer vision, computer graphics, and medical image analysis.

Topics: *Bayesian Networks, Active Vision, and Medical Informatics*

Advisor: Prof. Finn V. Jensen<sup>7</sup> (Computer Science)

- **North China Institute of Computing Technology (NCI)<sup>4</sup>, Beijing, P. R. China.**

Master of Science in Computer Science, February 1990

Thesis: *Probabilistic Reasoning: Belief Networks and a Toolkit*

Advisors: Prof. Jiaqi Fang (Computer Science, NCI, Beijing, P. R. China)

Prof. Zhuoqun Xu (Computer Science, Peking University, Beijing, P. R. China)

- **University of Science and Technology (UST), Beijing, P. R. China.**

Bachelor of Science in Computer Science, July 1987

Thesis: *The Design and Implementation of a Dynamic Storage Model for RDBMS*

Advisor: Prof. Yongjian Ma (Computer Science, UST, Beijing, P. R. China)

## MEMBERSHIPS

- Fellow, The National Academy of Inventors (NAI)
- Senior Member, The Institute of Electrical and Electronics Engineers (IEEE)
  - IEEE Computer Society (IEEE CS)
  - IEEE Engineering in Medicine and Biology Society (IEEE EMBS)
- Member, The Association for Computing Machinery (ACM)
- Member, The Medical Image Computing and Computer Assisted Intervention Society (MICCAI)
- Member, American Medical Informatics Association (AMIA)
- Member, New York Academy of Sciences (NYAS)
- Member, The American Association for the Advancement of Science (AAAS)

## AWARDS AND HONORS

### Research Grants:

- The ACCESS Resource (12/22/2022 – 12/21/2026); PI: Dr. Liang (2,000,000.0 ACCESS Credits)  
The Extreme Science and Engineering Discovery Environment (XSEDE) supported by the NSF  
*Image Analysis with Omni-Pretraining (MED220025)*. Role: PI  
(Awarded as GPU hours with 2,000,000.0 ACCESS Credits)
- The XSEDE Resource (1/1/2020 – 6/30/2026); PI: Dr. Liang The Extreme Science and Engineering Discovery Environment (XSEDE) supported by the NSF  
*Annotation-Efficient 3D Medical Image Analysis*. Role: PI

### Research Grants (to be submitted by the coming deadline):

- NIH PRIMED-AI; PI: Dr. Liang (\$10M)  
The NIH Common Fund, NIH  
*Multimodal AI-driven Clinical Decision Support for Personalized Diagnosis and Treatment Optimization in Pulmonary Embolism*, Role: PI  
(ASU's response to NIH PRIMED-AI)
- NIH R01 Grant; PI: Dr. Liang (\$4.3M)  
The National Heart, Lung, and Blood Institute (NHLBI), NIH  
*Computer-aided diagnosis of lung diseases*. Role: PI  
(a competitive renewal of my R01 grant)

<sup>7</sup>Prof. Jensen ([people.cs.aau.dk/~fvj](http://people.cs.aau.dk/~fvj)) and his team is renowned for Bayesian networks and applications.

**Research Grants (submitted):**

- HHS-NIH: PARADIGM; PI: Drs. Jiaying Shen and Michael Youngblood  
HHS-NIH: Advanced Research Projects Agency for Health  
*INtelligent Support and Interactive Guidance for Healthcare Tasks (INSIGHT)*. Role: ASU PI (\$1M) (2024)
- Advanced Computing Systems & Services: Adapting to the Rapid Evolution of Science and Engineering Research; PI: Dr. Tabitha Samuel  
National Science Foundation (NSF)  
*Category II: SAFEPoD - Secure and Accessible Framework for Enabling the PrOtection of Data*.  
Role: Co-PI (2023)
- The Major Research Instrumentation (MRI) Program; PI: Dr. Amarsagar Reddy Ramapuram Matavalam  
National Science Foundation (NSF)  
*MRI: Track 1: Acquisition of an AI/ML Cluster for Accelerating Data-Driven Science and Engineering*.  
Role: Co-PI (2023)
- American Cancer Society (ACS); PI: Dr. John Chang  
*Artificial Intelligence Based Second Observer (AI-observer) for Detecting Colorectal Cancer on Routine CT of the Abdomen and Pelvis (CTAP)*. Role: Co-PI (2022)
- NIH Bridge2AI Program; PI: Dr. Cody Bumgardner (UK) (\$36M)  
The National Institutes of Health (NIH)  
*Foundations supporting self-learning and clinically validatable AI*. Role: ASU PI (\$7M) (2021)

**Research Grants (completed):**

- NSF Standard Grant (10/1/2022 – 9/30/2024); PI: Douglas Jennewein (ASU) (\$399,997)  
National Science Foundation (NSF)  
*CC\* Compute: The Arizona Federated Open Research Computing Enclave (AFORCE), an Advanced Computing Platform for Science, Engineering, and Health*. Role: Co-I and Major User
- NIH R01 Grant (7/1/2016 – 4/30/2024); PI: Dr. Liang (\$2.5M)  
The National Heart, Lung, and Blood Institute (NHLBI), NIH  
*Computer-aided diagnosis of pulmonary embolism*. Role: PI
- The XSEDE Resource (4/1/2019 – 12/31/2019); PI: Dr. Liang (\$10,500)  
The Extreme Science and Engineering Discovery Environment (XSEDE) supported by the NSF  
*Active transfer learning for biomedical imaging*. Role: PI
- ABRC Arizona Investigator Grant (07/01/2017 – 06/30/2020); PI: Dr. Liu (\$750K)  
Arizona Biomedical Research Commission (ABRC)  
*Towards Precise Intensity-Modulated Proton Therapy for Lung Cancer*. Role: subaward PI
- Erickson Student Summer Support (5/8/2017 – 5/7/2018); PI: Dr. Liang  
Mayo Clinic, Scottsdale, AZ  
*Deep Learning in medical Imaging*. Role: PI
- Marley Fund Student Support (8/1/2017 – 2/28/2018); PI: Dr. Liang  
Mayo Clinic, Scottsdale, AZ  
*Proton Therapy*. Role: PI
- Mayo Development Award (12/01/2015 – 12/01/2017); PI: Dr. Liang  
Mayo Clinic, Scottsdale, AZ  
*Personalized proton therapy for lung cancer*. Role: PI
- Mayo Research Award (9/1/2016 – 8/31/2017); PI: Dr. Liang

Mayo Clinic, Scottsdale, AZ

*Preliminary clinical study of algorithms for determining the quality of colonoscopy.* Role: PI

- Faculty Summer Residency Program (5/8/2017 – 8/5/2017); PI: Dr. Liang

Mayo Clinic and ASU Alliance

*Towards a Comprehensive Decision Support Environment in Biomedical Imaging for Value-based Health Care Delivery.* Role: PI

- ASU-Mayo Seed Award (01/01/2015 – 12/31/2015); PI: Dr. Liang

Arizona State University and Mayo Clinic, Scottsdale, AZ

*Robust intensity-modulated proton therapy for lung cancer.* Role: PI

- ASU-Mayo Seed Research Award (01/01/2014 – 12/31/2015); PI: Dr. Liang

Arizona State University and Mayo Clinic, Scottsdale, AZ

*Developing computer algorithms to ensure high-quality colonoscopy.* Role: PI

- FURNACE Grant (01/01/2013 – 12/31/2014); Liang (PI)

Arizona Technology Enterprises and the State of Arizona, Phoenix, AZ

Pre-commercializing software for carotid intima-media thickness image interpretation

- Discovery Translation Grant (07/01/2012 – 6/30/2015); PI: Dr. Liang

Mayo Clinic in Rochester, Minnesota, USA

*The development of a highly efficient and user-friendly software system for carotid intima-media thickness image interpretation.* Role: PI

- ASU-Mayo Seed Research Award (01/01/2012 – 6/30/2014); PI: Dr. Liang

Arizona State University and Mayo Clinic, Scottsdale, AZ

*Diagnosis and prognosis of pulmonary embolism in CT pulmonary angiography.* Role: PI

- Mayo Clinic Research Award (CR20) (05/01/2010 – 08/31/2011); PI: Dr. Liang

Mayo Clinic, Scottsdale, AZ

*Developing image analysis algorithms for measuring carotid intima-media thickness.* Role: PI

- ASU-Mayo Seed Research Award (01/01/2010 – 12/31/2011); PI: Dr. Liang

Arizona State University and Mayo Clinic, Phoenix, AZ

*Left ventricular untwisting: Diagnostic role and biomechanical evaluation in acute mild and moderate elevation of right ventricular afterload in acute pulmonary embolism.* Role: PI

### **Awards and Recognitions:**

- Sun Award, ASU (January 2025)
- Nominated for the 2024-2025 Outstanding Faculty Mentor Award for Doctoral Students (October 2024)  
The Graduate College, Arizona State University
- President's Award for Innovation (July 2024)  
Arizona State University
- Nominated for Faculty Teaching Award (April 2024)  
College of Health Solutions, Arizona State University
- Best Paper Award Runner Up (October 12, 2023)  
The 5th MICCAI Workshop on Domain Adaptation and Representation Transfer (DART)
- MICCAI Best Paper Runner Up (October 11, 2023)  
The MICCAI Society
- Distinguished Faculty Award (May 2023)

**College of Health Solutions, Arizona State University**

- Professor of Impact Award (May 2023)  
CSE 591 Students, Arizona State University
- Nominated for Faculty Teaching Award (May 2023)  
College of Health Solutions, Arizona State University
- Poster Award Second Prize, Faculty Research Day (Jan 25, 2023)  
College of Health Solutions, Arizona State University
- Elected Fellow of the National Academy of Inventors (December 2021)  
Arizona State University
- Best Paper Award (October 2020)  
Elsevier *Medical Image Analysis*
- Faculty Mentoring Award (May 2020)  
College of Health Solutions, Arizona State University
- Nominated for Faculty Teaching Award (May 2020)  
College of Health Solutions, Arizona State University
- Sun Award (September 2020)  
Arizona State University
- Faculty Innovation Award (May 2019)  
College of Health Solutions, Arizona State University
- Elected Senior Member of the National Academy of Inventors (April 2019)  
The National Academy of Inventors and Arizona State University
- Nominated for Faculty Teaching Award (May 2019)  
College of Health Solutions, Arizona State University
- Certificate of Recognition (May 2019)  
University Senate, Arizona State University
- Inducted into the National Academy of Inventors (March 2017)  
Elected as an inaugural member of the ASU chapter of the NAI
- Mayo Clinic-ASU Alliance Fellow (February 2017)  
Arizona State University and Mayo Clinic
- Presidential Poster Award, the American College of Gastroenterology (October 2016)  
*Not All Visual Data Acquired During Withdrawal Phase (WP) of Colonoscopy Is Interpretable: Introducing the Concept of "Effective" WP Time*, the 81st Annual Meeting, October 14 - 19, 2016, Las Vegas, Nevada.
- Certificate of Recognition (May 2016)  
University Senate, Arizona State University
- President's Award for Innovation (March 2015)  
Arizona State University
- Women & Philanthropy Finalist (March 2015)  
Arizona State University
- Certificate of Recognition (May 2015)  
University Senate, Arizona State University

- MICCAI 2009 Travel Award (September 2009)  
International Conference on Medical Image Computing and Computer Assisted Intervention, London, UK
- NSERC Industrial Research Fellowship (January 2001 – December 2002)  
The Natural Sciences and Engineering Research Council of Canada (NSERC), Ottawa, Canada

### **Student Awards:**

- Faculty Research Award (January 2000)  
Faculty of Mathematics and Natural Sciences, University of Turku, Finland
- Instrumentarium Scholarship (1999)  
Instrumentarium (now GE Europe) Science Foundation, Helsinki, Finland
- Doctoral Scholarship (1994 – 1999)  
Turku Centre for Computer Science, Turku, Finland
- Instrumentarium Scholarship (1998)  
Instrumentarium (now GE Europe) Science Foundation, Helsinki, Finland
- Visiting Scholarship (1992 – 1994)  
Aalborg University, Aalborg, Denmark
- Special Award for Techniques (1989)  
North China Institute of Computing Technology (NCI), Beijing, P. R. China.
- Excellent Paper Award (1988)  
North China Institute of Computing Technology (NCI), Beijing, P. R. China.
- San-Hao Graduating Student (1987)  
University of Science and Technology, Beijing, P. R. China.
- Excellent Student in Study (1985–1986 Academic Year)  
University of Science and Technology, Beijing, P. R. China.
- San-Hao Student (1985–1986 Academic Year)  
University of Science and Technology, Beijing, P. R. China.
- San-Hao Student (1984–1985 Academic Year)  
University of Science and Technology, Beijing, P. R. China.

**Note:** San-Hao is the highest title for advanced students (top 1–2 percent). These honors exempted me from the National Graduate Examination for Master's Studies at NCI, a top computer science and engineering research institute in China.

## **AWARDS AND HONORS TO MY STUDENTS**

### **Zongwei Zhou:**

- President's Award for Innovation, ASU, December 6, 2024
- The AMIA Doctoral Dissertation Award First Prize, September 13, 2022
- University Graduate Fellowship, Arizona State University, March 5, 2021
- Elsevier-MEDIA Best Paper Award, Medical Image Analysis, October 7, 2020
- Sun Award, Arizona State University, September 7, 2020
- MICCAI Student Participation Award, MICCAI-2020, August 21, 2020
- The first & third places in Annual Student Poster Competition, BMI/BMD Symposium, April 24, 2020
- University Graduate Fellowship, Arizona State University, March 18, 2020

- Young Scientist Award, MICCAI-2019, October 16, 2019
- Best Presentation Award Finalist, MICCAI-2019, October 16, 2019
- Graduate Student Travel Award, MICCAI-2019, August 7, 2019
- CHS Grad Student Travel Support, CHS, July 23, 2019
- The first place in the Annual Student Poster Competition, BMI/BMD Symposium, April 26, 2019

**Md Mahfuzur Rahman Siddiquee:**

- Engineering Graduate Fellowship, by Ira A. Fulton School of Engineering, May 4, 2020
- Travel Grant, CVPR 2020, by GPSA, April 29, 2020
- Student Travel Award, by ICCV 2019, October 14, 2019
- CIDSE Conference Travel Award, ICCV 2019, by ASU School of Computing, Informatics, and Decision Systems Engineering, September 23, 2019
- Travel Grant, ICCV 2019, by GPSA, August 30, 2019
- Travel Grant, CVPR 2019, by GPSA, March 26, 2019
- The second Place in the Annual Student Poster Competition, BMI/BMD Symposium, April 13, 2019

**Vatsal Sodha**

- President's Award for Innovation, ASU, December 6, 2024
- Elsevier-Media Best Paper Award, Medical Image Analysis, October 7, 2020
- Engineering Graduate Fellowship, by Ira A. Fulton School of Engineering, date 2019-20
- Engineering Graduate Fellowship, by Ira A. Fulton School of Engineering, date 2018-19
- Travel Grant, CVPR 2019, by GPSA, June 2019

**Mohammad Reza Hosseinzadeh Taher**

- Sun Award, ASU, January 25, 2025
- Travel Grant, WACV 2025, by GSG, Jan 02, 2025
- President's Award for Innovation, ASU, December 6, 2024
- CVPR 2024 Outstanding Reviewer, May 22, 2024
- Travel Grant, CVPR 2024, by GPSA, April 30, 2024
- The Best Paper Award Runner Up, DART 2023, October 12, 2023
- MICCAI 2023 Outstanding Reviewer Award Honorable Mention, October 11, 2023
- Travel Grant, MICCAI 2023, by GPSA, October 2nd, 2023
- Certificate of GPSA Research Grant Reviewer, May 8th, 2023
- Certificate of GPSA Travel Grant Reviewer, May 8th, 2023
- Travel Grant, CVPR 2022, by GPSA, April 25th, 2022
- SCAI Doctoral Fellowship, March 1, 2022
- ASU Teaching Excellence Award, by ASU SCAI, December 6, 2021
- ASU Outstanding Research Award, by GPSA, December 6, 2021
- Travel Grant, MCCAII 2021, by GPSA, September 2, 2021
- Travel Grant, CVPR 2021, by GPSA, April 19, 2021
- Reviewer Excellence, by GPSA, December 4, 2020
- Travel Grant, MICCAI 2020, by GPSA, July 30, 2020
- Travel Grant, IPAM 2020, by GPSA, December 27, 2019

**Fatemeh Haghghi**

- President's Award for Innovation, ASU, December 6, 2024
- Professor of Impact Award, by ASU, May 6, 2023

- Nominated for 2023 Google PhD Fellowship by ASU, September 20, 2022
- IEEE TMI Distinguished Reviewer Certificate, August 27th, 2022
- Travel Grant, CVPR 2022, by GPSA, April 25th, 2022
- NCWIT Collegiate Award Winner, by NCWIT, April 14, 2022
- NCWIT Collegiate Award Finalist, by NCWIT, December 23, 2021
- ASU Outstanding Research Award, by GPSA, December 6, 2021
- ASU Teaching Excellence Award, by ASU SCAI, December 6, 2021
- Travel Grant, MICCAI 2021, by GPSA, August, 2021
- MICCAI Society Student Participation Award, MICCAI-2021, August 5, 2021
- Travel Grant, CVPR 2021, by GPSA, April 19, 2021
- University Graduate Fellowship, Arizona State University, March 24, 2021
- MICCAI 2020 NIH Awards, September 17, 2020
- Travel Grant, MICCAI 2020, by GPSA, July 30, 2020
- Travel Award, Institute for Pure and Applied Mathematics (IPAM) 2020, October, 2019

**Jiaxuan Pang**

- Group Travel Grant, WACV 2025, by GSG, January 6, 2025
- President's Award for Innovation, ASU, December 6, 2024
- SCAI Conference Funding, by SCAI, August 7th, 2024
- Travel Grant, MICCAI2024, by GSG August 4, 2024
- MICCAI Best Paper Runner Up, MICCAI 2023, October 11, 2023
- Travel Grant, CVPR 2023, by GPSA, April 25th, 2023
- Poster Award Second Prize, Faculty Research Day, Jan 25, 2023
- Travel Grant, CVPR 2022, by GPSA, April 25th, 2022
- Elsevier-Media Best Paper Award, Medical Image Analysis, October 7, 2020

**DongAo Ma**

- Sun Award, ASU, January 25, 2025
- Group Travel Grant, WACV 2025, by GSG, January 6, 2025
- President's Award for Innovation, ASU, December 6, 2024
- MICCAI Best Paper Runner Up, MICCAI 2023, October 11, 2023
- 2023-24 Graduate College Travel Award Q2, by Graduate College, September 28, 2023
- SCAI Conference Funding, by SCAI, September 22nd, 2023
- Travel Grant, MICCAI 2023, by GPSA, July 31, 2023
- MICCAI 2023 STudent Author Registration (STAR) Awards, by MICCAI Society, July 19, 2023
- Certificate of GPSA Travel Grant Reviewer, May 8th, 2023
- Travel Grant, CVPR 2023, by GPSA, April 25th, 2023
- Travel Grant, MICCAI 2022, by GPSA, August 27, 2022
- Travel Grant, CVPR 2022, by GPSA, April 25th, 2022

**Nahid Islam**

- Group Travel Grant, WACV 2025, by GSG, January 6, 2025
- Graduate College Travel Award Q3, December 24th, 2024
- SCAI Conference Funding, December 19th, 2024
- President's Award for Innovation, ASU, December 6, 2024
- Travel Grant, MICCAI 2022, by GPSA, August 27, 2022

- Travel Grant, CVPR 2022, by GPSA, April 25th, 2022

**Zuwei Guo**

- President's Award for Innovation, ASU, December 6, 2024
- Travel Grant, DART 2022, by GPSA, August 27, 2022

**Yasar Mehmood**

- Travel and Accommodation Grant, MICCAI Winter School, 18-19 Nov 2025
- NVidia Academic Hardware Grant, March 12th, 2022

**Madhumitha Saravanan**

- President's Award for Innovation, ASU, December 6, 2024
- MICCAI Society Participation Grant 2023

**Andrew Yang**

- The 2nd place: Senior Division: Computational Biology & Bioinformatics, 2023

**Ziyu Zhou**

- President's Award for Innovation, ASU, December 6, 2024

**Shivasakthi Senthil Velan**

- President's Award for Innovation, ASU, December 6, 2024

**Diksha Goyal**

- President's Award for Innovation, ASU, December 6, 2024

**Shivam Bajpai**

- President's Award for Innovation, ASU, December 6, 2024

**Shiv Gehlot**

- President's Award for Innovation, ASU, December 6, 2024

**Ziyu Fan**

- President's Award for Innovation, ASU, December 6, 2024

**Haozhe Luo**

- President's Award for Innovation, ASU, December 6, 2024

**Jae Y. Shin**

- President's Award for Innovation, ASU, December 6, 2024

**Ruibin Feng**

- President's Award for Innovation, ASU, December 6, 2024

**Nima Tajbakhsh**

- President's Award for Innovation, ASU, December 2024
- President's Award for Innovation, ASU, March 2015
- Travel Grant, ISBI 2015, Jan 2015
- Summer Fellowship, Graduate College, ASU, Jan 2013
- Travel Grant, Graduate and Professional Student Association, ASU, Jan 2013
- Research Grant, Graduate and Professional Student Association, ASU, Jan 2012
- BMI Faculty Award for Originality, Merit and Significance of Research, BMI Symposium, ASU, Jan 2011
- Travel Grant, Graduate and Professional Student Association, ASU, Jan 2011

## PUBLICATIONS

### Editorials (advisee names in bold)

E1. Xiaohao Cai, Youwei Wen, and Jianming Liang. Editorial: Segmentation and classification: theories, algorithms and applications. *Frontiers in Computer Science*, 6 (1), 2024 (available online in November 2023)

E2. **N. Tajbakhsh**, H. Roth, D. Terzopoulos, and J. Liang. Annotation-Efficient Deep Learning: The Holy Grail of Medical Imaging. *IEEE Transactions on Medical Imaging*, 40 (10), 2526–2533, 2021 [8 pages; Impact Factor: 10.048 (the best journal in medical imaging)].

### Peer-Refereed Journal Publications (advisee names in bold)

J1. Project Imaging-X Contributors. Project Imaging-X: A Survey of 1000+ Open-Access Medical Imaging Datasets for Foundation Model Development (to be submitted)

J2. Xu, et al. DermINO: Hybrid Pretraining for a Versatile Dermatology Foundation Model. *Nature Computational Science* (submitted; <https://arxiv.org/pdf/2508.12190.pdf>) [41 pages; Impact Factor: 17.6 (a top journal in computational science according to Google Scholar with h-index: 67)].

J3. **Fatemeh Haghghi**, Michael B. Gotway, and Jianming Liang. Exploiting Anatomical and Pathological Knowledge for Entangled Representation Learning. *Medical Image Analysis* (in revision) [18 pages; Impact Factor: 11.8 (the best journal in medical image analysis according to Google Scholar with h-index: 126)].

J4. **Mohammad Reza Hosseinzadeh Taher**, Michael B. Gotway, and Jianming Liang. Autodidactic Dense Anatomical Models. *Medical Image Analysis* (accepted with minor revision) [20 pages; Impact Factor: 11.8 (the best journal in medical image analysis according to Google Scholar with h-index: 126)].

J5. **DongAo Ma, Jiaxuan Pang, Shivasakthi Senthil Velan**, Michael B. Gotway, and Jianming Liang. Ark+: Supervised training a single high-performance AI foundation model from many differently labeled datasets—no label consolidation required. *Medical Image Analysis* 108 (2026): 103828. [26 pages; Impact Factor: 11.8 (the best journal in medical image analysis according to Google Scholar with h-index: 126)].

J6. **Jiaxuan Pang, Dongao Ma, Ziyu Zhou**, Michael B. Gotway, and Jianming Liang. POPAR: Patch Order Prediction and Appearance Recovery for self-supervised learning in chest radiography. *Medical Image Analysis* (2025): 103720. [14 pages; Impact Factor: 11.8 (the best journal in medical image analysis according to Google Scholar with h-index: 126)].

J7. **DongAo Ma, Jiaxuan Pang**, Michael B. Gotway, and Jianming Liang. A fully open AI foundation model applied to chest radiography. *Nature* (2025): 488498 [30 pages; Impact Factor: 48.5 (the best journal according to Google Scholar with h-index: 490)].

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J10. **Fatemeh Haghghi, Mohammad Reza Hosseinzadeh Taher**, Michael B. Gotway, Jianming Liang. Self-supervised Learning for Medical Image Analysis: Discriminative, Restorative, or Adversarial? *Medical*

*Image Analysis* 94:103086, [19 pages; Impact Factor: 13.828 (the best journal in medical image analysis)] (Available online January 28, 2024)

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J12. **Z. Zhou, J. Y. Shin, S. Gurudu, M. Gotway, and J. Liang.** Active, Continual Fine Tuning of Convolutional Neural Networks for Reducing Annotation Efforts. *Medical Image Analysis*, 71:101997, 2021 [15 pages; Impact Factor: 11.148 (the best journal in medical image analysis)] (Available online March 24, 2021)

J13. **F. Haghghi, M. R. Hosseinzadeh Taher, Z. Zhou, M. B. Gotway, and J. Liang.** Transferable Visual Words. *IEEE Transactions on Medical Imaging*, 40 (10), 2857–2868, 2021 [12 pages; Impact Factor: 10.048 (the best journal in medical imaging)].

J14. **Z. Zhou, V. Sodha, J. Pang, M. B. Gotway, and J. Liang.** Models Genesis. *Medical Image Analysis*, 67:101840, 2021 [23 pages; Impact Factor: 11.148 (the best journal in medical image analysis)] (received the Elsevier **Media Best Paper Award**)

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J22. **N. Tajbakhsh, J. Y. Shin, S. Gurudu, R. T. Hurst, C. B. Kendall, M. B. Gotway, and J. Liang.** Convolutional neural networks for medical image analysis: Full training or fine tuning? *IEEE Transactions on Medical Imaging*. 35(5):1299-1312, 2016 [12 pages; Impact Factor: 10.048 (the best journal in medical imaging)].

J23. **N. Tajbakhsh**, S. Gurudu, and J. Liang. Automated polyp detection in colonoscopy videos using shape and context information. *IEEE Transactions on Medical Imaging*. 35(2):630-644, 2016 (Impact Factor: 10.048 ; the best journal in medical imaging)

J24. E. S. Glazer, P. H. Bartels, J. Liang, A. R. Prasad, M. L. Yozwiak, M. Krutzsch, C. Clark, S. Kha, H. G. Bartels, J. G. Einspahr, D. S. Alberts, R. S. Krouse. High proportion of nuclear phenotype identifies aggressive cutaneous squamous cell carcinoma. *Analytical and Quantitative Cytology and Histology*. 37(5) 302-10, 2015.

J25. R. D. Rudyanto, ... **W. Xue**, **X. Zhu**, J. Liang, ... B. van Ginneken. Comparing algorithms for automated vessel segmentation in computed tomography scans of the lung: the VESSEL12 study. *Medical Image Analysis*. 18(7):1217-32, 2014. (Impact Factor: 11.148; the best journal in medical image analysis)

J26. **N. Tajbakhsh**, **W. Xue**, **H. Wu**, E. M. McMahon, M. Belohlavek, and J. Liang. Motion analysis of right ventricular dysfunction under mild and moderate pressure overload caused by acute pulmonary embolism. *Ultrasound in medicine and biology*. 39(11):2066-74, 2013. (Impact Factor: 2.514)

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J30. S. Buhmann, P. Herzog, J. Liang, M. Wolf, M. Salganicoff, C. Kirchhoff, M. Reiser, and C. Becker. Clinical evaluation of a computer-aided diagnosis (CAD) prototype for the detection of pulmonary embolism. *Academic Radiology*, 14(6):651-658, 2007. (Impact Factor: 2.077)

J31. **X. Zou**, J. Liang, M. Wolf, M. Salganicoff, A. Krishnan, and D. Naidich. Anatomy-based automatic detection and segmentation of major vessels in thoracic CTA images. *International Journal of Computer Assisted Radiology and Surgery*, Volume 2, Supplement 1, Pages S68–S70, June 2007. (Impact Factor: 1.659)

J32. J. Liang, T. McInerney, and D. Terzopoulos. United snakes. *Medical Image Analysis*, 10(2):215-233, 2006. (Impact Factor: 5.356; the best journal in medical image analysis)

J33. T. Lane, B. Rao, J. Bi, J. Liang, and M. Salganicoff. On the medical frontier: The 2006 KDD cup competition and results. *ACM SIGKDD Explorations*, 8(2):39–46, 2006. (Impact Factor: 1.52)

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J35. J. Liang, J. Q. Liang, and Q. L. Ren. A framework for generic object recognition with Bayesian networks. *International Journal of Computer and Applications*, 27(3):123–138, 2005. (Impact Factor: 2.52)

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<sup>8</sup>EURASIP ([www.eurasip.org](http://www.eurasip.org)): The European Association for Signal, Speech and Image Processing.

J37. J. Liang. The design and implementation of a dynamic storage structure for RDBMS. *Computer Engineering and Applications*, 1:33–38, 1989

J38. J. Liang, F. Liu, and Q. Ren. Prototyping software development method. *Computer Applications*, 3:22–26, 1990.

J39. J. Liang. On machine learning. *Computer Applications*, 4:41–47, 1988.

**Peer-Refereed Conference Full Publications (advisee names in bold)**

C1. **Nahid Islam, DongAo Ma, Nathaniel Alberti**, Michael B. Gotway, and Jianmig Liang. A Generic 3D Foundation Model Utilizing 2D and 3D Annotations for Classification, Localization, and Segmentation in CT Pulmonary Angiography. In Proceedings of the WACV Workshop on Large Foundation Models in Biology and Biomedicine (LFMBio 2026) (in press) [the best workshop on large biomedical foundation models]

C2. **Jiaxuan Pang, DongAo Ma, Ziyu Zhou**, Michael B. Gotway, and Jianmig Liang. DAVL: Amalgamating Diseases, Anatomy, and Vision-Language features for chest radiographs. In Proceedings of the WACV Workshop on Large Foundation Models in Biology and Biomedicine (LFMBio 2026) (in press) [the best workshop on large biomedical foundation models]

C3. **Ziyi Zhou, Haozhe Luo, Mohammad Reza Hosseinzadeh Taher, Jiaxuan Pang**, Xiaowei Ding, Michael B. Gotway, and Jianming Liang. Lamps: Learning Anatomy from Multiple Perspectives via Self-supervision in Chest Radiographs. In Proceedings of the Third International Workshop on Foundation Models for General Medical AI (MedAGI 2025). [the best workshop on general medical AI]

C4. **DongAo Ma, Jiaxuan Pang, Ziyu Zhou**, Michael B. Gotway, and Jianming Liang. Cross-Modal Knowledge Distillation for Chest Radiographic Diagnosis via Embedding Expansion, Reconstruction, and Classification. In Proceedings of the Third International Workshop on Foundation Models for General Medical AI (MedAGI 2025). [the best workshop on general medical AI]

C5. **Nahid Ul Islam, DongAo Ma, Jiaxuan Pang, Shivasakthi Senthil Velan**, Michael B. Gotway, and Jianming Liang. Foundation X: Integrating Classification, Localization, and Segmentation through Lock-Release Pretraining Strategy for Chest X-ray Analysis. In Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV 2025). [16 pages with supplementary materials] (one of the best conferences in computer vision according to Google Scholar with h-index: 109)

C6. **Ziyu Zhou, Haozhe Luo, Mohammad Reza Hosseinzadeh Taher, Jiaxuan Pang**, Xiaowei Ding, Michael B. Gotway, and Jianming Liang. ACE: Anatomically Consistent Embeddings in Composition and Decomposition. In Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV 2025). [16 pages with supplementary materials] (one of the best conferences in computer vision according to Google Scholar with h-index: 109)

C7. **Fatemeh Haghghi**, Michael B. Gotway, and Jianming Liang. Learning Anatomy-Disease Entangled Representation. In Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV 2025). [18 pages with supplementary materials] (one of the best conferences in computer vision according to Google Scholar with h-index: 109)

C8. **J. Pang, D. Ma, Z. Zhou**, M. B. Gotway, and J. Liang. ASA: Learning Anatomical Consistency, Sub-volume Spatial Relationships and Fine-grained Appearance for CT Images. In *Proceedings of the 27th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI 2024)* [17 pages with supplementary materials] (the most prestigious conference in image computing with h-index: 96).

C9. **Mohammad Reza Hosseinzadeh Taher**, Michael B. Gotway, and Jianming Liang. Representing Part-Whole Hierarchies in Foundation Models by Learning Localizability, Composability, and Decomposability

from Anatomy via Self-Supervision. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024*. [20 pages with supplementary materials] (the best conference and the second best publishing venue, only behind *Nature*, according to Google Scholar with h-index: 440)

C10. **Ziyu Zhou, Haozhe Luo, Jiaxuan Pang**, Xiaowei Ding, M. B. Gotway, and J. Liang. Learning Anatomically Consistent Embedding for Chest Radiography. In *Proceedings of the 34th British Machine Vision Conference (BMVC 2023)* [22 pages with supplementary materials] (one of the best conferences in machine vision).

C11. **M. R. Hosseinzadeh Taher**, M. B. Gotway, and J. Liang. Towards Foundation Models Learned from Anatomy in Medical Imaging via Self-supervision. In *Proceedings of the 5th MICCAI Workshop on Domain Adaptation and Representation Transfer (DART 2023)* [19 pages with supplementary materials] (the best workshop in representation learning).

C12. **D. Ma, J. Pang**, M. B. Gotway, and J. Liang. Foundation Ark: Accruing and Reusing Knowledge for Superior and Robust Performance. In *Proceedings of the 26th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI 2023)* [17 pages with supplementary materials] (the most prestigious conference in image computing).

C13. **D. Ma, M. R. Hosseinzadeh Taher, J. Pang, N. U. Islam, F. Haghighi**, M. B. Gotway, and J. Liang. Benchmarking and Boosting Transformers for Medical Image Classification. In *Proceedings of the 4th MICCAI Workshop on Domain Adaptation and Representation Transfer (DART 2022)* [13 pages with supplementary materials] (the best workshop in representation learning).

C14. **Z. Guo, N. U. Islam**, M. B. Gotway, and J. Liang. Discriminative, Restorative, and Adversarial Learning: Stepwise Incremental Pretraining. In *Proceedings of the 4th MICCAI Workshop on Domain Adaptation and Representation Transfer (DART 2022)* [15 pages with supplementary materials] (the best workshop in representation learning).

C15. **J. Pang, F. Haghighi, D. Ma, N. U. Islam, M. R. Hosseinzadeh Taher**, M. B. Gotway, and J. Liang. POPAR: Patch Order Prediction and Appearance Recovery for Self-supervised Medical Image Analysis. In *Proceedings of the 4th MICCAI Workshop on Domain Adaptation and Representation Transfer (DART 2022)* [13 pages with supplementary materials] (the best workshop in representation learning).

C16. **M. R. Hosseinzadeh Taher, F. Haghighi**, M. B. Gotway, and J. Liang. DiRA: Discriminative, Restorative, and Adversarial Learning for Self-supervised Medical Image Analysis. In *Proceedings of the IEEE conference on computer vision and pattern recognition (CVPR 2022)* pages 20824–20834, 2022. [16 pages with supplementary materials] (the top conference in computer vision and pattern recognition; H5-index: 389; ranked #4 by Google Scholar just behind *Nature*, *NEJM*, and *Science*)

C17. **M. R. Hosseinzadeh Taher, F. Haghighi**, M. B. Gotway, and J. Liang. CAiD: A self-supervised Learning Framework for Empowering Instance Discrimination in Medical Imaging. In *Medical Imaging with Deep Learning (MIDL 2022)* [17 pages with supplementary materials] (the best conference in deep learning for medical imaging).

C18. **N. U. Islam, S. Gehlot, Z. Zhou**, M. B. Gotway, and J. Liang. Seeking an Optimal Approach for Computer-Aided Pulmonary Embolism Detection. In *Machine Learning in Medical Imaging*, Springer, 2021 [16 pages with supplementary materials (the best workshop in machine learning for medical image analysis)].

C19. **M. R. Hosseinzadeh Taher, F. Haghighi, R. Feng**, M. B. Gotway, and J. Liang. A Systematic Benchmarking Analysis of Transfer Learning for Medical Image Analysis, In *Domain Adaptation and Representation Transfer*, Springer, 2021 [20 pages with supplementary materials (the best workshop in representation learning)].

C20. **F. Haghighi, M. R. Hosseinzadeh Taher, Z. Zhou**, M. B. Gotway, and J. Liang. Learning semantics-enriched representation via self-discovery, self-classification, and self-restoration. In *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI 2020)* [17 pages with supplementary materials] (the most prestigious conference in image computing).

ence on Medical Image Computing and Computer-Assisted Intervention, pages 137–147. Springer, 2020. [13 pages; H-index: 61 (the most prestigious conference in image computing)].

C21. **R. Feng, Z. Zhou, M. B. Gotway, and J. Liang.** Parts2Whole: Self-supervised Contrastive Learning via Reconstruction, In *Domain Adaptation and Representation Transfer, and Distributed and Collaborative Learning*, pages 85–95. Springer, 2020. [13 pages with supplementary materials (the best workshop in representation learning)].

C22. **Zongwei Zhou, Vatsal Sodha, M. M. Rahman Siddiquee, Ruibin Feng, Nima Tajbakhsh, Michael Gotway, and Jianming Liang.** Models Genesis: Generic Autodidactic Models for 3D Medical Image Analysis. In *International Conference on Medical Image Computing and Computer-Assisted Intervention*, pages 384–393. Springer, 2019. [27 pages; H-index: 61 (the most prestigious conference in image computing)].

C23. **M. M. Rahman Siddiquee, Zongwei Zhou, Ruibin Feng, Nima Tajbakhsh, Michael Gotway, Yoshua Bengio, and Jianming Liang.** Learning Fixed Points in Generative Adversarial Networks: From Image-to-Image Translation to Disease Detection and Localization. In *Proceedings of the IEEE/CVF International Conference on Computer Vision*, pages 191–200, 2019. [21 pages; H-index: 176 (a top conference in computer vision)].

C24. **Nima Tajbakhsh, Yufei Hu, Junli Cao, Xingjian Yan, Yi Xiao, Yong Lu, Jianming Liang, Demetri Terzopoulos, and Xiaowei Ding.** Surrogate Supervision for Medical Image Analysis: Effective Deep Learning from Limited Quantities of Labeled Data. In *2019 IEEE 16th International Symposium on Biomedical Imaging (ISBI 2019)*, pages 1251–1255. IEEE, 2019. [5 pages; H-index: 43 (the most prestigious conference in image computing)].

C25. **Z. Zhou, M. M. Rahman Siddiquee, N. Tajbakhsh, and J. Liang.** UNet++: A Nested U-Net Architecture for Medical Image Segmentation. In *Deep learning in medical image analysis and multimodal learning for clinical decision support*, pages 3–11. Springer, 2018. [8 pages (the best workshop in deep learning for medical imaging)].

C26. **Z. Zhou, J. Shin, S. Gurudu, M. B. Gotway, and J. Liang.** Fine-tuning Convolutional Neural Networks for Biomedical Image Analysis: Actively and Incrementally. In *Proceedings of the IEEE conference on computer vision and pattern recognition*, pages 7340–7351, 2017. [12 pages; H-index: 299 (the top conference in computer vision and pattern recognition)].

C27. **Z. Yuan, M. I. Yazdanabadi, D. Mokkapati, R. Panvalkar, J. Y. Shin, N. Tajbakhsh, S. Gurudu, and J. Liang.** Automatic polyp detection in colonoscopy videos, In *Medical Imaging 2017: Image Processing*, volume 10133, page 101332K. International Society for Optics and Photonics, 2017. [10 pages (the largest conference in medical imaging)].

C28. **J. Y. Shin, N. Tajbakhsh, R. T. Hurst, C. B. Kendall, and J. Liang.** Automating carotid intima-media thickness video interpretation with convolutional neural networks. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 2526–2535, 2016. [10 pages; H-index: 299 (the top conference in computer vision and pattern recognition)].

C29. **N. Tajbakhsh, M. Gotway, and J. Liang.** Computer-aided pulmonary embolism detection using a novel vessel-aligned multi-planar image representation and convolutional neural networks. *Medical image computing and computer-assisted intervention*, Lecture Notes in Computer Science, 9350:62–9, 2015. **(Selected as a Finalist for a Young Scientist Award at MICCAI 2015**, one of the three most prestigious conferences in medical image analysis).

C30. **N. Tajbakhsh, S. Gurudu, and J. Liang.** A comprehensive computer-aided polyp detection system for colonoscopy videos. *Information processing in medical imaging*, Lecture Notes in Computer Science, 9123:327–38, 2015. (one of the three most prestigious conferences in medical image analysis).

C31. **N. Tajbakhsh, S. R. Gurudu, and J. Liang.** Automatic polyp detection in colonoscopy videos using an

ensemble of convolutional neural networks. *IEEE International Symposium on Biomedical Imaging*, Pages 79–84, 2015. (one of the three most prestigious conferences in medical image analysis).

C32. **N. Tajbakhsh, S. Gurudu, and J. Liang.** Automatic polyp detection using global geometric constraints and local intensity variation patterns. *Medical image computing and computer-assisted intervention*, Lecture Notes in Computer Science, 8674:179–87, 2014. (one of the three most prestigious conferences in medical image analysis).

C33. **N. Tajbakhsh, C. Chi, S. R. Gurudu, and J. Liang.** Automatic polyp detection from learned boundaries. *IEEE 11th International Symposium on Biomedical Imaging*, Pages 97–100, 2014. (one of the three most prestigious conferences in medical image analysis).

C34. **H. Sharma, R. G. Golla, Y. Zhang, C. B. Kendall, R. T. Hurst, N. Tajbakhsh, J. Liang.** ECG-based frame selection and curvature-based ROI detection for measuring carotid intima-media thickness. *Medical Imaging 2014: Ultrasonic Imaging and Tomography*. 9040:904016 1-7, 2014. (the largest conference in medical imaging)

C35. **N. Tajbakhsh, C. Chi, S. Gurudu, and J. Liang.** Automatic assessment of image informativeness in colonoscopy. *Abdominal Imaging: Computation and Clinical Applications*. Lecture Notes in Computer Science, 8676:151–8, 2014. (the best workshop in abdominal image analysis)

C36. **N. Tajbakhsh, S. R. Gurudu, and J. Liang.** A classification-enhanced vote accumulation scheme for detecting colonic polyps. *Abdominal Imaging: Computation and Clinical Applications*. Lecture Notes in Computer Science, 8198:53-62, 2013. (the best workshop in abdominal image analysis)

C37. **N. Tajbakhsh, W. Xue, H. Wu, J. Liang, E. M. McMahon, and M. Belohlavek.** Shape-based analysis of right ventricular dysfunction associated with acute pulmonary embolism. *Medical Imaging 2012: Biomedical Applications in Molecular, Structural, and Functional Imaging*, edited by Robert C. Molthen and John B. Weaver. Proc. of SPIE Vol. 8317:83170G 1-5, 2012. (the largest conference in medical imaging)

C38. **H. Wu, N. Tajbakhsh, W. Xue, and J. Liang.** Self-adaptive asymmetric on-line boosting for detecting anatomical structures. *Medical Imaging 2012: Computer-aided Diagnosis*, edited by Bram van Ginneken, and Carol L. Novak. Proc. of SPIE Vol. 8315, 831539 1-7, 2012. (the largest conference in medical imaging)

C39. **N. Tajbakhsh, H. Wu, W. Xue, and J. Liang.** Automated detection of major thoracic structures with a novel online learning method. *Lecture Notes in Computer Science*. Vol. 7009. Pages 273–281, 2011. (Machine Learning in Medical Imaging) (the best workshop in machine learning for medical image analysis)

C40. **H. Wu, K. Deng, and J. Liang.** Machine learning based automatic detection of pulmonary trunk. *Medical Imaging 2011: Computer-aided Diagnosis*, edited by Ronald M. Summers and Bram van Ginneken. Proc. of SPIE Vol. 7963:79630K, 2011. (the largest conference in medical imaging)

C41. **X. Zhu, C. B. Kendall, R. T. Hurst, and J. Liang.** A user-friendly system for ultrasound carotid intima-media thickness image interpretation. *Medical Imaging 2011: Ultrasonic Imaging, Tomography, and Therapy*, edited by Jan D’hooge and Marvin M. Doyley. Proc. of SPIE Vol. 7968:79681G, 2011. (the largest conference in medical imaging)

C42. **L. Lu, M. Wolf, J. Liang, M. Dundar, J. Bi, and M. Salganico.** A two-level approach towards semantic colon segmentation: Removing extra-colonic findings. *Medical image computing and computer-assisted intervention* 12(Pt 2):1009-16, 2009 (Lecture Notes in Computer Science, Vol. 5762, 2009). (one of the three most prestigious conferences in medical image analysis).

C43. **H. Rivaz, Y. Shinagawa, and J. Liang.** Physical priors in virtual colonoscopy. *Medical Imaging 2009: Computer-aided Diagnosis*, edited by Nico Karssemeijer and Maryellen L. Giger. Proc. of SPIE Vol. 7260, 726019. 2009. (the largest conference in medical imaging)

C44. **L. Lu, A. Barbu, M. Wolf, J. Liang, M. Salganicoff, and D. Comaniciu.** Incremental parametric learning

for simultaneous detection and registration. *The 10th European Conference on Computer Vision (ECCV 2008)*, Marseille, France, October 12-18, 2008. (one of the most prestigious conferences in computer vision)

C45. J. Liang and J. Bi. Computer aided detection of pulmonary embolism with local characteristic features in CT angiography. *In proceedings of MICCAI workshop on pulmonary image analysis*, New York City, NY, USA; September 6–10, 2008. (the best workshop in chest image analysis)

C46. L. Lu, A. Barbu, M. Wolf, J. Liang, M. Salganicoff, and D. Comaniciu. Accurate polyp segmentation for 3D CT colonography using multi-staged probabilistic binary learning and compositional model. *IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR'08)*, Anchorage, Alaska, USA; June 23-28, 2008. (the most prestigious conference in computer vision and pattern recognition)

C47. L. Lu, A. Barbu, M. Wolf, J. Liang, S. Lakare, M. Salganicoff, D. Comaniciu, and A. Krishnan. A supervised learning approach for fast and accurate polyp segmentation/measurement in 3D CT colonography. *Proceedings of the MICCAI 2008 workshop on computational and visualization challenges in the new era of virtual colonoscopy*, Edited by Hiroyuki Yoshida. New York City, NY, USA; September 6–10, 2008. (the best workshop in abdominal image analysis)

C48. **B. Ghanem**, J. Liang, J. Bi, M. Salganicoff, and A. Krishnan. Reduction of lymph tissue false positives in pulmonary embolism detection. *Medical Imaging 2008: Computer-aided Diagnosis*, edited by Maryellen L. Giger and Nico Karssemeijer, Proc. of SPIE Vol. 6915, 69151C. 2008. (the largest conference in medical imaging)

C49. J. Liang and J. Bi. Computer aided detection of pulmonary embolism with tobogganing and multiple instance classification in CT pulmonary angiography. *Information processing in medical imaging*, 20:630–641, 2007 (Lecture Notes in Computer Science, Vol. 4584, 2007). (one of the three most prestigious conferences in medical image analysis).

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### Book Chapters (advisee names in bold)

B1. **Zongwei Zhou**, Michael B. Gotway and Jianming Liang. Interpreting Medical Images. *Intelligent Health Systems in Medicine and Health: The Role of AI*. edited by Trevor A. Cohen, Vimla L. Patel and Edward H. Shortliffe, Springer. 2022 [the first textbook in the field].

B2. **N. Tajbakhsh, J. Y. Shin**, S. Gurudu, R. T. Hurst, C. B. Kendall, M. B. Gotway, and J. Liang. On the necessity of fine-tuned convolutional neural networks for medical imaging. *Deep Learning and Convolutional Neural Networks for Medical Image Computing: Precision Medicine, High Performance and Large-Scale Datasets*. edited by Le Lu, Yefeng Zheng, Gustavo Carneiro, and Lin Yang. Springer. July 12, 2017 [the second book in deep learning for medical image analysis].

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A1. **Z. Zhou**, Z. Akkus, M. S. Warner, M. N. Stan, J. Liang, and B. J. Erickson. A Preliminary Study of Using Machine Learning to Reduce Biopsies of Thyroid Nodules Based on Ultrasound Images. The 2nd SIIM Conference on Machine Intelligence in Medical Imaging, September 26–27, 2017 (A top conference on imaging informatics)

A2. P. D. Korfiatis, **Z. Zhou**, J. Liang, and B. J. Erickson. Fully Automated IDH Mutation Prediction in

MRI Utilizing Deep Learning. The 2nd SIIM Conference on Machine Intelligence in Medical Imaging, September 26–27, 2017 (A top conference on imaging informatics)

A3. **Z. Zhou**, J. Shin, R. T. Hurst, C. B. Kendall, and J. Liang. Integrating Active Learning and Transfer Learning for Carotid Intima-Media Thickness Video Interpretation. The 2nd SIIM Conference on Machine Intelligence in Medical Imaging, September 26–27, 2017 (A top conference on imaging informatics)

A4. **L. Zhang, Z. Zhou**, H. Siddiki, N. S. Madiraju, F. C. Ramirez, S. R. Gurudu, and J. Liang. Approaching Medical Fellow-Level Performance on Colonoscopy Frame Classification with Deep Neural Networks. WP Time, the 82rd Annual Meeting, October 13–18, 2017, Orlando, Florida, USA (the top conference in Gastroenterology).

A5. Michael Meyer, Rahul Katdare, Chris Presley, David Wilbur, David Steinhauer, Jianming Liang, Javier Zulueta, Robert Keith, York Miller, Wilbur Franklin, Grgory Yang, Jon Hayenga, Alan Nelson. Non-Invasive LuCED Test for Endobronchial Dysplasia, Enabling Chemoprevention Therapy with Drugs Such as Iloprost. *Journal of Thoracic Oncology* 12, no. 1 (2017): S342-S343.

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A7. H. Siddiki, F. C. Ramirez, M. Temkit, J. Liang, A. Gupta, S. Gurudu. Not All Visual Data Acquired During Withdrawal Phase (WP) of Colonoscopy Is Interpretable: Introducing the Concept of "Effective" WP Time, the 81st Annual Meeting, October 14 - 19, 2016, Las Vegas, Nevada. Received **the Presidential Poster Award**, the American College of Gastroenterology. (the top conference in Gastroenterology).

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## PATENTS (advisee names in bold)

### Patents pending developed at ASU

11. **Jiaxuan Pang, DongAo Ma, Ziyu Zhou**, and Jianming Liang *LADIT: Learning Anatomical, Disease, and Image-Text features from experts for chest X-ray images*. (Filed on November 4, 2025 through Skysong Innovations, M26-171L)

12. **Nahid Ul Islam, DongAo Ma, Nathaniel Alberti**, and Jianming Liang. *A Generic 3D Foundation Model Utilizing 2D and 3D Annotations for Classification, Localization, and Segmentation in CT Pulmonary Angiography*. (Filed on November 4, 2025 through Skysong Innovations, M26-170L)

13. **Mohammad Reza Hosseinzadeh Taher, Ziyu Zhou, Nathaniel Alberti**, and Jianming Liang. *Methods of evaluating foundation models for chest radiography*. (Filed on August 13, 2025 through Skysong Innovations, M26-082L)

14. **DongAo Ma, Jiaxuan Pang, Ziyu Zhou**, and Jianming Liang. *Cross-Modal Knowledge Distillation for Chest Radiographic Diagnosis via Embedding Expansion, Reconstruction, and Classification*. (Filed on August 7, 2025 through Skysong Innovations, M26-080L)

15. **Mohammad Reza Hosseinzadeh Taher, Ziyu Zhou**, and Jianming Liang. *Towards a Test Suite for Chest Radiography*. (Filed on June 3, 2025 through Skysong Innovations, M26-007L)

16. **Jiaxuan Pang, DongAo Ma, Ziyu Zhou, Jianming Liang.** *LAnD: Learning Local Anatomical and Disease features from anatomical and disease experts for chest X-ray images* . (Filed on June 3, 2025 through Skysong Innovations, M26-008L)
17. **Ziyu Zhou, Haozhe Luo, Mohammad Reza Hosseinzadeh Taher, Jianming Liang.** *Lamps: Learning Anatomy from Multiple Perspectives via Self-supervision*. (Filed on May 15, 2025 through Skysong Innovations, M25-320L)
18. **Madhumitha Saravanan, Nahid Ul Islam, Jiaxuan Pang, and Jianming Liang.** *Benchmarking and Boosting of 3D Segmentation Models*. (Filed on February 27, 2025 through Skysong Innovations, M25-253L)
19. **Mohammad Reza Hosseinzadeh Taher** and Jianming Liang. *Learning Foundation Models from Anatomy via Self-Supervision*. (Filed on February 3, 2025 through Skysong Innovations, M25-223L)
110. **D. Ma, J. Pang, and J. Liang.** *Ark+: Accruing and Reusing Knowledge for Superior and Robust Foundation Models*. (Filed on February 3, 2025 through Skysong Innovations, M25-222L)
111. **Ziyu Zhou, Haozhe Luo, Mohammad Reza Hosseinzadeh Taher, Jiaxuan Pang, and Jianming Liang.** *ACE: Anatomically Consistent Embeddings in Composition and Decomposition*. (Filed on December 3, 2024 through Skysong Innovations, M25-166L)
112. **Fatemeh Haghghi** and Jianming Liang. *Learning Anatomy-Disease Entangled Representation*. (Filed on November 13, 2024 through Skysong Innovations, M25-147L) [combined with M24-212L]
113. **Nahid Ul Islam, DongAo Ma, Jiaxuan Pang, and Jianming Liang.** *Foundation X: Integrating Classification, Localization, and Segmentation through Lock-Release Pretraining Strategy for Chest X-ray Analysis*. (Filed on November 2, 2024 through Skysong Innovations, M25-141L)
114. **Mohammad Reza Hosseinzadeh Taher** and Jianming Liang. *Autodidactic Dense Anatomical Models*. (Filed on October 13, 2024 through Skysong Innovations, M25-126L)
115. **D. Ma, J. Pang, and J. Liang.** *An Open Foundation Model for Chest Radiography*. (Filed on July 15, 2024 through Skysong Innovations, M25-039L)
116. Jianming Liang. *Towards Open Foundation Models in Medical Imaging*. (Filed on July 8, 2024 through Skysong Innovations, M25-029L)
117. **Ziyu Zhou, Haozhe Luo, Jiaxuan Pang, DongAo Ma, and Jianming Liang.** *ACE: Anatomically Consistent Embeddings via Composition and Decomposition*. (Filed on May 5, 2024 through Skysong Innovations, M24-296L)
118. **Jiaxuan Pang, DongAo Ma, and Jianming Liang.** *ASA: Learning Anatomical Consistency, Sub-volume Spatial Relationships and Fine-grained Appearance for CT Images*. (Filed on March 11, 2024 through Skysong Innovations, M24-213L)
119. **Fatemeh Haghghi** and Jianming Liang. *David: Disentangling Anatomical Visual Information from Diseases for Learning Entangled Representation*. (Filed on March 11, 2024 through Skysong Innovations, M24-212L)
120. **Mohammad Reza Hosseinzadeh Taher, Fatemeh Haghghi, and Jianming Liang.** *Large-scale Benchmarking and Boosting Transfer Learning for Medical Image Analysis*. (Filed on January 8, 2024 through Skysong Innovations, M24-179L)
121. **Jiaxuan Pang, DongAo Ma, and Jianming Liang.** *ASA: Learning Anatomical Consistency, Sub-volume Spatial Relationships and Fine-grained Appearance for Computed Tomography*. (Filed on November 29, 2023 through Skysong Innovations, M24-141L)
122. **Ziyu Zhou, Haozhe Luo, Jiaxuan Pang, DongAo Ma, and Jianming Liang.** *ACE: Anatomically Con-*

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I23. **Mohammad Reza Hosseinzadeh Taher** and Jianming Liang. *LCD: Towards Hierarchical Embeddings with Localizability, Composability, and Decomposability Learned from Anatomy*. (Filed on November 29, 2023 through Skysong Innovations, M24-139L)

I24. **Nahid Ul Islam, Zongwei Zhou, Shiv Gehlot**, and Jianming Liang. *Seeking an Optimal Solution to Computer-Aided Diagnosis of Pulmonary Embolism*. (Filed on September 28, 2023 through Skysong Innovations, M24-087L; iEdison No. 0488301-23-0106)

I25. **Fatemeh Haghghi, Mohammad Reza Hosseinzadeh Taher**, and Jianming Liang. *Self-supervised Learning for Medical Image Analysis: Discriminative, Restorative, or Adversarial?* (Filed on June 16, 2023 through Skysong Innovations, M23-311L; iEdison No. 0488301-23-0068)

I26. **Ziyu Zhou, Haozhe Luo, Jiaxuan Pang**, and Jianming Liang. *Learning Anatomically Consistent Embedding for Chest Radiography*. (Filed on June 9, 2023 through Skysong Innovations, M23-301L; iEdison No. 0488301-23-0067)

I27. **Zuwei Guo, Nahid Ul Islam**, Jianming Liang. *Stepwise Incremental Pretraining for Integrating Discriminative, Restorative, and Adversarial Learning*. (Filed on May 22, 2023 through Skysong Innovations, M23-285L; iEdison No. 0488301-23-0059)

I28. **Ziyu Fan** and Jianming Liang. *A Generic Unified Deep Model for Learning from Multiple Tasks*. (Filed on May 16, 2023 through Skysong Innovations, M23-274L; iEdison No. 0488301-23-0056)

I29. Jianming Liang. *Self-supervised Learning by Relating*. (Filed on May 4, 2023 through Skysong Innovations, M23-260L; iEdison No. 0488301-23-0052)

I30. Jianming Liang. *All in One: Achieving Superior Generalizability, Transferability, and Robustness through Modality Unification, Function Integration, and Annotation Aggregation*. (Filed on March 27, 2023 through Skysong Innovations, M23-225L; iEdison No. 0488301-23-0037)

I31. **M. R. Hosseinzadeh Taher** and J. Liang. *Learning from Anatomy in Chest Radiograph*. (Filed on March 21, 2023 through Skysong Innovations, M23-208L; iEdison No. 0488301-23-0031)

I32. **D. Ma, J. Pang**, and J. Liang. *Ark: Accruing and Reusing Knowledge for Superior and Robust Performance*. (Filed on March 21, 2023 through Skysong Innovations, M23-207L; iEdison No. 0488301-23-0030)

I33. **M. R. Hosseinzadeh Taher** and J. Liang. *Towards Learning Foundation Models from Anatomy in Medical Imaging*. (Filed on November 21, 2022 through Skysong Innovations, M23-118L; iEdison No. 0488301-22-0097)

I34. **D. Ma, M. R. Hosseinzadeh Taher, J. Pang, N. U. Islam, F. Haghghi**, and J. Liang. *Benchmarking and Boosting Transformers for Medical Image Classification*. (Filed on August 2, 2022 through Skysong Innovations, M23-030L; iEdison No. 0488301-22-0053)

I35. **J. Pang, F. Haghghi, D. Ma, N. U. Islam, M. R. Hosseinzadeh Taher**, and J. Liang. *POPAR: Patch Order Prediction and Appearance Recovery for Self-supervised Medical Image Analysis*. (Filed on August 2, 2022 through Skysong Innovations, M23-029L; iEdison No. 0488301-22-0052)

I36. **Z. Guo, N. U. Islam**, and J. Liang. *Discriminative, Restorative, and Adversarial Learning: Stepwise Incremental Pretraining*. (Filed on August 2, 2022 through Skysong Innovations, M23-028L; iEdison No. 0488301-22-0050)

I37. **DongAo Ma, Jiaxuan Pang**, and Jianming Liang. *Benchmarking Vision Transformers for Chest X-rays classification*. (Filed on March 21, 2022 through Skysong Innovations, M22-210L; iEdison No. 0488301-22-0018)

I38. **Jiaxuan Pang, DongAo Ma**, and Jianming Liang. *Self-supervised Visual Representation Learning by Recovering Order and Appearance on Vision Transformer*. (Filed on March 21, 2022 through Skysong Innovations, M22-209L; iEdison No. 0488301-22-0017)

I39. **Mohammad Reza Hosseinzadeh Taher, Fatemeh Haghighi**, and Jianming Liang. *CAiD: A Self-supervised Learning Framework for Empowering Instance Discrimination in Medical Imaging*. (Filed on December 20, 2021 through Skysong Innovations, M22-164L; iEdison No. 0488301-21-0109)

I40. **Fatemeh Haghighi, Mohammad Reza Hosseinzadeh Taher**, and Jianming Liang. *DiRA: Discriminative, Restorative, and Adversarial Learning for Self-supervised Medical Image Analysis*. (Filed on December 6, 2021 through Skysong Innovations, M22-158L; iEdison No. 0488301-21-0108)

I41. **N. U. Islam, S. Gehlot, Z. Zhou**, and Jianming Liang. *Seeking an Optimal Approach for Computer-Aided Diagnosis of Pulmonary Embolism*. (Filed on August 23, 2021 through Skysong Innovations, M22-048L; iEdison No. 0488301-21-0060)

I42. **M. R. Hosseinzadeh Taher, F. Haghighi, R. Feng**, and Jianming Liang. *A Systematic Benchmarking Analysis of Transfer Learning for Medical Image Analysis*. (Filed on August 2, 2021 through Skysong Innovations, M22-036L).

I43. Jianming Liang and **Nima Tajbakhsh**. *Annotation-Efficient Deep Learning for Medical Imaging*. (Filed on June 8, 2021 through Skysong Innovations, M21-298L).

I44. **Shivam Bajpai** and J. Liang. *Pre-trained models for nnUNet*. (Filed on May 20, 2021 through Skysong Innovations, M21-287L)

I45. **R. Feng, Z. Zhou**, and J. Liang. *Parts2Whole+: A United Self-supervised Contrastive Learning Framework*. (Filed on May 4, 2021 through Skysong Innovations, M21-282L)

I46. **Zongwei Zhou** and Jianming Liang. *Towards Annotation-Efficient Deep Learning in Computer-Aided Diagnosis*. (Filed on April 8, 2021 through Skysong Innovations, M21-229L)

I47. **Zongwei Zhou, Jaeyul Shin**, and Jianming Liang. *Active, Continual Fine Tuning of Convolutional Neural Networks for Reducing Annotation Efforts*. (Filed on March 17, 2021 through Skysong Innovations, M21-199L)

I48. **F. Haghighi, M. R. Hosseinzadeh Taher, Z. Zhou**, and Jianming Liang. *Transferable Visual Words: Exploiting the Semantics of Anatomical Patterns for Self-supervised Learning*. (Filed on February 19, 2021 through Skysong Innovations, M21-170L).

I49. **M. M. Rahman Siddiquee, Zongwei Zhou, Ruibin Feng, Nima Tajbakhsh**, and Jianming Liang. *Fixed-Point Image-to-Image Translation*. (Filed on August 31, 2020 through Skysong Innovations, M21-064L).

I50. **R. Feng, Z. Zhou**, M. B. Gotway, and J. Liang. *Parts2Whole: Self-supervised Contrastive Learning via Reconstruction*. (Filed on August 17, 2020 through Skysong Innovations, M21-048L)

I51. **M. R. Hosseinzadeh Taher, F. Haghighi, Z. Zhou**, and Jianming Liang. *Transferable Visual Words*. (Filed on August 14, 2020 through Skysong Innovations, M21-047L)

I52. **M. R. Hosseinzadeh Taher, F. Haghighi, Z. Zhou**, and Jianming Liang. *Semantic Genesis*. (Filed on April 3, 2020 through Skysong Innovations, M20-239L)

I53. **M. R. Hosseinzadeh Taher, F. Haghighi, Z. Zhou**, and Jianming Liang. *Learning Semantics-enriched Representation via Self-discovery, Self-classification, and Self-restoration*. (Filed on November 26, 2019 through Skysong Innovations, M20-127L) [Awarded]

I54. **M. R. Hosseinzadeh Taher, F. Haghighi**, and Jianming Liang. *Transferable Visual Words: An Annotation-efficient Solution to Chest X-ray Image Analysis*. (Filed on November 26, 2019 through Skysong Innovations, M20-126L)

I55. **M. R. Hosseinzadeh Taher, F. Haghighi**, and Jianming Liang. *Transferable Visual Words: A Novel Self-*

*supervised Approach for Chest X-ray Image Analysis.* (Filed on September 10, 2019 through Skysong Innovations, M20-069L) [Awarded]

156. **Zongwei Zhou, Vatsal Sodha, M. M. Rahman Siddiquee, Ruibin Feng, Nima Tajbakhsh, and Jianming Liang.** *Models Genesis: Generic Autodidactic Models for 3D Medical Image Analysis.* (Filed on April 10, 2019 through Skysong Innovations, M19-252LC)

157. **Zongwei Zhou, Jaeyul Shin, and Jianming Liang.** *AFT\*: Active Fine Tuning of Convolutional Neural Networks for Reducing Annotation Efforts.* (Filed on February 20, 2019 through Skysong Innovations, M19-194L) [Awarded]

158. **Zongwei Zhou, M. M. Rahman Siddiquee, Nima Tajbakhsh, and Jianming Liang.** *UNet++: Redesigning Skip Connections to Exploit Multiscale Features in Image Segmentation* (Filed on February 19, 2019 through Skysong Innovations, M19-189LC) [Awarded]

159. **M. M. Rahman Siddiquee, Zongwei Zhou, Ruibin Feng, Nima Tajbakhsh, and Jianming Liang.** *Learning Fixed Points in Generative Adversarial Networks: From Image-to-Image Translation to Disease Detection and Localization.* (Filed on November 23, 2018 through Skysong Innovations, M19-117L) [Awarded]

160. **Nima Tajbakhsh, Jaeyul Shin, and Jianming Liang.** *Computer-aided Detection and Visualization of Pulmonary Embolism Using a Novel, Compact, and Informative Image Representation.* (Filed on February, 2018 through Arizona Technology Enterprises, M18-197L) [Awarded]

161. **Zongwei Zhou, Jaeyul Shin, and Jianming Liang.** *Integrating active learning and transfer learning for cutting annotation cost.* (Filed on March 1, 2017 through Arizona Technology Enterprises, M17-151L)

162. **Zongwei Zhou, Jaeyul Shin, and Jianming Liang.** *Integrating active learning and transfer learning for carotid intima-media thickness video interpretation.* (Filed on January 17, 2017 through Arizona Technology Enterprises, M17-130L)

163. **Jaeyul Shin, Nima Tajbakhsh, and Jianming Liang.** *Automatic interpretation of carotid intima-media thickness videos using convolutional neural networks.* (Filed on October 27, 2016 through Arizona Technology Enterprises, M17-075L)

164. **Nima Tajbakhsh, Jaeyul Shin, and Jianming Liang.** *Systems and methods for fine tuning convolutional neural networks for medical image analysis.* (US Provisional 62/280,789, 1/20/2016) (Filed on October 2, 2015 through Arizona Technology Enterprises, M16-069L).

165. **Yu Zhang and Jianming Liang.** *Java Software for Ultrasound Carotid Intima-Media Thickness Image Interpretation* (Filed on August 27, 2015 through Arizona Technology Enterprises, M16-037L)

166. **Xiangjun Zhu and Jianming Liang.** *Matlab Software for Ultrasound Carotid Intima-Media Thickness Image Interpretation* (Filed on August 27, 2015 through Arizona Technology Enterprises, M16-036L)

167. **Nima Tajbakhsh, Suryakanth Gurudu, Jianming Liang.** *ASU-Mayo Clinic Colonoscopy Video Database* (PA 2-007-401, 2/1/2016) (Filed on July 15, 2015 through Arizona Technology Enterprises, M16-005L)

168. **Jaeyul Shin, Jianming Liang, and Wei Liu.** *Effective dose-volume-histogram prediction method using Euclidean distance volume histogram for volumetric modulated arch therapy to treat prostate cancer.* (US Provisional 62/192,036, 7/28/2015) (Filed on March 15, 2015 through Arizona Technology Enterprises, M15-184L).

169. **Nima Tajbakhsh, Suryakanth Gurudu, and Jianming Liang.** *A comprehensive framework for automated polyp detection in colonoscopy.* (US Provisional 62/159,695, 5/11/2015) (Filed on March 12, 2015 through Arizona Technology Enterprises, M15-187L).

170. **Nima Tajbakhsh, Chang-Ching Chi, Suryakanth Gurudu, and Jianming Liang.** *System and method for automatic assessment of image informativeness in colonoscopy.* (US Provisional 62/049,904; 9/12/2014) (Filed on August 5, 2014 through Arizona Technology Enterprises, M15-035L).

I71. Jiangming Liang, **Haripriya Sharma, Ramsri G. Golla, Yu Zhang**, Christopher B. Kendall, R. Todd Hurst, and **Nima Tajbakhsh**. *System and method of automatic frame selection and ROI determination for measuring carotid intima-media thickness.* (US Provisional 61/954,386, 3/17/2014; PCT/US 15/20908, 3/17/2015) (Filed on December 11, 2013 through Arizona Technology Enterprises, M14-117L).

### Patents awarded at ASU

P1. **Mohammad Reza Hosseinzadeh Taher, Fatemeh Haghghi**, and Jianming Liang. *Systems, methods, and apparatuses for implementing a self-supervised learning framework for empowering instance discrimination in medical imaging using context-aware instance discrimination (CAiD).* (Granted on December 23, 2025; US Patent 12,505,593)

P2. **Fatemeh Haghghi, Mohammad Reza Hosseinzadeh Taher, Zongwei Zhou**, and Jianming Liang. *Systems, methods, and apparatuses for implementing transferable visual words by exploiting the semantics of anatomical patterns for self-supervised learning.* (Granted on November 11, 2025; US Patent 12,469,315,)

P3. **Ruixin Feng, Zongwei Zhou**, and Jianming Liang. *Systems, methods, and apparatuses for implementing contrastive learning via reconstruction within a self-supervised learning framework.* (Granted on September 30, 2025; US Patent 12,430,767)

P4. **Fatemeh Haghghi, Mohammad Reza Hosseinzadeh Taher**, and Jianming Liang. *Systems, methods, and apparatuses for implementing discriminative, restorative, and adversarial (DiRA) learning for self-supervised medical image analysis.* (Granted on August 12, 2025; US Patent 12,387,324)

P5. **DongAo Ma, Jiaxuan Pang, Nahid Ul Islam, Mohammad Reza Hosseinzadeh Taher, Fatemeh Haghghi**, and Jianming Liang. *Systems, methods, and apparatuses for implementing self-supervised domain-adaptive pre-training via a transformer for use with medical image classification.* (Granted on August 19, 2025; US Patent 12,394,186)

P6. **Zongwei Zhou**, and Jianming Liang. *Systems, methods, and apparatuses for implementing advancements towards annotation efficient deep learning in computer-aided diagnosis.* (Granted on June 24, 2025.; US Patent 12,340,907)

P7. **Shivam Bajpai**, and Jianming Liang. *Systems, methods, and apparatuses for generating pre-trained models for nnU-net through the use of improved transfer learning techniques..* (Granted on June 3, 2025; US Patent 12,322,098)

P8. **Fatemeh Haghghi, Mohammad Reza Hosseinzadeh Taher, Zongwei Zhou**, and Jianming Liang. *Systems, methods, and apparatuses for the use of transferable visual words for AI models through self-supervised learning in the absence of manual labeling for the processing of medical imaging.* (Granted on April 15, 2025; US Patent 12,277,687)

P9. **Zongwei Zhou, Vatsal Sodha, Md Mahfuzur Rahman Siddiquee, Ruixin Feng, Nima Tajbakhsh**, and Jianming Liang. *Systems, methods, and apparatuses for the generation of source models for transfer learning to application specific models used in the processing of medical imaging.* (Granted on March 25, 2025; US Patent 12,260,622)

P10. **Nahid Ul Islam, Shiv Gehlot, Zongwei Zhou**, and Jianming Liang. *Systems, methods, and apparatuses for systematically determining an optimal approach for the computer-aided diagnosis of a pulmonary embolism.* (Granted on February 25, 2025; US Patent 12,236,592)

P11. Jianming Liang, **Zongwei Zhou, Nima Tajbakhsh, and Md Mahfuzur Rahman Siddiquee**. *Systems, methods, and apparatuses for implementing fixed-point image-to-image translation using improved generative adversarial networks (GANs).* (Granted on February 18, 2025; US Patent 12,229,920)

P12. **Zongwei Zhou, Jae Shin**, and Jianming Liang. *Systems, methods, and apparatuses for actively and continually fine-tuning convolutional neural networks to reduce annotation requirement.* (Granted on February 4, 2025; US Patent 12,216,737)

P13. Jianming Liang, **Zongwei Zhou**, and **Jaeyul Shin**. *Systems, Methods, and/or Media, for Selecting Candidates for Annotation for Use In Training a Classifier*. (Granted on October 15, 2024; US Patent 12,118,455)

P14. **Diksha Goyal** and Jianming Liang. *Systems, Methods, and Apparatuses for Implementing Medical Image Segmentation Using Interactive Refinement*. (Granted on September 17, 2024; US Patent 12,094,190)

P15. **Zongwei Zhou**, **Vatsal Sodha**, **Jiaxuan Pang**, and Jianming Liang. *Systems, Methods, and Apparatuses for the Generation of Self-Taught Models Genesis Absent Manual Labeling for the Processing of Medical Imaging*. (Granted on March 5, 2024; US Patent 11,922,628)

P16. **R. Feng**, **Z. Zhou**, and J. Liang. *Systems, Methods, and Apparatuses for Training a Deep Model to Learn Contrastive Representations Embedded within Part-whole Semantics via a Self-supervised Learning Framework*. (Granted on February 27, 2024; US Patent 11,915,417)

P17. **M. R. Hosseinzadeh Taher**, **F. Haghghi**, **Z. Zhou**, and Jianming Liang. *Systems, Methods, and Apparatuses for Learning Semantics-Enriched Representations via Self-Discovery, Self-Classification, and Self-Restoration in the Context of Medical Imaging*. (Granted on September 11, 2023; US Patent 11,763,952)

P18. **M. R. Hosseinzadeh Taher**, **F. Haghghi**, and Jianming Liang. *Systems, methods, and apparatuses for implementing a self-supervised chest x-ray image analysis machine-learning model utilizing transferable visual words*. (Granted on September 6, 2022; US Patent 11,436,725)

P19. **Zongwei Zhou**, **M. M. Rahman Siddiquee**, **Nima Tajbakhsh**, and Jianming Liang. *Methods, systems, and media for segmenting images* (Granted on May 10, 2022; US Patent 11,328,430)

P20. Jianming Liang, **Zongwei Zhou**, **Md Mahfuzur Rahman Siddiquee**, and **Nima Tajbakhsh**. *Systems, methods, and apparatuses for implementing a multi-resolution neural network for use with imaging intensive applications including medical imaging*. (Granted on November 2, 2021; 2021; US Patent 11,164,067)

P21. **Md Mahfuzur Rahman Siddiquee**, **Zongwei Zhou**, **Ruixin Feng**, **Nima Tajbakhsh**, and Jianming Liang. Methods, systems, and media for discriminating and generating translated images. November 2, 2021; US Patent 11,164,021

P22. Jianming Liang, **Nima Tajbakhsh**, and **Jaeyul Shin**. *Method and apparatus for detection and visualization of pulmonary embolism*. (Granted on August 24, 2021; US Patent 11,100,685)

P23. Jianming Liang, **Zongwei Zhou**, and **Jaeyul Shin**. *Methods, Systems, and Media for Selecting Candidates for Annotation for Use in Training Classifiers*. (Granted on March 23, 2021; US Patent 10,956,785)

P24. Jianming Liang and **Nima Tajbakhsh**. *Systems and methods for simultaneously monitoring video quality and detecting polyps in colonoscopy*. (Granted on December 8, 2020; US Patent 10,861,151)

P25. Jianming Liang, **Xiangjun Zhu**, Christopher B. Kendall, and Robert T. Hurst. *Methods, systems, and media for determining intima-media thickness*. (Granted on April 7, 2020; US Patent 10,610,203)

P26. **Yu An**, Jianming Liang, Wei Liu. *System and method for novel chance-constrained optimization in intensity-modulated proton therapy planning to account for range and patient setup uncertainties*. (Granted on June 25, 2019; US Patent 10,328,282)

P27. **Esra Dincer**, Michael Gotway, and Jianming Liang. *System and method for detecting central pulmonary embolism in CT pulmonary angiography images*. (Granted on December 18, 2018; US Patent 10,157,467)

P28. Jianming Liang. *Diagnosing pulmonary embolism by integrating patient-level diagnosis and embolus-level detection* (Granted on November 6, 2018; US Patent 10,120,980)

P29. **Nima Tajbakhsh**, Suryakanth Gurudu, and Jianming Liang. *System and methods for automatic polyp detection using convolutional neural networks* (Granted on August 21, 2018; US Patent 10,055,843)

P30. **Nima Tajbakhsh**, Suryakanth Gurudu, and Jianming Liang. *System and method for automatic polyp detection using global geometric constraints and local intensity variation patterns* (Granted on August 21, 2018; US Patent 10,052,027)

P31. **Chang-Ching Chi, Nima Tajbakhsh, Haripriya Sharma**, Suryakanth Gurudu, and Jianming Liang. *System and method for quality assessment of optical colonoscopy images* (Granted on May 22, 2018; US Patent 9,978,142)

P32. Jianming Liang and **Nima Tajbakhsh**. *System and method for automatic pulmonary embolism detection* (Granted on May 1, 2018; US Patent 9,959,615)

P33. **Jaeyul Shin, Nima Tajbakhsh**, and Jianming Liang. *Method and apparatus for video interpretation of carotid intima-media thickness* (Granted on March 27, 2018; US Patent 9,924,927)

P34. **Nima Tajbakhsh**, Suryakanth Gurudu, and Jianming Liang. *System and method for detecting polyps from learned boundaries.* (Granted on August 29, 2017; US Patent 9,747,687)

P35. Jianming Liang, **Nima Tajbakhsh**, and Suryakanth Gurudu. *System and method for boundary classification and automatic polyp detection.* (Granted on August 22, 2017; US Patent 9,741,116)

P36. **Nima Tajbakhsh**, Suryakanth Gurudu, and Jianming Liang. *System and method for automatic polyp detection using global geometric constraints and local intensity variation patterns* (Granted on July 11, 2017; US Patent 9,700,213)

P37. **Hong Wu, Kun Deng**, and Jianming Liang. *Systems methods, and media for detecting an anatomical object in a medical device image using a multi-stage classifier.* (Granted on June 20, 2017; US Patent 9,684,957)

P38. Jianming Liang, **Nima Tajbakhsh, Wenzhe Xue, Hong Wu**, Eileen M. McMahon, and Marek Belohlaek. *Systems, methods, and media for monitoring the condition of a patient's heart.* (Granted on March 28, 2017; US Patent 9,603,554)

P39. Jianming Liang. *Methods, systems, and media for generating and analyzing medical images having elongated structures.* (Granted on September 20, 2016; US Patent 9,449,381)

P40. **Nima Tajbakhsh, Hong Wu, Wenzhe Xue**, and Jianming Liang. *Systems, methods, and media for online boosting a classifier.* (Granted on May, 2016; US Patent 9,330,336)

P41. Jianming Liang, **Hong Wu, Wenzhe Xue**, and **Nima Tajbakhsh**. *Systems, methods, and media for updating a classifier.* (Granted on October 6, 2015; US Patent 9,152,926)

P42. Jianming Liang and Jinbo Bi. *Computer aided detection of pulmonary embolism with local characteristic features in CT angiography* (Granted on August 14, 2012; US Patent 8,244,012)

P43. **Bernard S. Ghanem**, Jianming Liang, and Jinbo Bi. *Reduction of lymph tissue false positives in pulmonary embolism detection.* (Granted on February 28, 2012; US Patent 8,126,229)

P44. Jianming Liang and Jinbo Bi. *Computer aided detection of pulmonary embolism with tobogganing in CT angiography.* (Granted on October 11, 2011; US Patent 8,036,440)

P45. Jinbo Bi and Jianming Liang. *Automated pulmonary embolism detection with geodesic distance along vessel tree structure.* (Granted on October 26, 2010; US Patent 7,822,252)

P46. Jianming Liang, **Zhiyun Xue**, Matthias Wolf, and Marcos Salganicoff. *Method and apparatus for reducing false positives for automatic computerized detection of objects.* (Granted on April 17, 2012; US Patent 8,160,336)

P47. Luca Bogoni, Jianming Liang, and Pascal Cathier. *System and method for toboggan-based object detection in cutting planes.* (Granted on March 22, 2011; US Patent 7,912,294)

P48. Jianming Liang and Luca Bogoni. *System and method for toboggan-based object segmentation using distance transform.* (Granted on October 29, 2009; US Patent 7,609,887).

P49. Jianming Liang and Luca Bogoni. *System and method for dynamic fast tobogganing.* (Granted on July 21, 2009; US Patent 7,565,009).

P50. Luca Bogoni, Jianming Liang, and Senthil Periaswamy. *A system and method for toboggan based object segmentation using divergent gradient field response in images.* (Granted on April 28, 2009; US Patent 7,526,115).

P51. Jianming Liang and Luca Bogoni. *Toboggan-based shape characterization.* (Granted on January 28, 2009; US Patent 7,480,412).

### Patents awarded prior to ASU

P52. Jianming Liang, Luca Bogoni, and Alok Gupta. *System and method for the detection of shapes in images.* (US Patent Application: 10/858,270, filed on June 1, 2004; Provisional: 2003E09384 US, filed on June 27, 2003; Granted on June 24, 2008; US Patent 7,391,893).

### Patents pending developed prior to ASU

I72. Jianming Liang and Jinbo Bi, *Computer aided detection of pulmonary embolism in CT pulmonary angiography* (US Provisional Patent Application: 2008P20999 US, filed on October 27, 2008)

I73. **Hassan Rivaz**, Yoshihisa Shinagawa, and Jianming Liang, *Electronic colon cleansing of the unprepared colon (continuing patent application)* (US Provisional Patent Application: 2008P19416 US, filed on October 3, 2008)

I74. Le Lu, Jianming Liang, and Matthias Wolf, *Semantic colon segmentation and reduction of extra-colonic false polyp findings* (US Provisional Patent Application: 2008P19164 US, Filed on September 30, 2008).

I75. **Hassan Rivaz**, Yoshihisa Shinagawa, and Jianming Liang, *Electronic colon cleansing of the unprepared colon* (US Provisional Patent Application: 2008P18040 US , filed on September 16, 2008)

I76. **Hassan Rivaz** and Jianming Liang. *Meniscus removal in electronic colon cleansing for CT colonoscopy* (US Provisional Patent Application: 2008P15073 US, filed on August 08, 2008)

I77. **Bernard S. Ghanem** and Jianming Liang. *A new tensor voting scheme.* (US Provisional Patent Application: 2007E18455 US, filed on August 24, 2007)

I78. **Xiaotao Zou**, Jianming Liang, Matthias Wolf, and Marcos Salganicoff. *Anatomy-based automatic detection and segmentation of major vessels in thoracic CTA images.* (US Provisional Patent Application: 2007E00490 US, filed on January 10, 2007)

I79. Jianming Liang, Matthias Wolf, and Marcos Salganicoff. *Toboggan-based method for automatic detection and segmentation of objects in image data.* (US Patent Application: 11/247609, filed on October 11, 2005; combined provisional 2004P17430 US and 2004P17416 US, filed on October 12, 2004)

I80. Jianming Liang, Sriram Krishnan, and R. Bharat Rao. *Medical diagnostic ultrasound characterization of cardiac motion.* (US Patent Application: 11/184,598, filed on July 19, 2005; Provisional: 2004P16919 US, filed on October 4, 2004)

I81. Jianming Liang and Luca Bogoni. *System and method for object characterization of toboggan-based clusters.* (US Patent Application: 11/174,028, filed on July 1, 2005; Provisional: 2004P12261 US, filed on July 20, 2004).

### PUBLICLY RELEASED SOFTWARE

1. Training foundation models by accruing and reusing knowledge from heterogeneous expert annotations (<https://github.com/JLiangLab/Ark>), 2023 (v1), 2025 (v2)
2. Integrating classification, localization, and segmentation through lock-release pretraining strategy ([https://github.com/JLiangLab/Foundation\\_X](https://github.com/JLiangLab/Foundation_X)), 2025
3. Learning anatomically consistent embeddings in composition and decomposition (<https://github.com/JLiangLab/ACE>), 2025

4. Learning anatomy-disease entangled representation  
(<https://github.com/JLiangLab/LeADER>, 2025)
5. Learning foundation models from anatomy in medical imaging via self-supervision  
(<https://github.com/JLiangLab/Eden>), 2023 (v1), 2025 (v2)
6. Large-scale Benchmarking and Boosting Transfer Learning for Medical Image Analysis  
(<https://github.com/JLiangLab/BenchmarkTransferLearning>), 2023 (v1), 2024 (v2)
7. Learning anatomically consistent embedding for chest radiography  
(<https://github.com/JLiangLab/PEAC>), 2023
8. Achieving discriminative, restorative, and adversarial learning via stepwise incremental pretraining  
(<https://github.com/JLiangLab/StepwisePretraining>), 2022 (v1) and 2023 (v2)
9. Benchmarking and boosting transformers for medical image classification  
(<https://github.com/JLiangLab/BenchmarkTransformers>), 2022
10. Restoring patch order and appearance for self-supervised medical image analysis  
(<https://github.com/JLiangLab/POPAR>), 2022 (v1), 2025 (v2)
11. Developing context-aware instance discrimination for self-supervised framework  
(<https://github.com/JLiangLab/CAiD>), 2022
12. Uniting discriminative, restorative, and adversarial learning for self-supervised medical image analysis  
(<https://github.com/JLiangLab/DiRA>), 2022 (v1) and 2023 (v2)
13. Evaluating and optimizing deep learning methods for computer-aided diagnosis of pulmonary embolism  
([https://github.com/jlianglab/CAD\\_PE](https://github.com/jlianglab/CAD_PE)), 2021 (v1) and 2023 (v2)
14. Exploiting the semantics of anatomical patterns for self-supervised learning  
(<https://github.com/JLiangLab/TransVW>), 2021  
(<https://github.com/JLiangLab/SemanticGenesis>), 2020
15. Building a primary source of transfer learning for 3D medical imaging applications  
(<https://github.com/JLiangLab/ModelsGenesis>), 2019 (v1) and 2020 (v2)
16. Learning fixed points in generative adversarial networks  
(<https://github.com/JLiangLab/Fixed-Point-GAN>), 2019
17. Advancing deep architectures for medical image segmentation  
(<https://github.com/JLiangLab/UNetplusplus>), 2018 (v1) and 2019 (v2)

## ADVISING/MENTORING

### **Primary Mentor**

#### **Faculty Associate**

1. Jae Yul Shin, BMI Faculty Associate, since 2025  
Topic: *Deep Learning, Image Analysis, and Imaging Informatics*

#### **Visiting Professor**

2. Rui Wang, January 2025 – February 2025  
Topic: *Medical image analysis*

#### **Adjunct Assistant Professor**

3. Ruibin Feng, since 2021  
Topic: *Self-supervised learning for medical imaging*
4. Nima Tajbakhsh, 2019 – 2021

Topic: *Deep learning for biomedical image analysis*

### Visiting Assistant Professor

5. Qiufeng Wu, 2016 – 2017

Topic: *Deep learning for biomedical image analysis*

### Postdoctoral Fellows

6. Ruibin Feng, 2018–2021 (**completed** in May, 2021)

7. Lei Zhang, 2016 – 2017 (**completed** in October, 2017)

8. Kun Deng, 2009 – 2010 (**completed** in August, 2010)

### Visiting Scholar

9. Yasar Mehmood, Visiting PhD student of Biomedical Informatics, since October, 2025

Project: *Deep learning in medical imaging*

### PhD Students (Committee Chair)

10. Mrunmay Sahasrabudhe, PhD student of Computer Engineering, since August 2025

11. DongAo Ma, PhD student of Computer Science, since August 2020

12. Nahid Islam, PhD student of Computer Science, since July 2020

13. Jiaxuan Pang, PhD student of Computer Science, since August 2019

14. Mohammad Reza Hosseinzadeh Taher, PhD student of Computer Science, since August 2018

15. Fatemeh Haghghi, PhD student of Computer Science, since August 2018

16. Zongwei Zhou, PhD student of Biomedical Informatics, 2017–2021 (**graduated** in April 2021)

Dissertation: *Towards Annotation-Efficient Deep Learning in Medical Image Analysis*

17. Nima Tajbakhsh, PhD student of Biomedical Informatics, 2010 – 2015 (**graduated** in April 2015)

Dissertation: *Ensuring high-quality colonoscopy*

18. Gazi Islam, PhD student of Biomedical Informatics, 2009 – 2013 (**graduated** in May, 2013)

Dissertation: *Informatics approach to improving surgical skills training*

(Funded by Drs. Baoxi Li and Kanav Kahol)

### Visiting Students

19. Ziyu Zhou, Visiting PhD student of Biomedical Informatics, since May 15, 2023

Project: *Deep learning in medical imaging*

20. Jiarui Liang, Visiting Master's student of Biomedical Informatics, since November 21, 2022

Project: *Deep learning in medical imaging*

21. Yasar Mehmood, Visiting PhD student of Biomedical Informatics, July 25, 2022 – June 24, 2023

Project: *Deep learning in medical imaging*

22. Haozhe Luo, Visiting Master's student of Biomedical Informatics, April 25, 2022 – November 10, 2023

Project: *Deep learning in medical imaging*

23. Donggang Jia, Visiting Master's student of Computer Science, January 2021 – January 2022

Project: *Deep learning in medical imaging*

24. Shiv Kumar Gehlot, Visiting PhD student of Computer Science, since January 2021 – January 2022

Project: *Computer-aided diagnosis of pulmonary embolism*

25. Esra Dincer, Visiting PhD student of Computer Science, 2014 – 2015 (**graduated** in May, 2016)

Project: *Computer-aided diagnosis of pulmonary embolism*

26. Anis Drira, Visiting PhD student of Computer Science, 2013 (**graduated** in December 2015)

Thesis: *Characterization of optimal cyber attacks on control systems*

Topic: *Control systems*

#### **Master's Students (Thesis Committee Chair)**

27. Justin Lin, Master's Student of Computer Science, since January 2025

28. Nathaniel Alberti, Master's Student of Robotics and Autonomous Systems, since March 2024

29. Rishit Ratna, Master's Student of Computer Science, December 2023 – August 2024

30. Himansh Mudigonda, Master's Student of Computer Science, December 2023 – August 2024

31. Shikhhar Siingh, Master's Student of Computer Science, December 2023 – August 2024

32. Anirudh Iyengar Kaniyar Narayana Iyengar, Master's Student of Robotics and Autonomous Systems, May 2023 – August 2024

33. Tianchen Mu, Master's Student of Computer Science (Biomedical Informatics), January 2023 – July 2023 (co-chair with Professor Efrem Lim at Biodesign)

34. Madhumitha Saravanan, Master's Student of Computer Science, December 2022 – December 2024 (**graduated** in December 2024)

35. Shivasakthi Senthil Velan, Master's Student of Computer Science, December 2022 – December 2024 (**graduated** in December 2024)

36. Ziyi Fan, Master's Student of Biomedical Informatics, December 2022 – May 2023 (**graduated** in December 2022)

Thesis: *A Generic Unified Deep Model for Learning from Multiple Tasks*

37. Guru Prasad Kempegowdanahalli Somashekhar, Master's Student of Computer Science, December 2021 – May 2022

38. Shivam Bajpai, Master's Student of Computer Science, 2019–2021 (**graduated** in April 2021)

Thesis: *Pre-trained Models for nnU-Nets*

39. Diksha Goyal, Master's student of Computer Science, 2018 – 2021 (**graduated** in April 2021)

Thesis: *Medical Image Segmentation using Interactive Refinement*

40. Vatsal Sodha, Master's student of Computer Science, August, 2018 – July, 2020 (**graduated** in July 2020)

Thesis: *Self-supervised Representation Learning via Image Out-painting for Medical Image Analysis*

41. Douglas Amoo-Sargon, Master's student of Biomedical Engineering, 2018 – 2019 (**graduated** in May 2019)

Project: *Computer-aided diagnosis of pulmonary embolism*

42. Naveen Sai Madiraju, Master's student of Computer Engineering, 2016 – 2018 (**graduated** in August 2018)

Thesis: *Deep Temporal Clustering: Fully Unsupervised Learning of Time-Domain Features*

43. Jie Shan, Master's student of Biomedical Informatics, 2016 – 2018 (**graduated** in May 2018)

Thesis: *Robust intensity-modulated proton therapy for lung cancer*

44. Rujuta Panvalkar, Master's student of Computer Science, 2016 – 2017 (**graduated** in May 2017)

Topic: *Deep learning in medical image analysis*

45. Zijie Yuan, Master's student of Biomedical Engineering, 2015 – 2016 (**graduated** in December 2016)

Topic: *Biomedical image analysis*

46. Jaeyul Shin, Master's student of Computer Science, 2014 – 2016 (**graduated** in May 2016)

Thesis: *A Unified Framework based on Convolutional Neural Networks for Interpreting Carotid Intima-*

### *Media Thickness Videos*

47. Chang-Ching Chi, Master's student of Electrical Engineering, 2013 – 2014 (**graduated** in January 2014)  
Project: *Informativeness assessment of colonoscopy videos*
48. Noelle Snyder, Master's student of Biomedical Informatics, 2013 – 2015 (**graduated** in May 2015))  
Thesis: *Measuring longitudinal change of MRI and FDG-PET imaging markers in Alzheimer's disease*
49. Haripriya Sharma, Master's student of Electrical Engineering, 2012 – 2014 (**graduated** in May 2014)  
Project: *Automatic frame selection for interpreting carotid intima-media thickness videos*
50. Ramsri Golla, Master's student of Electrical Engineering, 2012-2013 (**graduated** in May 2013)  
Project: *Automatic localization of regions of interest for interpreting CIMT videos*
51. Yu Zhang, Master's student of Computer Science, 2012 – 2013 (**graduated** in May 2013)  
Project: *Implementing carotid intima-media thickness interpretation software in Java*
52. Abhinav Bhargava, Master's student of Biomedical Informatics, 2011 – 2013 (**graduated** in August 2013)  
Thesis: *Seizures localization using 3-D object detection algorithm*
53. Xiangjun Zhu, Master's student of Computer Science, 2009 – 2011 (**graduated** in May 2011)  
Project: *Carotid intima-media thickness image analysis*
54. Hong Wu, Master's student of Computer Science, 2009 – 2011 (**graduated** in August, 2011)  
Thesis: *Offline and online adaboost for detecting anatomic structures*

### **Research Staff**

55. Jae Yul Shin, Research Software Engineer, 2016–2025  
Topic: *Deep learning for biomedical image analysis*
56. Zachary Winzurk, Research Volunteer, June 2020 – June 2021  
Topic: *Animal fine-grain recognition*
57. Douglas Amoo-Sargon, Research Technologist, May 2019 – December 2019  
Topic: *Deep learning for biomedical imaging*
58. Zijie Yuan, Research Technologist, 2017 – 2018  
Topic: *Deep learning for biomedical image analysis*
59. Zongwei Zhou, Research Technologist, 2016 – 2017  
Topic: *Computer-aided diagnosis*
60. Young K. Chung, Research Software Engineer, 2016  
Topic: *Computer-aided diagnosis*

### **PhD Students (Research Project Adviser)**

61. Anthony Yanan, PhD student of Biomedical Informatics,, August 2023 – January 2025
62. Kamyab Keshtkar, PhD student of Biomedical Informatics, August 2022 – February 2024  
Topic: *Deep learning for biomedical imaging*
63. Zuwei Guo, PhD student of Computer Engineering, August 2018 – January 2024
64. Utkarsh Nath, PhD student of Computer Science, October 2021 – April, 2022  
Topic: *Deep learning for biomedical imaging*
65. Pengfei Zhang, PhD student of Computer Science, August 2019 – June 2021
66. Tariq M. Nasim, PhD student of Computer Science, July 2020 – December, 2020  
Topic: *Deep learning for biomedical imaging*
67. Md Mahfuzur Rahman Siddiquee, PhD student of Computer Science, August 2017 – October 2020

68. Michael Lin, PhD student of Mathematics, 2017  
Topic: *Deep learning for biomedical imaging*
69. Shailaja Keyur Sampat, PhD student of Computer Science, 2017  
Topic: *Machine learning for biomedical imaging*
70. Mohamed Izady, PhD student of Neuroscience, 2015  
Topic: *Endomicroscopy video analysis*
71. Wenzhe Xue, PhD student of Biomedical Informatics, 2010 – 2014  
Topic: *Biomedical image segmentation*

**Master's Students (Research Project Adviser)**

72. Manas Chetan Valia, Master's student of Computer Science, January 2022 – July, 2022  
Topic: *Computer-aided diagnosis in biomedical imaging*
73. Daniel Mathew, Master's student of Computer Science, January 2020 – August, 2020  
Topic: *Computer vision and biomedical imaging*
74. Gaurav Fotedar, Master's student of Computer Engineering, January 2019 – August 2019  
Topic: *Deep learning for biomedical imaging*
75. Ehsan Khosravani, Master's student of Biomedical Informatics, 2018  
Topic: *Deep learning for biomedical imaging*
76. Zheng Xia, Master's student of Computer Science, 2017  
Topic: *Biomedical image analysis*
77. Verah Nyarige, Master's student of Biomedical Informatics, 2016 – 2017  
Topic: *Imaging informatics*
78. Sriravali Kamthamraju, Master's student of Biomedical Engineering, 2016 – 2017  
Topic: *Biomedical image analysis*
79. Yunyi Liu, Master's student of Computer Science, 2016 – 2017  
Topic: *Biomedical image analysis*
80. Andrew Solomon, Master's student of Biomedical Informatics, 2016 – 2017  
Topic: *Computer-aided diagnosis*

81. Anirudh Som, Master's student of Electrical Engineering, 2014 – 2015  
Topic: *Video quality of colonoscopy*

82. Tracy Phan, Master's student of Computer Science, since 2014 – 2015  
Topic: *Ground truth for colonoscopy*

83. Sreenivas Shenoy, Master's student of Computer Science, 2014 – 2015  
Topic: *Ground truth for colonoscopy*

**Master's Capstone Project Students**

84. Nicholas Peters, Undergraduate student of Biomedical Engineering, October 2021 – May 2022  
Topic: *Biomedical imaging*
85. Jeremiah Levitt, Undergraduate student of Biomedical Engineering, October 2021 – May 2022  
Topic: *Biomedical imaging*
86. Brian-Kalani Headen, Undergraduate student of Biomedical Engineering, October 2021 – May 2022  
Topic: *Biomedical imaging*
87. Richard Yan, Undergraduate student of Biomedical Engineering, October 2021 – May 2022  
Topic: *Biomedical imaging*

88. Cristian Lee, Undergraduate student of Biomedical Engineering, October 2021 – May 2022  
Topic: *Biomedical imaging*

89. Ryan Pan, Undergraduate student of Biomedical Informatics, January 2021 – August 2021  
Topic: *Imaging Informatics*

### **Barrett Honors Thesis**

90. Yixiang Kong, Barrett Honors Student, since 2025  
Topic: Deep learning for medical imaging

### **Undergraduate Research Students**

91. Daniella Asare, Undergraduate student of Biomedical Engineering, October 2020 – December 2021  
Topic: *Biomedical imaging*

92. Zachary Winzurk, Bachelor student of Biomedical Informatics, September 2019 – May 2020 (**graduated** in May, 2020)  
Topic: *Animal fine-grain recognition*

93. Momen Abdelkarim, Undergraduate student of Computer Science, August 2017 – May 2019  
Topic: *Undergraduate research: Image analytics and informatics*

94. Aakriti Gupta, Undergraduate student of Computer Science, 2015 – 2016  
Topic: *Colonoscopy quality assessment*

95. Fabio Rezende de Souza, Visiting undergraduate student of Computer Science, 2014–2015  
Topic: *Ground truth for colonoscopy*

96. Kamran K Bodushev, Undergraduate student of Chemistry and Biochemistry, 2014 – 2015  
Topic: *Undergraduate research: Image analytics and informatics*

97. Shima Shiehzadegan, Undergraduate student of Biological Science, 2013 – 2014  
Topic: *Undergraduate research: Image analytics and informatics*

98. Ireen Khan, Undergraduate student of Electrical Engineering, 2013 – 2015  
Topic: *Undergraduate research: Image analytics and informatics*

99. Saiswathi Javangula, Undergraduate student of Biomedical Engineering, 2013 – 2015  
Topic: *Undergraduate research: Image analytics and informatics*

100. Sarah Fallah-Adl, Undergraduate student of Computer Science, 2013 – 2015  
Topic: *Undergraduate research: Image analytics and informatics*

101. Sophia Kim, Undergraduate student of Bioengineering, 2011 – 2013  
Topic: *Undergraduate research: Image analytics and informatics*

102. Sichun Ai, Undergraduate student of Computer Science, 2012  
Topic: *Undergraduate research: Image analytics and informatics*

103. Courtney Janowski, Undergraduate student of Biological Sciences, 2011  
Topic: *Undergraduate research: Image analytics and informatics*

### **Barrett College Fellows**

104. Elizabeth Pardhe, Barrett College Fellows 2025

105. Madhumitha Thumati, Barrett College Fellows 2025

106. Rohan Kshatriya, Barrett College Fellows 2025

107. Yixiang Kong, Barrett College Fellows 2025

108. Andrew Yang, Barrett College Fellows 2025

109. Fernando Olazabal Machaca, Barrett College Fellows 2025
110. Aaditya Jindal, Barrett College Fellows 2025
111. Varun Indukuri, Barrett College Fellows 2025
112. Heet Dalsania, Barrett College Fellows 2025
113. Timothy Ho, Barrett College Fellows 2025
114. Jacob Amstutz, Barrett College Fellows 2025
115. Arnav Lohiya, Barrett College Fellows 2025
116. Shradul Singh, Barrett College Fellows 2025
117. Edie Gobel, Barrett College Fellows 2024
118. Kenisha Kaushal, Barrett College Fellows 2024
119. Iris Lai, Barrett College Fellows 2024
120. Ruby Ledezma Perez, Barrett College Fellows 2024
121. Aryan Patel, Barrett College Fellows 2024
122. Tavishi Sharma, Barrett College Fellows 2024
123. Sourish Tiwari, Barrett College Fellows 2024
124. Prathyush Vasa, Barrett College Fellows 2024
125. Braylon Wood, Barrett College Fellows 2024
126. Emilie Gunti, Barrett College Fellows 2024
127. Aryan Keluskar, Barrett College Fellows 2024
128. Sanchi Patel, Barrett College Fellows 2024
129. Phan Emily, Barrett College Fellows 2024
130. Ziyue Qiu, Barrett College Fellows 2024
131. Nicole Roa, Barrett College Fellows 2024
132. Srinivas Gowda Manas, Barrett College Fellows 2024

**Students Under the ASU SCience and ENgineering Experience (SCENE)**

133. Elias Chang, SCENE student, September 2025 – May 2026  
Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*
134. Heet Dalsania, SCENE student, October 2024 – May 2025  
Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*
135. Sargun Bhatia, SCENE student, October 2024 – May 2025  
Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*
136. Shivang Parmar, SCENE student, October 2024 – May 2025  
Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*
137. Edward Gobel, SCENE student, October 2024 – May 2025  
Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*
138. Iraj Shroff, SCENE student, October 2024 – May 2025  
Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*
139. Kabir Singh, SCENE student, October 2024 – May 2025

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

140. Ananya Lakkaraju, SCENE student, October 2024 – May 2025

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

141. Elias Chang, SCENE student, September 2024 – May 2025

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

142. Ayan Bhatia, SCENE student, September 2023 – May 2024

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

143. Roberto Ruiz Felix, SCENE student, September 2023 – May 2024

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

144. Edie Gobel, SCENE student, September 2023 – May 2024

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

145. Shrey Parekh, SCENE student, September 2023 – May 2024

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

146. Andrew Yang, SCENE student, September 2023 – May 2024

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

147. Max Robison, SCENE student, January 2023 – May 2023

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

148. Nicholas Hadi, SCENE student, November 2022 – May 2023

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

149. Taariq Raushan Haroon Rasheed, SCENE student since November 2022 – May 2023

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

150. Michelle Hein, SCENE student, November 2022 – May 2023

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

151. Niyathi Kolli, SCENE student, November 2022 – May 2023

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

152. Victoria Rosas, SCENE student, November 2022 – May 2023

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

153. Mahita Vootukuru, SCENE student, November 2022 – May 2023

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

154. Jaden Wu, SCENE student, November 2022 – May 2023

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

155. Andrew Yang, SCENE student, November 2022 – May 2023

Topic: *Biomedical imaging, deep learning, and computer-aided diagnosis*

### **Students Mentored as Interns in the Siemens CAD Group**

156. Linda Shi (The University of Iowa, 2004)

157. Zhiyun Xue (National Library of Medicine, NIH, 2005)

158. Sven Friedl (The University of Erlangen-Nuremberg, Germany, 2005)

159. Xiaotao Zou (University of California, Riverside, 2006)

160. Indriyati Atmosukarto (University of Washington, 2006)

161. Bernard Ghanem (University of Illinois at Urbana-Champaign, 2007)

162. Emil Madi (Villanova University, 2007)

163. Saketh Bhamidipati (Harvard University, 2007)
164. Hassan Rivaz (Johns Hopkins University, 2008)

## Committee member

1. Ramon Correa, PhD student of Data Science, Analytics, and Engineering, since April, 2025  
Thesis: *Developing fair vision models for medical imaging applications*
2. Matthew Trinh, Master's student of Computer Science, February, 2022 – May, 2022 (**graduated**, May, 2022)  
Thesis: *A Continuous Learning Approach to Alzheimer's Disease Progression Modeling and Domain Adaptation among Imaging Cohorts*
3. Tsz Chan, Master's student of Computer Science, April, 2021 – April 2023 (**graduated**, May, 2023)  
Topic: *KRAS Gene Classification*
4. Karolena Lein, Master's student of Biomedical Engineering, March, 2021 – December 2021  
Topic: *Microparticle Simulation*
5. Jianfeng Wu, PhD student of Computer Science, April, 2020 – July 2022 (**graduated**, July, 2022)  
Topic: *Brain Imaging Genomics*
6. Omkar Muglikar, Master's student of Computer Science, February, 2020 – December, 2021 (**graduated**, December, 2021)  
Thesis: *Application of Deep Learning Techniques for EEG Signal Classification*
7. Riley Tallman, Master's student of Computer Science, February, 2020 – December, 2020 (**graduated**, December, 2020)  
Thesis: *irRotate - Automatic Screen Rotation Based on Face Orientation using Infrared*
8. Anshul Rai, Master's student of Computer Science, January, 2019– July, 2019 (**graduated**, July, 2019)  
Thesis: *Monocular Depth Estimation with Edge-Based Constraints and Active Learning*
9. Jie Zhang, PhD student of Computer Science, January, 2019 – March, 2020 (**graduated**, May, 2020)  
Dissertation: *Towards Building a General Artificial Intelligence for Data Scarcity* Topic: *Shape analysis, medical imaging, and deep learning*
10. Anant Srivastava, Master's student of Software Engineering, 2016 – 2017 (**graduated**, May, 2017)  
Thesis: *3D-patch analysis based sparse coding system for Alzheimer's clinical group classification*  
Topic: *Image analysis and machine learning*
11. Shibani Singh, Master's student of Computer Science, 2016 – 2017 (**graduated**, May, 2017)  
Thesis: *Deep Learning based Classification of Brain Morphometry Data of Premature Newborns*  
Topic: *Image analysis and machine learning*
12. Saiswathi Javangula, Undergraduate student of Biomedical Engineering, 2015 – 2017 (**graduated**, May, 2017)  
Thesis: *Multiplexed single cell *in situ* RNA data analysis*  
Topic: *Imaging informatics and bioinformatics*
13. Aakriti Gupta, Undergraduate student of Computer Science, 2015 – 2016 (**graduated**, Dec, 2016)  
Thesis: *Applying fluorescence microscopy for highly multiplexed single cell *in situ* protein analysis*  
Topic: *Imaging informatics and bioinformatics*
14. Sheng-Hung Hu, Master's student of Computer Science, 2014 – 2016 (**graduated** in December, 2016)  
Thesis: *Video2Vec: Learning semantic spatio-temporal embedding for video representations*  
Topic: *Video analysis*
15. Jaya Gattupalli, Master's student of Computer Science, 2014 – 2016 (**graduated** in August 2016)  
Thesis: *A Computational Approach to Relative Aesthetics*  
Topic: *machine learning and pattern recognition*
16. Bolun Li, Master's student of Computer Science, 2013 – 2015 (**graduated** in May 2015)

Topic: *Biomedical image analysis*

17. Robert Trevino, PhD student of Computer Science, 2013 – 2015

Topic: *Cellular image analysis*

18. Nate Sutton, Master's student of Biomedical Informatics, 2010 – 2013 (**graduated** in May 2013)

Topic: *Natural language processing*

19. Ashutosh Singh, Master's student of Biomedical Informatics, 2009 – 2012 (**graduated** in August 2012)

Topic: *Bioinformatics*

20. Alexander Dragontoniu, Master's student of Biomedical Informatics, 2009 – 2011 (**graduated** in May 2011)

Topic: *Cognitive informatics and decision making*

21. William Wilkinson, Master's student of Biomedical Informatics, 2009 – 2010 (**graduated** in May 2010)

Topic: *Cognitive informatics and decision making*

## Program Advisor

1. Jakob Wells, Master's student of Biomedical Informatics, 2016–2018

Topic: *Imaging Informatics*

2. Justin Patel, Master's student of Biomedical Informatics, 2016–2017

Topic: *Imaging Informatics*

3. Noelle Snyder, Master's student of Biomedical Informatics, 2013–2015 (**graduated** in May, 2015))

Topic: *Imaging Informatics*

4. Patricia Davis, Master's student of Biomedical Informatics, 2014–2016

Topic: *Clinical Informatics*

5. Karthigayini Sivaprakasam, PhD student of Biomedical Informatics, 2013–2015

Topic: *Bioinformatics*

6. Abhinav Bhargava, Master's student of Biomedical Informatics, 2010–2013 (**graduated** in May, 2013)

Topic: *Bioinformatics, signal processing and analysis*

7. Gazi Islam, PhD student of Biomedical Informatics, 2009–2013 (**graduated** in September, 2013))

Topic: *Surgeons hand movement analysis with video*

8. Nishal Ansari, PhD student of Biomedical Informatics, since 2012

Topic: *Bioinformatics*

9. Xiaoxiao Wang, Master's student of Biomedical Informatics, 2009–2011 (**graduated** in May, 2011)

Topic: *Clinical informatics*

10. Laura Whittfield, PhD student of Biomedical Informatics, since 2009

Topic: *Clinical informatics*

## INVITED TALKS

- Keynote at Medical Imaging Computing Seminar, MICS 2025, Cixi, Zhejiang, China, 2025
- Xi'an Jiaotong University, Xi'an, China, 2024
- Northwestern Polytechnical University, Xi'an, China, 2024
- Suzhou Institute for Advanced Research, Uni. of Science and Technology of China, Suzhou, China, 2024
- Mayo Clinic, Rochester, MN 2020 (a series of six talks with my students for six weeks)
- Shenzheng University, Shenzheng, China 2019
- University of Montreal, Montreal, QC, Canada 2018
- The University of Arizona, Tucson, AZ, USA 2016
- Peking University, Beijing, China, 2014

- University at Buffalo, SUNY, NY, USA, 2014
- Mayo Clinic, Rochester, Minnesota, USA, 2014
- Siemens Corporate Research, Inc., Princeton, NJ, USA, 2013
- Mayo Clinic, Rochester, Minnesota, USA, 2012
- Siemens Medical Solutions USA, Inc., Malvern, PA, USA, 2011
- The University of Arizona, Tucson, AZ, USA 2010
- Stanford University Medical School, Stanford, CA, USA, 2008
- Microsoft Research Cambridge, Cambridge, UK, 2008
- Arizona State University, Phoenix, AZ, USA, 2008
- New York University Medical School, New York, NY, USA, 2004
- Siemens Corporate Research, Inc., Princeton, NJ, USA, 2002
- GE Global Research, Niskayuna, New York, USA, 2002
- Imaging Research Laboratories, The J. P. Robarts Research Institute, London, Canada, 2001

## SERVICE ON JOURNALS

- Associate Editor for *Medical Image Analysis* (Impact Factor: 11.148; the best journal in medical image analysis), since 2021
- Guest Editor for *Frontiers in Computer Science* Special Issue on Segmentation and classification: theories, algorithms and applications 2021-2024
- Guest Editor/Associate Editor for the IEEE Transactions on Medical Imaging Special Issue on Annotation-Efficient Deep Learning for Medical Imaging (Impact Factor: 10.048 ; the best journal in image imaging), 2020-2021
- Associate Editor in the *Medical Physics and Imaging* section for *Frontiers in Physics* and *Frontiers in Physiology* (the two Frontiers journals covering imaging), since 2022
- Editor Board Member of *Bioengineering* (a top journal in biomedical engineering), since 2022
- Guest Editor of a *Journal of Imaging* Special Issue on Imaging Informatics: Computer-aided Diagnosis (a top journal in biomedical imaging), 2022

## SERVICE ON CONFERENCE PROGRAM COMMITTEES

- Area Chair, *International Conference on Medical Imaging with Deep Learning (MIDL 2026)*, July 8-10, 2026, Taipei
- Area Chair, *Medical Image Computing and Computer Assisted Interventions (MICCAI 2025)*, September 23-27, 2025, Daejeon, Republic of Korea
- Area Chair, *International Conference on Medical Imaging with Deep Learning (MIDL 2025)*, July 9-11, 2025, Salt Lake City, USA
- Area Chair, *Medical Image Computing and Computer Assisted Interventions (MICCAI 2024)*, October 6-10, 2024, Marrakesh, Morocco
- Area Chair, *International Conference on Medical Imaging with Deep Learning (MIDL 2024)*, July 3-5, 2024, Paris, France
- Area Chair, *Medical Image Computing and Computer Assisted Interventions (MICCAI 2023)*, October 8 – 12 2023 Vancouver, Canada
- Area Chair, *the International Conference on Medical Imaging with Deep Learning (MIDL 2023)*, July 10-12, 2023, Nashville, Tennessee (the recently established conference in my research area)
- General Chair of Workshop/Tutorial/Challenge, *Medical Image Computing and Computer Assisted Interventions (MICCAI 2022)*, September 18 – 22 2022, Singapore (the top conference in my research field)

- Area Chair, *Medical Image Computing and Computer Assisted Interventions (MICCAI 2022)*, September 18 – 22 2022, Singapore (the top conference in my research field)
- Area Chair, *the International Conference on Medical Imaging with Deep Learning (MIDL 2022)*, July 6 – 8, 2022, Zrich, Switzerland (the recently established conference in my research area)
- Program Committee Member, *MICCAI Workshop on Domain Adaptation and Representation Transfer (DART 2021)*, Strasbourg, France (the top workshop in my research field)
- Program Committee Member, *MICCAI Workshop on Domain Adaptation and Representation Transfer (DART 2020)*, Lima, Peru (the top workshop in my research field)
- Oral Session Chair for *the 23rd International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI-2020)*, Lima, Peru (the top conference in my research field)
- Program Area Chair for *the 23rd International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI-2020)*, Lima, Peru (the top conference in my research field)
- Program Committee Member, *MICCAI Workshop on Domain Adaptation and Representation Transfer (DART 2019)*, October 13, 2019. Shenzheng, China
- Program Committee Member, *The 4th workshop on Deep Learning in Medical Image Analysis (DLMIA 2018)*. September 16–20 2018, Granada, Spain.
- Program Committee Member, *The 3th workshop on Deep Learning in Medical Image Analysis (DLMIA 2017)*. September 10–14, 2017, Quebec City, Quebec, Canada.
- Program Committee Member, *The Tenth International Workshop on High Performance Computing for Biomedical Image Analysis (HPC-MICCAI)*, October 17–21, 2016, Athens, Greece.
- Program Committee Member, *The 2rd workshop on Deep Learning in Medical Image Analysis (DLMIA 2016)*. October 17–21, 2016, Athens, Greece.
- Program Committee Member, *The first workshop on Deep Learning in Medical Image Analysis (DLMIA 2015)*. October 5-9, 2015, Munich, Germany
- Program Committee Member, *The Ninth International Workshop on High Performance Computing for Biomedical Image Analysis (HPC-MICCAI)*, October 5-9, 2015, Munich, Germany
- Organizer, *Endoscopic Vision Challenge: Automatic Polyp Detection in Colonoscopy Videos (EndoVis Polyp 2015)*, Medical Image Computing and Computer Assisted Intervention, October 9, 2015, Munich, Germany
- Program Committee Member, *The 6th International Workshop on Machine Learning in Medical Imaging (MLMI 2015)*, October 5, 2015, Munich, Germany
- Program Committee Member, *The Eighth International Workshop on High Performance Computing for Biomedical Image Analysis (HPC-MICCAI)*, October 5, 2015, Munich, Germany
- Program Committee Member, The 8th International Conference on Image and Graphics (ICIG 2015), August 13-16, 2015, Tianjin, China.
- Organizer, *The Automatic Polyp Detection Challenge in Colonoscopy Videos (Polyp 2015)*, The 2015 IEEE International Symposium on Biomedical Imaging, April 16-19, 2015, New York, New York, USA
- Program Committee Member, *The 5th International Workshop on Machine Learning in Medical Imaging (MLMI 2014)*, September 14, 2013, Boston, MA, USA
- Program Committee Member, *The Seventh International Workshop on High Performance Computing for Biomedical Image Analysis (HPC-MICCAI)*, September 14, 2014, Boston, MA, USA
- Program Committee Member, *The 4th International Workshop on Machine Learning in Medical Imaging (MLMI 2013)*, September 26, 2013, Nagoya, Japan
- Program Committee Member, *The Sixth International Workshop on High Performance Computing for Biomedical Image Analysis (HPC-MICCAI)*, September 22, 2013, Nagoya, Japan
- Program Committee Member, *The 3rd International Workshop on Machine Learning in Medical Imaging*

(MLMI 2012), October 1, 2012, Nice, France

- Program Committee Member, *The First Workshop on Medical Computer Vision at CVPR 2012 (CVPRMCV)*, June 21 2012, Providence, RI, USA
- Program Committee Member, *The 3rd International Conference on Biomedical Engineering and Informatics (BMEI 2010)*, 16-18 October 2010, Yantai, China
- Local Organizer, *The 5th International Symposium on Biomedical Simulation (ISBMS10)*, January 23–24, 2010, Phoenix, Arizona, USA
- Program Committee Member, *The Nineteenth Annual Workshop on Information Technologies and Systems (WITS'09)*, 14-15 December 2009, Phoenix, Arizona, USA
- Program Committee Member, *The Second International Conference on Computer Vision Theory and Applications (VISAPP)*, March 2007, Barcelona, Spain
- Program Committee Member, *The First International Conference on Computer Vision Theory and Applications (VISAPP)*, February 2006, Setal, Portugal

## SERVICE ON JOURNAL EDITORIAL BOARDS

- Medical Image Analysis (MedIA) (a top journal in my field with Impact Factor: 11.148)
- IEEE Transactions on Medical Imaging (IEEE TMI) (Guess editor; a top journal in my field with Impact Factor: 10.048)

## REFEREEING

### Funding Agencies

- The Clinical Informatics and Digital Health (CIDH) Study Section, NIH, 2026
- The Clinical Informatics and Digital Health (CIDH) Study Section, NIH, 2025
- The Clinical Informatics and Digital Health (CIDH) Study Section, NIH, 2024
- The Natural Sciences and Engineering Research Council of Canada (NSERC), 2025
- The Natural Sciences and Engineering Research Council of Canada (NSERC), 2024
- The Natural Sciences and Engineering Research Council of Canada (NSERC), 2023
- The Natural Sciences and Engineering Research Council of Canada (NSERC), 2022
- The Natural Sciences and Engineering Research Council of Canada (NSERC), 2021
- The Natural Sciences and Engineering Research Council of Canada (NSERC), 2020
- The Natural Sciences and Engineering Research Council of Canada (NSERC), 2019
- Collaborative Faculty Research Investment Program (CFRIP) Grant Review, Baylor University, Baylor Scott & White Health, and the Baylor College of Medicine, 2016
- Biomedical and Health Informatics Grant Review, The Institute for Clinical and Translational Science (ICTS) at the University of California, Irvine, 2016
- NIH Review Panel: Surgical Sciences, Biomedical Imaging, and Bioengineering, 2012-2015
- Mitacs (a national organization supports research and training programs in Canada), 2013, 2014, 2015
- The Division for Physical Sciences, the Netherlands Organisation for Scientific Research (NWO), 2011

### Journals and Conferences

- Nature
- Nature Communications
- Nature Biomedical Engineering
- Science

- IEEE Transactions on Medical Imaging
- Medical Image Analysis
- IEEE Journal of Biomedical and Health Informatics
- IEEE Transactions on Biomedical Engineering
- IEEE Access
- Artificial Intelligence In Medicine
- MICCAI (International Conference on Medical Image Computing and Computer Assisted Intervention)
- CVPR (Annual Conference on Computer Vision and Pattern Recognition)
- ICCV (International Conference on Computer Vision)
- ECCV (European Conference on Computer Vision)
- BMVC (British Machine Vision Conference)
- AAAI Conference on Artificial Intelligence
- MIDL (the International Conference on Medical Imaging with Deep Learning)
- ICLR (the International Conference on Learning Representations)
- WACV (IEEE Workshop on Applications of Computer Vision)
- Journal of Biomedical Informatics
- International Journal of Medical Informatics
- BMC Bioinformatics
- Computer Vision and Image Understanding
- Medical Physics
- Computerized Medical Imaging and Graphics
- International Journal of Computer Vision
- IEEE Transactions on Pattern Analysis and Machine Intelligence
- Image and Vision Computing
- Journal of Electronic Imaging
- Brain Structure and Function
- Methods of Information in Medicine
- International Journal of Computers and Applications
- Ultrasound in Medicine and Biology
- Cancer
- Journal of Biological Systems
- ISBI (International Symposium on Biomedical Imaging)
- MIRA (International Workshop on Medical Imaging and Augmented Reality)
- MLMI (International Workshop on Machine Learning in Medical Imaging)
- MCV (Workshop on Medical Computer Vision)
- International Journal of Functional Informatics and Personalized Medicine  
(A Special Issue on Imaging Informatics for Personalized Medicine, 2009)
- VISAPP (International Conference on Computer Vision Theory and Applications) (2006, 2007)

## TEACHING AT ASU

- Image Analytics and Informatics (BMI 591 38057), Spring 2026
- Image Analytics and Informatics (CSE 591 19879), Spring 2026
- Image Analytics and Informatics (CSE 494 35441), Spring 2026

- Image Analytics and Informatics (BME 598 38132), Spring 2026
- Image Processing and Analysis (BMI 507 69157), Fall 2025
- Image Processing and Analysis (BME 507 70864), Fall 2025
- Image Processing and Analysis (CSE 507 78231), Fall 2025
- Image Processing and Analysis (CEN 507 78230), Fall 2025
- Image Processing and Analysis (CSE 494 82283), Fall 2025
- Image Processing and Analysis (RAS 507 87863), Fall 2025
- Topic: Imaging Informatics & Diagnostics (BMI 598 77986), Fall 2025
- Topic: Imaging Informatics & Diagnostics (BMI 598 77987), Fall 2025

[Note: On Sabbatical, Spring 2025]

- Image Processing and Analysis (BMI 507 70179), Fall 2024
- Image Processing and Analysis (BME 507 72128), Fall 2024
- Image Processing and Analysis (CSE 507 81888), Fall 2024
- Image Processing and Analysis (CEN 507 81887), Fall 2024
- Image Processing and Analysis (CSE 494 88016), Fall 2024
- Topic: Imaging Informatics & Diagnostics (BMI 598 81496), Fall 2024
- Topic: Imaging Informatics & Diagnostics (BMI 598 81497), Fall 2024
- Image Analytics and Informatics (BMI 591 19791), Spring 2024
- Image Analytics and Informatics (CSE 591 19879), Spring 2024
- Image Analytics and Informatics (BME 598 20887), Spring 2024
- Topic: Imaging in Diagnostics (BMI 598 96882), Fall 2023
- Topic: Imaging in Diagnostics (BMI 598 96883), Fall 2023
- Introduction to Image Processing (BMI 507 81280), Fall 2023
- Introduction to Image Processing (BME 507 83535), Fall 2023
- Introduction to Image Processing (CSE 507 97386), Fall 2023
- Introduction to Image Processing (CEN 507 97385), Fall 2023
- Image Analytics and Informatics (BMI 591 20982), Spring 2023
- Image Analytics and Informatics (CSE 591 21078), Spring 2023
- Image Analytics and Informatics (BME 598 22377), Spring 2023
- Topic: Imaging in Diagnostics (BMI 598 18144), Spring 2023
- Topic: Imaging in Diagnostics (BMI 598 19003), Spring 2023
- Introduction to Image Processing (BMI 507 82791), Fall 2022
- Introduction to Image Processing (BME 507 85640), Fall 2022
- Introduction to Image Processing (CSE 591 98193), Fall 2022
- Image Analytics and Informatics (BMI 591 22526), Spring 2022
- Image Analytics and Informatics (CSE 591 22638), Spring 2022
- Image Analytics and Informatics (BME 598 24345), Spring 2022
- Topic: Imaging in Diagnostics (BMI 598 19063), Spring 2022
- Topic: Imaging in Diagnostics (BMI 598 20094), Spring 2022
- Introduction to Image Processing (BMI 507 84762), Fall 2021
- Introduction to Image Processing (BME 507 88575), Fall 2021
- Image Analytics and Informatics (BMI 591 24460), Spring 2021

- Image Analytics and Informatics (CSE 591 24612), Spring 2021
- Image Analytics and Informatics (MBE 598 27193), Spring 2021
- Topic: Imaging in Diagnostics (BMI 598 21321), Spring 2021
- Topic: Imaging in Diagnostics (BMI 598 20105), Spring 2021
- Introduction to Image Processing (BMI 507 88054), Fall 2020
- Introduction to Image Processing (BME 507 94182), Fall 2020
- Image Analytics and Informatics (BMI 591 27674), Spring 2020
- Image Analytics and Informatics (CSE 591 27953), Spring 2020
- Image Analytics and Informatics (MBE 598 31834), Spring 2020
- Topic: Imaging in Diagnostics (BMI 598 21367), Spring 2020
- Topic: Imaging in Diagnostics (BMI 598 22909), Spring 2020
- Introduction to Image Processing (BMI 507 92215), Fall 2019
- Introduction to Image Processing (CSE 591 94240), Fall 2019
- Topic: Imaging in Diagnostics (BMI 598 25510), Spring 2019
- Topic: Imaging in Diagnostics (BMI 598 23168), Spring 2019
- Image Analytics and Informatics (BMI 591 32594), Spring 2019
- Introduction to Image Processing (BMI 507 32593), Spring 2019
- Image Analytics and Informatics (CSE 591 32919), Spring 2019
- Introduction to Image Processing (CSE 591 32918), Spring 2019

[Note: Relieved from teaching for research in Fall 2018]

[Note: On Sabbatical, Fall 2017 and Spring 2018]

- Image Analytics and Informatics (BMI 591 14460), Spring 2017
- Image Analytics and Informatics (CSE 591 25903), Spring 2017
- Topic: Imaging in Diagnostics (BMI 598 31122), Spring 2017
- Topic: Imaging in Diagnostics (BMI 598 31059), Spring 2017
- Reading and Conference (BMI 790 21436), Spring 2017
- Introduction to Image Processing (BMI 507 76475), Fall 2016
- Introduction to Image Processing (CSE 591 85857), Fall 2016
- Image Analytics and Informatics (BMI 591 15024), Spring 2016
- Image Analytics and Informatics (CSE 591 31186), Spring 2016
- Introduction to Public Health and Imaging Informatics (BMI 102 86698), Fall 2015
- Introduction to Image Processing (BMI 507 77156), Fall 2015
- Introduction to Image Processing (CSE 591 91754), Fall 2015
- Image Analytics and Informatics (BMI 591 15560), Spring 2015
- Image Analytics and Informatics (CSE 591 16826), Spring 2015
- Introduction to Image Processing (BMI 507 78750), Fall 2014
- Introduction to Image Processing (CSE 591 83226), Fall 2014
- Image Analytics and Informatics (BMI 591 16944), Spring 2014
- Image Analytics and Informatics (CSE 591 18893), Spring 2014
- Introduction to Image Processing (BMI 507 81230), Fall 2013
- Introduction to Image Processing (CSE 591 82590), Fall 2013
- Image Analytics and Informatics (BMI 591 18522), Spring 2013

- Image Analytics and Informatics (CSE 591 27712), Spring 2013
- Introduction to Image Processing (BMI 507 85960), Fall 2012
- Introduction to Image Processing (CSE 591 87162), Fall 2012
- Introduction to Biomedical Informatics (BMI 501 77563), Fall 2012
- Advanced Algorithms in Medical Imaging (BMI 591 22045), Spring 2012
- Introduction to Biomedical Informatics (BMI 501 79276), Fall 2011
- Biomedical Imaging Informatics (BMI 591 23228), Spring 2011
- Introduction to Digital Image Processing (BMI 591 83435), Fall 2010
- Introduction to Biomedical Informatics (BMI 501 83431), Fall 2010
- BMI Symposium (BMI 570) Spring 2010
- Introduction to Digital Image Processing (BMI 591 89276), Fall 2009
- BMI Symposium (BMI 570) Fall 2009
- Informatics in Biomedical Imaging (BMI 591 27114), Spring 2009
- Guest lecture for BMI 501 (Fall, 2009; Fall, 2010; Fall, 2013)
- Guest lectures for BMI 502 (Fall, 2009)
- Guest lecture for BME 591 (Fall 2009; Fall 2010)

## TEACHING AT UA College of Medicine

- Informatics in Biomedical Imaging, part of Neurological Sciences Block, Fall, 2010
- Informatics in Biomedical Imaging, part of Neurological Sciences Block, Fall, 2009
- Informatics in Biomedical Imaging, part of Neurological Sciences Block, Spring, 2009

## INTERNAL SERVICE ROLES

- University Intellectual Property and Institutional Review Committee, 2025–2026
- University Research Computing Governance Board, since 2/18/2025
- College Research Council, 2025–2026
- College Personnel (Elected by Faculty Assembly), 2025–2028
- College Personnel (Ad Hoc Annual Review: Tenure/Tenure Track), 2025–2026
- BMI Admission, 2025–2026

[Note: On Sabbatical, Spring 2025]

- University Intellectual Property and Institutional Review Committee, 2024–2025
- BMI Academic Program Committee, 2024–2025
- Research Faculty Search Committee (Committee Chair), 2023–2024
- College Ad Hoc Annual Review: Tenure/Tenure Track, 2023–2024
- College Faculty Awards Committee, 2023–2024
- College Scholarly Activity Funds, 2023–2024
- College Research Council, 2023–2024
- BMI Academic Program Committee, 2023–2024
- University Intellectual Property and Institutional Review Committee, 2023–2024
- College Personnel Committee, 2022–2023
- College Ad Hoc Annual Review: Tenure/Tenure Track, 2022–2023
- College Faculty Awards Committee, 2022–2023

- College Scholarly Activity Funds, 2022–2023
- College Research Council, 2022–2023
- BMI Academic Program Committee, 2022–2023
- University Intellectual Property and Institutional Review Committee, 2023
- Ad Hoc Annual Review: Tenure/Tenure Track, 2021–2022
- BMI Academic Program Committee, 2021–2022
- BMI Associate/Full Professor Search Committee, 2021–2022
- College Faculty Awards Committee, 2021–2022 (Committee Chair)
- College Scholarly Activity Funds, 2021–2022
- Ad Hoc Annual Review: Tenure/Tenure Track, 2020–2021
- BMD Lecturer Search Committee, 2020–2021
- BMI Academic Program Committee, 2020–2021
- BMI Associate/Full Professor Search Committee, 2020–2021
- BMI Space Committee, 2020–2021 (Committee Chair)
- College Faculty Award Committee, 2020–2021
- Peer Teaching Evaluation Committee, 2020–2021
- Transnational Teams Committee, 2020–2021
- Ad Hoc Annual Review: Tenure/Tenure Track, 2019–2020
- BMI Academic Program Committee, 2019–2020
- BMI Admission Committee, 2019–2020 (Committee Chair)
- College Faculty Award Committee, 2019–2020
- College Faculty Hiring Committee, 2019–2020 (Committee Chair)
- Transnational Teams Committee, 2019–2020
- Vice Dean Search Committee, 2019–2020
- Workload Distribution Committee, 2019–2020
- BMI Admission Committee, 2018–2019
- College Committee on Committees, 2018–2019
- College Faculty Award Committee, 2018–2019
- College Faculty Hiring Committee, 2018–2019 (Committee Chair)
- University Senate, 2018–2019
- University Senate - Personnel Committee, 2018–2019

[Note: On Sabbatical, Fall 2017 and Spring 2018]

- Faculty Recruitment Committee, 2016–2017
- CHS Committee on Committees, 2016–2017
- University Senate, 2013–2016
- Academic Program Committee, 2010–2016
- Faculty Recruitment Committee, 2010–2014 (Committee Chair, 2014)
- Student Admission Committee, 2009–2010
- Space Committee, 2010–2011
- Coordinator for the BMI Colloquium, 2009–2010