

Timothy Takahashi

Professor of Practice - Aerospace Engineering
School for Engineering of Matter, Transport and Energy
Arizona State University, PO Box 876106, Tempe, AZ 85287
<https://labs.engineering.asu.edu/aircraft-design/>

Education

Santa Clara University School of Law, Santa Clara, CA

J.D. in Law
Certificate in High-Tech Law – with Honors
Thesis: “Drones and Privacy”
May 2013

University of Rochester, Rochester, NY

PhD in Mechanical and Aerospace Sciences
Thesis: “Flow Beneath a Spinning Disk”
October 1993
M.S. in Mechanical and Aerospace Sciences
October 1990
B.S. with Distinction in Mechanical Engineering
May 1988
Tau Beta Pi
Phi Beta Kappa

Professional Experience

Aug. 2012 – present **Professor of Practice - Aerospace Engineering**
Arizona State University, Tempe, AZ

A teaching focused appointment for advanced undergraduate and graduation aeronautics curriculum. I supervise undergraduate and graduate student research in aeronautical design, including take-off and landing performance, structural design, propulsion (including some subsonic wind tunnel testing) and aerodynamic design (including some subsonic wind tunnel testing). I advise several student organizations, including the AIAA Design Build Fly team.

- MAE 564 – Advanced Aerodynamics (F2013, F2014, F2015, F2016, F2018, F2019, F2020, F2021, F2022, F2023)
- AEE/MAE 468 – Aerospace Systems Design – The Senior Capstone Design Class (F2012, S2013, F2013, S2014, F2014, S2015, F2015, S2016, F2016, S2017, F2017, S2018, F2018, S2019, F2019, S2020, F2020, S2021, F2021, S2022, F2022, S2023, F2023, S2024)
- MAE 400 – Engineering Profession (F2012, S2013, S2014, Sum2014, Sum2015, F2015, Sum 2016, F2016, Sum2017, F2017, S2018, Sum2018, F2018, S2019, F2019, S2020, Sum2020, F2020, S2021, Sum2021, F2021, S2022, F2022, S2023, F2023, S2024)
- MAE 394 – Special Topics: Aeronautics in England (Sum2014, Sum2015, Sum2016, Sum2017, Sum2018)
- MAE 374 – Fluid Mechanics for Mechanical Engineers (S2016, S2017)
- AEE 344 – Fundamentals of Aircraft Design – Performance & Sizing (S2015, S2016, S2017, S2018, S2019, S2020, S2021, S2022, S2023, S2024)
- AEE/MAE 325 – Aerospace Structures & Materials (F2012, S2013, F2013, S2014, F2014, S2015)
- ASU 101 – The ASU Experience (F2012, F2013, F2014, F2015, F2016, F2017, F2018, F2019, F2020, F2021, F2022, F2023)

Professional Experience (cont'd)

Aug 2021-present **USAF/AFIT Summer Faculty / Visiting Faculty Fellowship**
Contractor through Oak Ridge Institute for Science & Education
Contractor through Systems Plus, Inc.

Short term appointments to enhance aircraft mission performance simulation codes to support hypersonic vehicle analysis. Due to COVID-19, I had to work remotely S2021. In person full time at AFIT in Dayton, OH for S2022 and S2023; remote part-time during academic year.

May 2020– Aug. 2020 **Consultant – Department of Mechanical & Aerospace Engineering**
June 2021–Aug. 2021 Royal Military College of Canada, Kingston, ON, CANADA

Short term appointments to assess aging aircraft penalties to CC-130 performance and flying qualities. Due to COVID-19, I had to work remotely.

May 2019 – Aug. 2019 **Visiting Scholar – Royal Military College of Canada**
Contractor through Calian Ltd., Kingston, ON, CANADA

A short-term appointment to assess aging aircraft penalties to CC-130 performance and flying qualities. In addition, supervised wind tunnel testing of concept airfoils and wings for a high-altitude unmanned aircraft concept design.

July 2013 **USAF/AFRL Summer Faculty Fellowship**
Contractor through Universal Technology Corp., Dayton, OH

A short-term appointment to assess aircraft aerodynamics and performance of an “Efficient Supersonic Air Vehicle” (ESAV).

May 2011 – Aug. 2011 **Law Clerk – Office of the Chief Counsel**
NASA/Ames Research Center, Moffett Field, CA

A short-term appointment to assess intellectual property rights of NASA/Ames Research center sponsored projects. Assisted in public release, grant and contract monitoring, patent preparation.

Mar. 2011 – May 2011 **Quarterly Term Professor - Dept. of Mechanical Engineering**
Santa Clara University, Santa Clara, CA

Engaged part-time to teach MECH 145, Introduction to Aerospace Engineering. (S2011)

Sep. 2008 – July 2010 **Engineer 5 – Northrop Grumman**
Config. & Integration – Northrop Grumman Aerospace Systems, El Segundo, CA
Aerodynamics - Northrop Grumman Aerospace Systems, El Segundo, CA

A full-time position to form Multi-Disciplinary Analysis & Optimization group in advanced flight sciences with applications to future military projects.

Aug. 2007 – May 2008 **Adjunct Lecturer - Dept. of Aerospace Engineering**
Wichita State University, Wichita, KS

Engaged part-time to teach AE 527 - Numerical Methods (S2008) and AE 703 - Rotor Aerodynamics (Propeller/Helicopter) (F2007)

Aug. 2004 – May 2007 **Adjunct Lecturer - Dept. of Mechanical and Aerospace Engineering**
University of Arizona, Tucson, AZ

Engaged part-time to teach Senior Capstone Design for Aerospace Engineering:

- AME 420 – Aero Senior Capstone Design I (F2004, F2005, F2006)
- AME 422 – Aero Senior Capstone Design II (S2007)

Professional Experience (cont'd)

June 2002 – Sep. 2008 **Principal Engineer / Manager II / Sr. Principal Engineer - Raytheon**
Advanced Design - Raytheon Aircraft / Hawker Beechcraft, Wichita, KS
GN&C Systems Design / AeroMechanics - Raytheon Missile Systems, Tucson, AZ

A full-time position where I formed a Multi-Disciplinary Analysis & Optimization group in the AeroMechanics Design Department and served as a deputy Department Manager (payroll & promotion).

Extensive wind tunnel testing of prototype aircraft and weapons systems at:

- Boeing Transonic Wind Tunnel (BTWT), Seattle, WA
- Wichita State University (Walter Beech), Wichita, KS
- Rockwell Tri-Sonic Wind Tunnel, El Segundo, CA
- Calspan Transonic Wind Tunnel, Buffalo, NY
- NASA/Glenn Research Center (Abe Silverstein Supersonic), Cleveland, OH

Sep. 1996 – Mar. 2002 **Staff Engineer / Sr. Engineer Specialist / Sr. Engineer – Lockheed-Martin**
Advanced Design - Lockheed Martin Aeronautics Co., Marietta, GA
Aerodynamics - Lockheed Martin Aeronautics Co., Marietta, GA
Aerodynamics – Lockheed Martin Skunk Works, Palmdale, CA

Early member of the Rapid Conceptual Design team at the Lockheed Martin Skunkworks. Aerodynamic. Propulsion. Performance code development and integration for aircraft sizing & synthesis.

Extensive wind tunnel testing of prototype aircraft at:

- Lockheed Martin Subsonic Wind Tunnel, Marietta, GA
- US Air Force AEDC 16T Wind Tunnel, Tullahoma, TN
- NASA/Langley Research Center 16T Wind Tunnel, Hampton, VA
- NASA/Langley Research Center Mach 25 Helium Wind Tunnel, Hampton, VA
- NASA/Marshall Tri-Sonic Wind Tunnel, Huntsville, AL

Apr. 1994 – Sep. 1996 **NRC Postdoctoral Research Associate**
Low Speed Aerodynamics Branch, NASA/Ames Research Center, Moffett Field

Developed wake survey system for the 7x10-ft low speed, low turbulence wind tunnel. Extensive wind tunnel test experience at that facility including USAF/AFRL and Boeing.

1993-1995 **Research Consultant**
Lamont-Doherty Earth Observatory, Columbia University, Palisades, NY

Teaching Evaluations

AEE/MAE 468 – Aerospace Engineering Capstone Design – Fixed Wing Aeronautics Track

Course	Semester	Course Instructor	Overall	#Students	
AEE 468	2024 Spring	5.00	5.00	5.00	19
AEE 468	2023 Fall	3.20	4.00	4.00	18
AEE 468	2022 Spring	4.67	4.50	4.50	22
AEE 468	2022 Fall	4.35	4.52	4.00	27
AEE 468	2021 Spring	4.28	4.55	4.29	22
AEE 468	2021 Fall	4.45	4.89	4.67	18
AEE 468	2020 Spring	4.86	4.93	4.60	13
AEE 468	2020 Fall	4.79	4.91	4.40	14
AEE 468	2019 Spring	4.84	4.84	4.80	18
AEE 468	2019 Fall	4.61	4.69	4.25	16
AEE 468	2018 Spring	4.44	4.71	4.60	21
AEE 468	2018 Fall	3.87	3.70	3.56	28
AEE 468	2017 Spring	4.60	4.74	4.78	25
AEE 468	2016 Spring	4.40	4.71	4.25	36
AEE 468	2016 Fall	4.57	4.81	4.75	22
AEE 468	2015 Spring	4.41	4.80	4.60	19
AEE 468	2015 Fall	4.44	4.60	4.22	25
AEE 468	2014 Fall	4.75	4.79	4.82	34
MAE 468	2014 Spring	4.65	4.66	4.53	28
MAE 468	2013 Fall	4.58	4.87	4.67	18
MAE 468	2013 Spring	4.12	3.75	3.43	16
MAE 468	2012 Fall	4.09	4.56	4.13	21

Teaching Evaluations (cont'd)

MAE 564 – Advanced Aerodynamics

Course	Semester	Course	Instructor	Overall	# Students
MAE 564	2023 Fall	4.6	4.67	4	23
MAE 564	2022 Fall	4.44	4.76	4.67	31
MAE 564	2021 Fall	4.87	4.96	4.9	21
MAE 564	2020 Fall C	4.83	4.96	5	23
MAE 564	2019 Fall	4.74	4.98	4.83	15
MAE 564	2018 Fall	4.64	4.93	4.4	16
MAE 564	2016 Fall	4.93	4.78	4.5	9
MAE 564	2015 Fall	4.62	4.89	4.86	26
MAE 564	2014 Fall	4.58	4.61	4.54	21
MAE 564	2013 Fall	4.51	4.65	4.23	25

AEE 344 – Fundamentals of Aircraft Design (Performance & Sizing)

Course	Semester	Course	Instructor	Overall	# Students
AEE 344	2024 Spring	4.36	4.53	3.85	73
AEE 344	2023 Spring	4.12	4.57	4.17	46
AEE 344	2022 Spring	4.06	4.28	3.80	51
AEE 344	2021 Spring	4.60	4.54	4.22	55
AEE 344	2020 Spring	4.81	4.87	4.80	49
AEE 344	2019 Spring	4.57	4.61	4.36	47
AEE 344	2018 Spring	4.64	4.73	4.67	59
AEE 344	2017 Spring	3.80	3.99	2.86	55
AEE 344	2016 Spring	4.59	4.63	4.33	45
AEE 344	2015 Spring	4.50	4.69	4.44	74

MAE 372 – Fluid Mechanics for Mechanical Engineers

Course	Semester	Course	Instructor	Overall	# Students
MAE 372	2017 Spring	4.31	4.62	4.46	58
MAE 372	2016 Spring	4.52	4.70	4.41	68

MAE 394 – AeroMechanics Summer in England

Course	Semester	Course	Instructor	Overall	# Students
MAE 394	2015 Summer	4.73	4.93	4.82	22
MAE 394	2014 Summer	4.61	4.97	4.63	18

Teaching Evaluations (cont'd)

MAE 400 – Engineering Profession (Systems Engineering & Engineering Ethics)

Course	Semester	Course Instructor	Overall	#Students	
MAE 400	2024 Spring	4.17	4.45	4.09	85
MAE 400	2024 Spring	4.59	4.83	4.53	74
MAE 400	2023 Fall	4.60	4.72	4.62	72
MAE 400	2023 Spring	4.36	4.60	4.28	64
MAE 400	2023 Spring	4.22	4.66	4.36	55
MAE 400	2023 Fall	4.60	4.72	4.62	72
MAE 400	2022 Spring	4.17	4.69	4.15	68
MAE 400	2022 Spring	3.98	4.07	3.29	63
MAE 400	2022 Fall	4.04	4.30	3.75	75
MAE 400	2021 Summer	4.85	4.97	5.00	28
MAE 400	2021 Spring	4.61	4.80	4.72	70
MAE 400	2021 Spring	4.47	4.76	4.53	69
MAE 400	2021 Fall	4.51	4.85	4.68	74
MAE 400	2020 Summer	4.57	4.89	4.67	26
MAE 400	2020 Spring	4.24	4.53	4.09	70
MAE 400	2020 Fall	4.55	4.69	4.43	75
MAE 400	2019 Spring	4.28	4.51	4.04	69
MAE 400	2019 Fall	4.51	4.73	4.36	41
MAE 400	2018 Spring	4.33	4.64	4.39	70
MAE 400	2018 Fall	4.24	4.31	4.07	60
MAE 400	2017 Summer	3.88	4.41	3.67	15
MAE 400	2017 Fall	4.18	4.55	4.13	70
MAE 400	2017 Fall	4.23	4.45	4.09	69
MAE 400	2016 Fall	4.57	4.85	4.64	36
MAE 400	2015 Summer	4.77	4.96	4.90	22
MAE 400	2015 Fall	4.39	4.56	4.13	35
MAE 400	2014 Summer	4.64	4.94	4.75	17
MAE 400	2014 Spring	4.51	4.82	4.69	51
MAE 400	2013 Spring	4.11	4.39	3.95	51
MAE 400	2012 Fall	4.05	4.55	3.89	49

AEE/MAE 325 – Aerospace Structures & Materials

Course	Semester	Course Instructor	Overall	#Students	
AEE 325	2015 Spring	4.61	4.62	4.58	25
AEE 325	2014 Fall	4.56	4.75	4.68	64
MAE 325	2014 Spring	4.47	4.87	4.5	23
MAE 325	2013 Fall	4.4	4.77	4.74	54
MAE 325	2013 Spring	4.21	4.74	4.64	25
MAE 325	2012 Fall	4.01	4.28	3.67	76

Awards, Activities and Professional Affiliations

Awards

2023	Royal Aeronautical Society – Bronze Award – for Best Written Paper
2022	American Institute of Aeronautics & Astronautics (AIAA) – Sustained Service Award
2017-8	Arizona State University – Outstanding Fulton School Faculty Advisor – Air Devils
2017	Ford Faculty Fellow Award – included award stipend
2013-4	Arizona State University – Outstanding Fulton School Faculty Advisor – Air Devils
2013	Santa Clara University School of Law - High Tech Law Certificate with Honors
2012	Santa Clara University School of Law - High Tech Excellence Award for the 2011-2012 AY.
2012	Santa Clara University School of Law - Witkin Award for Academic Excellence - Privacy Law
2009	France Beaupré Award (as a team-member for the “Development of a Propulsion Design Optimisation Tool”) for TTCP Activities
2006	American Institute of Aeronautics and Astronautics (AIAA) - Associate Fellow
2006	Raytheon Engineering Honors (Sr. Principal Engineer w/ Honors)
2004	Raytheon Engineering Honors (Principal Engineer w/ Honors)
2003	Raytheon Excellence in Technology Award (for Multi-Disciplinary Optimization)

Professional Society Affiliations

1994-present	American Institute of Aeronautics and Astronautics (Life Member)
2018-present	Society of Aircraft Performance and Operations Engineers

Peer Review / Journal Editor

2012-13	Santa Clara Computer and High Technology Law Journal, Lead Articles Editor.
2020-present	AIAA Journal
2008-present	Reviewer for AIAA Journal of Aircraft
2013-present	Reviewer for The Aeronautical Journal
2015-present	Reviewer for CEAS Aeronautical Journal
2015-present	Reviewer for Aerospace Science & Technology
2013-present	Textbook reviewer for John Wiley & Sons

Government and Industrial Committees

2022-present	AIAA History Program Committee
2006-present	AIAA Conceptual Aircraft Design Working Group (CADWG) – chair (2009→)
2005-present	AIAA Aircraft Design Technical Committee (Non-Voting 2005-12; Voting 2013→)
2008-10	USAF AFRL Multi-Disciplinary Science & Technology Center @ Virginia Tech Steering Com.
2005-07	US/UK/Canada/Australia/New Zealand Technical Cooperation Weapons Group (TTCP WTP-4/KTA 4-30-03)
2004-17	AIAA Multidisciplinary Optimization Technical Committee

Conference Chair

2024	Organizing Committee – AIAA AVIATION Conference – Aircraft Design Sessions
2023	Organizing Committee – AIAA AVIATION Conference – Aircraft Design Sessions
2022	Organizing Committee – AIAA AVIATION Conference – Aircraft Design Sessions
2021	Organizing Committee – AIAA AVIATION Conference – Aircraft Design Sessions
2020	Organizing Committee – AIAA AVIATION Conference – Aircraft Design Sessions
2019	Organizing Committee – AIAA AVIATION Conference – Aircraft Design Sessions
2018	Organizing Committee – AIAA AVIATION Conference – Aircraft Design Sessions
2017	Organizing Committee – AIAA AVIATION Conference – Aircraft Design Sessions
2015	Organizing Committee – AIAA Sci Tech Meeting – MDO Sessions
2014	Organizing Committee – AIAA Sci Tech Meeting – MDO Sessions
2013	Organizing Committee – AIAA Aerospace Sciences Meeting – MDO Sessions
2012	Organizing Committee – AIAA ATIO/MAO Conference – Joint MDO/Aircraft Design Sessions
2012	Organizing Committee – AIAA Aerospace Sciences Meeting – MDO sessions
2010	Track Lead – AIAA ATIO/MAO Conference – Joint MDO/Aircraft Design Sessions
2008	Track Lead – AIAA Aerospace Sciences Meeting – MDO Applications Sessions
2005-present	Reviewer for AIAA Conference Papers (various technical committees, various conferences)

Awards, Activities and Professional Affiliations (cont'd)

Student Sections of Professional Organizations

2012-present	Team Advisor for the ASU Air Devils AIAA DBF Competition Team	
2014	Wichita, KS	17/80 teams
2015	Tucson, AZ	23/100 teams
2016	Wichita, KS	14/145 teams
2017	Tucson, AZ	32/138 teams
2018	Wichita, KS	41/ 138 teams
2019	Tucson, AZ	17/ 142 teams
2020	VIRTUAL	
2021	VIRTUAL	14/ 117 teams
2022	Wichita, KS	7 / 127 teams

2016-present Faculty Advisor for AIAA @ ASU (Student Chapter)

2015-present Faculty Co-Advisor for Tau Beta Pi (Engineering Honor Society)

Grants, Funding and Consulting

Consulting: LitExpert, Cupertino, CA – Expert Witness Aviation, 2023 → present

Consulting: Rubin/Anders Scientific, Boston, MA – Expert Witness Aviation, 2020 → present

Consulting: National Institute for Aeronautics Research, Wichita, KS – Aircraft Systems Design, 2021 → 2022

Consulting: Otto Aviation LLC– Aircraft Performance, 2020 → present

Consulting: NOAA – Contracted through University of Colorado CIRES (Cooperative Institute for Research in Environmental Sciences) – UAV Design for Atmospheric Science, 2018 → 2021

Consulting: DeltaZee Technologies, Tucson, AZ – UAV Systems Design, 2015 → 2021

Consulting: Jenner & Block, LLP, Chicago, IL – Expert Witness Aviation, 2017 → 2018

Grant: DragonFly Aeronautics, LLC (Division of Net Jets), Alpharetta, GA – Grant for Modeling & Simulation of Aircraft Performance, 2016-2017 - \$75,000

Contract: United States Air Force Test Pilot School, Edwards AFB, CA – Teaching Methods for Aircraft Handling Qualities, 2015-2016 –\$25,000.

Consulting: DragonFly Aeronautics, LLC (Division of Net Jets), Alpharetta, GA – Aircraft Performance, 2015-2017

Consulting: Aerion, Inc, Reno, NV –Aircraft Performance & Design Certification, 2014-2016.

CATALYST Award – Arizona State University – Compact Residential Wind Power System – proof of concept construction, 2013-2014 – approx. \$11,000.

Consulting: MD Helicopters, Mesa, AZ – Helicopter Rotor Aerodynamics and Mechanical Design, 2013→

Consulting: YAM Captial, Scottsdale, AZ – Consultant – Wind Energy Technology Concept Evaluation, 2013.

Extensive industrial experience with government contractor proposals.

Typical government customers: USAF, USN, DARPA, ONR, USAF-AFRL, and other agencies.

USAF/AFRL Revolutionary Concepts in Energy Efficiency (RCEE) – Northrop Grumman
Co-investigator – Phase I Technical Lead - contract awarded 2009

ONR/DARPA RATTLRS Phase I – Raytheon Missile Systems
Air Vehicle Design Lead – contract awarded 2005

ONR FastShips Program Phase II – Lockheed Martin Aeronautical Systems – ADP “Skunk Works”
Chief Engineer – contract awarded 2000

Northrop Grumman Internal Research and Development Manager

Multi-Disciplinary Analysis & Optimization Disciplines (MDAO) – approx. \$1,100,000 (2009)

Multi-Disciplinary Analysis & Optimization Disciplines (MDAO) – approx. \$1,500,000 (2008)

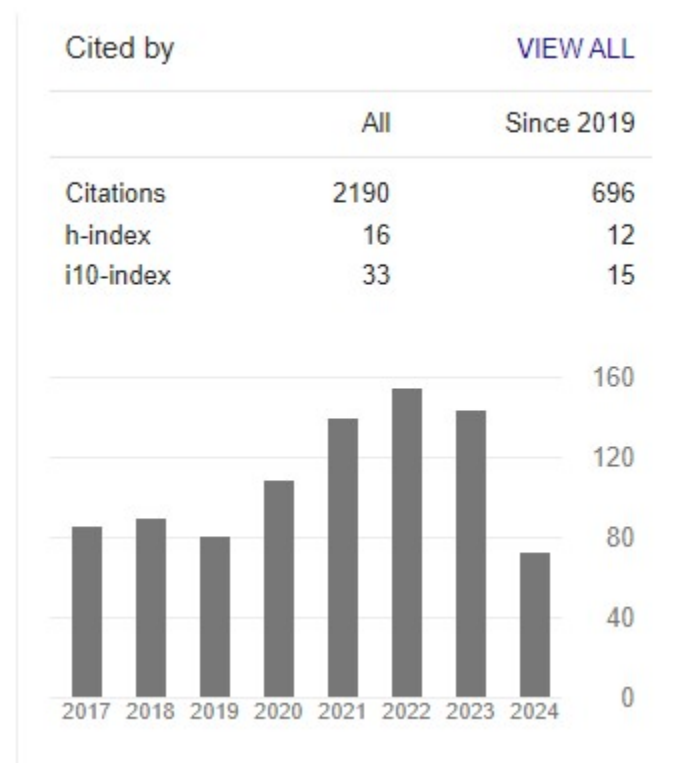
Raytheon Missile Systems Internal Research and Development Manager

Multi-Disciplinary Analysis & Optimization (MDA/MDO) – approx. \$500,000 (2006)

Multi-Disciplinary Analysis & Optimization (MDA/MDO) – approx. \$500,000 (2005)

Multi-Disciplinary Analysis & Optimization (MDA/MDO) – approx. \$500,000 (2004)

Overall Scholastic Impact



Books

1. **Takahashi, T.T.**, Aircraft Performance & Sizing, Vol. I: Fundamentals of Aircraft Performance, Momentum Press, New York, NY, 2016. 200 pages. **ISBN-13:** 978-1606506837
2. **Takahashi, T.T.**, Aircraft Performance & Sizing, Vol. II: Applied Aerodynamic Design, Momentum Press, New York, NY, 2016. 276 pages. **ISBN-13:** 978-1606509456

Archival Journal Articles

1. McDonald, R.A., German, B.J., **Takahashi, T.T.**, Bil, C., Anemaat, W., Chaput A., Vos, R. and Harrison, N., "Future Aircraft Concepts and Design Methods," Royal Aeronautical Society Aeronautical Journal, p. 1-33, Jan 2022.
2. **Takahashi, T.T.**, "The Rise of the Drones – A Need for the Comprehensive Federal Regulation of Robot Aircraft," Albany Government Law Review, Vol. 8, No. 1, 2015, pp. 63-128.
2. **Takahashi, T.T.**, "Regulatory Changes to Enable the Development of More Efficient Transport Category Aircraft," AIAA Journal of Aircraft, Vol. 50, No. 5, pp. 1353-1368, Sep-Oct 2013. (DOI: 10.2514/1.C031633).
3. **Takahashi, T.T.**, "Drones and Privacy," Columbia Sci. & Tech. Law Rev, Vol. XIV, No. 1, Fall 2012, pp. 72-114.
4. **Takahashi, T.T.**, "Drones in the National Airspace," SMU Journal of Air Law and Commerce, Vol. 77, No.3, Summer 2012, pp. 489-533.
5. **Takahashi, T.T.**, German, B.J., Shajanian, A., Daskilewicz, M., and Donovan, S. "Form Factor and Critical Mach Number Estimation for Finite Wings," AIAA Journal of Aircraft, Vol. 49, No. 1, Jan-Feb 2012. (DOI:10.2514/1.C031466).
6. **Takahashi, T.T.**, "Optimum Transverse Span Loading for Subsonic Transport Category Aircraft," AIAA Journal of Aircraft, Vol. 49, No. 1, Jan-Feb 2012. (DOI:10.2514/1.C031512).
7. **Takahashi, T.T.**, "Optimum Aspect Ratio for Subsonic Air Vehicles," AIAA Journal of Aircraft, Vol.48, No. 6, Nov-Dec 2011, pp. 1984-1993. (DOI:10.2514/1.C031402).
8. Daskilewicz, M. J., German, B.J., **Takahashi, T.T.**, Donovan, S., and Shajanian, A., "Effects of Disciplinary Uncertainty on Multi-Objective Optimization in Aircraft Conceptual Design," Structural and Multidisciplinary Optimization, Vol. 44, No. 6 (2011), pp. 831-846 (DOI:10.1007/s00158-011-0673-4).
9. Takahashi, T., Feely, R. A., Weiss, R., Wanninkhof, R. H., Chipman, D. W., Sutherland, S. C. and **Takahashi, T. T.**, "Global air-sea flux of CO₂: an estimate based on measurements of sea-air pCO₂ difference," Proc. Nat. Acad. Sci., vol. 94, 8292-8299, 1997.
10. Takahashi, T., **Takahashi, T. T.** and Sutherland, S. C., "An Assessment Of The Role Of The North Atlantic as a CO₂ Sink," Phil. Transactions Of The Royal Society Of London, Series B, Vol. 348, pp. 143-152, 1995.
11. **Takahashi, T.T.**, "Flow Beneath a Rotating Annulus," Physics of Fluids, Vol. 6, No. 5, 1994, pp. 1677-83.
12. Benson, R.C. and **Takahashi, T.T.**, "Mechanics of Flexible Disks in Magnetic Recording," ASME Advances in Information Storage Systems, Vol. 1, No. 1, 1991, pp. 15-35.

Refereed Conference Publications

Students who were advised primarily by Dr. Takahashi at the time of their graduation are indicated by a solid underline

1. **Takahashi, T.T.**, “Climb Performance of Very High T/W airframes,” accepted paper for AIAA Aviation 2024.
2. **Takahashi, T.T.**, “Landing Field Performance of Low L/D Gliding Airframes,” accepted paper for AIAA Aviation 2024.
3. **Takahashi, T.T.**, “Ezra Kotcher and the Configuration Aerodynamics of the Bell X-1 and X-2,” accepted paper for AIAA Aviation 2024.
4. **Takahashi, T.T.**, “Standby Rocket Systems to Facilitate Noise Abatement of Future Commercial Aircraft,” accepted paper for AIAA Aviation 2024.
5. Lorenzo, W.P. and **Takahashi, T.T.**, “A Reassessment of the Controllable Flight Envelope of the Bell X-1A Rocket Plane,” accepted paper for AIAA Aviation 2024.
6. Uribe-Quintero, E. and **Takahashi, T.T.**, “Flight Dynamics Issues of Control Coupling / Inertia Coupling Prone High-Speed Aircraft,” accepted paper for AIAA Aviation 2024.
7. Iyer, A., and **Takahashi, T.T.**, “The Impact of Drop-In vs. Dedicated Sustainable Aviation Fuel on Aircraft Performance and Design,” accepted paper for AIAA Aviation 2024.
8. Uribe-Quintero, E., Moreno, A., Lehmbeck, T., Anderson, S. and **Takahashi, T.T.**, “A Technical Study Demonstrating the Poor Marketability of Near-Sonic Ultra-Long-Haul-Range Airliners,” accepted paper for AIAA Aviation 2024.
9. Garcia, J., Asparuhov, B., Stuck, S., Bocek, J. and **Takahashi, T.T.**, “Challenges Designing Bio-Ethanol Fueled Airliners for Sustainable Intercontinental Aviation,” submitted for AIAA Aviation 2024.
10. **Takahashi, T.T.**, “Noise and Field Performance Impacts of FADEC Speed Scheduled Thrust Derate,” AIAA 2024-1705, 2024.
11. Hoopes, C.S. and **Takahashi, T.T.**, “Lateral-Directional Controllability Impacts of Longitudinal Pitch Trim Strategies on the Space Shuttle Orbiter,” AIAA 2024-2318, 2024.
12. Heinz, J.H. and **Takahashi, T.T.**, “Attainable Moment Sets – Approaches to Understanding Trim Capability in Conceptual Design,” AIAA 2024-2319, 2024.
13. O’Brien, K.P. and **Takahashi, T.T.**, “Tail Sizing Strategies to Ensure Low-Risk Maneuvering High-Speed Flight,” AIAA 2024-2320, 2024.
14. DeRoo, M. and **Takahashi, T.T.**, “A Study of the Economic Viability of Commercial Supersonic Flight,” AIAA 2024-2214, 2024.
15. Lorenzo, W.P. and **Takahashi, T.T.**, “Reconstructing and Reassessing Neil Armstrong’s “First Man” Flight in the North American X-15,” AIAA 2024-2643, 2024.
16. Lorenzo, W.P. and **Takahashi, T.T.**, “Can We Fly it? Yes, We Can: A Comparative Study of Military Airworthiness and Flight Operations” AIAA 2024-2213, 2024.
17. **Takahashi, T.T.**, “Determination of Optimal Cruise Points for General Purpose Hypersonic Airframes,” AIAA 2024-2217, 2024.
18. Valenzuela, J.V. and **Takahashi, T.T.**, “Wing Design Strategies for Vehicles Designed to Operate in Ground Effect,” AIAA 2024-0003, 2024.
19. Puentes, O.G. and **Takahashi, T.T.**, “Wingtip Treatments for Transonic Wing Planforms,” AIAA 2024-0001, 2024.

Refereed Conference Publications (cont'd)

20. **Takahashi, T.T.**, Griffin, J.A. and Grandhi, R.V., “A Review of High-Speed Aircraft Stability and Control Challenges,” AIAA 2023-3231, 2023.
21. **Takahashi, T.T.**, “Introducing the “Entrepreneurial Mindset” into Arizona State University’s Aerospace Engineering Capstone Design,” AIAA 2023-3661, 2023.
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171. Daskilewicz, M., German, B., **Takahashi, T.T.**, Donovan, S. and Shajanian, A., "Robust Design Considerations in the Multi-Objective Problem of Aircraft Conceptual Design," AIAA 2010-2755, 2010.
172. **Takahashi, T.T.**, German, B., Shajanian, A., Daskilewicz, M., and Donovan, S., "Zero Lift Drag and Drag Divergence Prediction for Finite Wings in Aircraft Conceptual Design," AIAA 2010-0846, 2010.
173. **Takahashi, T.T.**, "Strategies Teaching Configuration Aerodynamics in Aeronautical Engineering Capstone Design," AIAA 2009-1602, 2009.
174. **Takahashi, T.T.**, "The Search for the Optimal Wing Configuration for Small Subsonic Air Vehicles," AIAA 2008-5915, 2008.
175. **Takahashi, T.T.**, "Aeronautical Engineering Capstone Design at the University of Arizona," AIAA 2008-0494, 2008.
176. **Takahashi, T.T.**, Fanciullo, T., and Ridgely, D.B., "Incorporation of Flight Control Design Tools into the Multi-Disciplinary Conceptual Design Process," AIAA 2007-0656, 2007.
177. Cunnington, R., Bays, L.V. and **Takahashi, T.T.**, "Incorporation of Aerothermodynamic Analysis Tools into the Multi-Disciplinary Conceptual Design Process," AIAA 2007-0406, 2007.
178. **Takahashi, T.T.**, "Integrated Propulsion/Airframe Analysis for Mission Effectiveness Driven Systems Design," AIAA 2005-4556, 2005.
179. Turner, D., Birney, M. and **Takahashi, T.**, "The Effect of Mission Requirements on Propulsion Design for Advanced Weapons Systems," AIAA-2005-4196, 2005.
180. **Takahashi, T.T.**, Spall, R.J., Turner, D.C., Birney, M.T. "A Multi-Disciplinary Survey of Advanced Subsonic Tactical Cruise Missile Configurations," AIAA 2005-0709, 2005.
181. **Takahashi, T.T.**, Spall, R.J., Turner, D.C., Otto, J.C. and O'Hagan, P., "A Multidisciplinary Assessment of Morphing Aircraft Structures Applied to a Cruise Missile Configuration," AIAA 2004-1725, 2004.
182. **Takahashi, T.T.** and Coopersmith, R.M., "Wing Section Design for a Long-Range Hydrofoil Transport," AIAA 2002-0834, 2002.

Refereed Conference Publications (cont'd)

183. **Takahashi, T.T.** and Coopersmith, R.M., "Hydrofoil Wing Section Development with High Lift Devices" AIAA 2002-0833, 2002.
184. **Takahashi, T.T.**, Coopersmith, R.M., Novak, C.J. and Olliffe, R., "A Multidisciplinary Design Optimization of a Long-Range Hydrofoil Transport," AIAA 2001-1106, 2001.
185. **Takahashi, T.T.**, "Measurement of Air Flow Characteristics Using Seven Hole Cone Probes," AIAA 97-0600, 1997.
186. **Takahashi, T.T.**, "On the Decomposition of Drag from Wake Survey Measurements," AIAA 97-0717, 1997.
187. **Takahashi, T.T.**, Eidson, R.C. and Heineck, J.T. "Aerodynamic Characteristics of a Supersonic Transport with Pneumatic Forebody Flow Control," AIAA 97-0043, 1997.
188. Parker, B., Eidson, R.C., **Takahashi, T.T.**, "High Speed Civil Transport Forebody Vortex Control," AIAA 97-0042, 1997.
189. **Takahashi, T.T.**, Parker, B., Eidson, R.C., and Heineck, J.T., "Flow Physics of a HSCT Configuration with Pneumatic Forebody Flow Control" NASA High Angle of Attack Conference, Sept. 1996.
190. **Takahashi, T.T.** and Ross, J.C., "On the Development of an Efficient Wake Survey System," SAE Paper 95-1990, 1995.
191. Storms, B.L., **Takahashi, T.T.** and Ross, J.C., "Aerodynamic Influence of a Finite-Span Flap on a Simple Wing," SAE Paper 95-1977, 1995.

Other Publications

1. **Takahashi, T.T.** and Perez, R.E., "A Procedure to Improve the Operational Safety of the CC-130H by Elevating the Obstacle Clearance Speed," RMC AeroMech Dept Report No. 21-11-20, 2020. (CDRL for Canada DND sponsored project)
2. **Takahashi, T.T.** and Perez, R.E., "Analysis of CC-130 Airframe Asymmetry Impact of Performance & Controllability," RMC AeroMech Dept Report No. 18-11-20 (CDRL for Canada DND sponsored project)
3. **Takahashi, T.T.** and Perez, R.E., "Analysis of CC-130 Engine Inoperative Trim and Minimum Control Speed," RMC AeroMech Dept Report No. 10-12-19, 2019. (CDRL for Canada DND sponsored project)
4. **Takahashi, T.T.** and Perez, R.E., "Analysis of CC-130 Airframe Asymmetry Impact of Performance & Controllability," RMC AeroMech Dept Report No. 11-12-19, 2019. (CDRL for Canada DND sponsored project)
5. Pedersen, J. and **Takahashi, T.T.**, "Electric Propulsion Simulation for the MDO Environment," Raytheon MMTN Conference, El Segundo CA, Sept. 2007. (ITAR restricted)
6. Sanderson, T., **Takahashi, T.T.**, et.al., "Compact Stowable Wings for Missiles and UAVs," Raytheon MMTN Conference, El Segundo CA, Sept. 2007 (ITAR restricted)
7. **Takahashi, T.T.**, "Quantitative Systems Engineering and the Multi-Disciplinary Conceptual Design Process," Raytheon Technology Today, Issue 3/2006, Sept. 2006.
8. **Takahashi, T.T.**, "Multi-Disciplinary Optimization Methods for Air Vehicle Design," Raytheon MMTN Conference, Boston MA, Sept. 2006 (ITAR restricted)
9. Cunnington, G.R., Bays, L.V. and **Takahashi, T.T.**, "Incorporation of Aerothermodynamic Analysis Tools into the Multi-Disciplinary Conceptual Design Process," Raytheon MMTN Conference, Boston MA, Sept. 2006. (ITAR restricted)
10. Sanderson, T., **Takahashi, T.T.**, et al., "Preliminary Design of Span and Chord Morphing Wings," Raytheon MMTN Conference, Boston MA, Sept. 2006. (ITAR restricted)
11. **Takahashi, T.T.** and Ross, J.C., "Wake Survey System," Aerospace Engineering, May 1996, pp. 31-34.
12. **Takahashi, T.T.**, "Measurement of Air Flow Characteristics Using Seven-Hole Cone Probes," NASA TM-112194, May 1997.
13. Storms, B.L, **Takahashi, T.T.**, Horne, C., Ross, J.C., Dougherty, R.P. and Underbrink, J.R., "Flap Tip Treatments for the Reduction of Lift Generated Noise," NASA CDTM-21006, March 1996.
14. **Takahashi, T.T.**, "Flow Beneath a Spinning Disk," Ph.D Dissertation, Department of Mechanical Engineering, University of Rochester, 1993 (available from UMI)

Other Scholarly Activities

Patents

1. **Takahashi, T.T.**, Campton, C. B., and Wood, D.L., Compact Wind Power Generation System, US Patent 10,151,302, December 11, 2018.

Invited Academic Seminars

1. Queen Mary University of London, London, UK, "Are Winglets for the Birds?," July 2015
2. Royal Military College of Canada, Kingston, ON, CA, "Are Winglets for the Birds?" Mar. 2015
3. Raytheon Missile Systems, Systems Engineering & Analysis Symposium, Tucson, AZ. "Commercialization of Military Robotics Into Civilian Society," Sept. 2014
4. Arizona State University, 2nd Governance of Emerging Technologies: Law, Policy and Ethics Conference, Chandler, AZ. "As Time Drones On," May 2014.
5. University of New Mexico, "Are Winglets for the Birds?" Mechanical Engineering Seminar Series, Feb. 2014.
6. New York University School of Law, DRONESCONFERENCE 2013, Oct. 2013.
7. Arizona State University, 1st Governance of Emerging Technologies: Law, Policy and Ethics Conference, Chandler, AZ. "Federal Regulation of Robotic Aircraft," May 2013.
8. Arizona State University, Center for Science Policy Outcomes, Tempe, AZ. "Drones and US," Feb. 2013.
9. Arizona State University, School for Engineering of Matter, Transport and Energy, Tempe, AZ Sep. 2011.
10. Virginia Polytechnic and State University, Department of Aerospace and Ocean Engineering, Blacksburg, VA. Mar. 2011.
11. Santa Clara University, Department of Mechanical Engineering, Santa Clara, CA. Jan. 2011.
12. University of Rochester, Department of Mechanical Engineering, Rochester, NY. May 2009.
13. Wichita State University, Department of Aerospace Engineering, Wichita, KS. May 2008.
14. California Institute of Technology, GALCIT, Pasadena, CA, Jan. 2006

Students Advised

Graduate Students - In Process

1. Uribe Quintero, E., High Speed Vehicle Flight Dynamics
2. Wu, E., High Speed Aerodynamic Prediction Methods
3. Iyer, A., Transonic Aerodynamics of Serrated Leading Edge Airfoils
4. Lin, C.-H., Low Speed Aerodynamics

Students Advised (Cont'd)

M.S. Thesis Advisor

1. Valenzuela, Jose V., M.S. thesis, "Aerodynamic Nuances of Wings Subjected to Ground Effect," Arizona State University, Tempe, AZ, February 2024. (Initial career placement: Grand Canyon University, Phoenix, AZ)
2. Ratnayake, Sajana S., M.S. thesis, "Use of Potential Flow Solvers for Automobile Racing Applications," Arizona State University, Tempe, AZ, November 2023.
3. Lorenzo, William P., M.S. thesis, "Fundamental Assessment of High-Speed Aircraft Stability and Control from Historic Flight Tests," Arizona State University, Tempe, AZ, November 2023. (Initial career placement: United States Air Force AFIT, Dayton, OH)
4. Heinz, Joshua H., M.S. thesis, "Attainable Moment Sets – Approaches to Understanding Trim Capability in Conceptual Design," Arizona State University, Tempe, AZ, August 2023. (Initial career placement: Lockheed Martin Skunk Works, Palmdale, CA)
5. O'Brien, Kevin P., M.S. thesis, "Open Loop Stability & Control Screening of High-Speed Slender Aircraft," Arizona State University, Tempe, AZ, April 2023. (Initial career placement: Northrop/Grumman, Chandler, AZ)
6. Hoopes, Connor S., M.S. thesis, "Increasing Lateral-Directional Controllability and Investigating Elevator-Body Flap Interaction for the Shuttle Orbiter," Arizona State University, Tempe, AZ, April 2023. (Initial career placement: Northrop/Grumman, Chandler, AZ)
7. Webb, Benjamin, M.S. thesis, "The Effects of Static Aeroelastic Properties on Aircraft Performance and Shockwave Formation," Arizona State University, Tempe, AZ, November 2022. (Initial career placement: NASA/Ames Research Center, Moffett Field, CA)
8. Griffin, Jack, A. M.S. thesis, "A "Mission Code" Approach to Conceptual Design of Hypersonic Vehicles," Arizona State University, Tempe, AZ, April 2022. (Initial career placement: United States Air Force AFIT, Dayton, OH)
9. Blair, Martin. M.S. thesis, "Conceptual Composite Wing Design," Arizona State University, Tempe, AZ, July 2021.
10. Souders, Tyler. J. M.S. thesis, "Modernization of a Vortex-Lattice Method with Aircraft Design Applications," Arizona State University, Tempe, AZ, April 2021. (Initial career placement: PhD Student, University of Colorado, Boulder, CO)
11. Martinez-Rodriguez, Gabino. M.S. thesis, "A Study and Design of Multi-Element High Lift Systems for Commercial Transport Aircraft," Arizona State University, Tempe, AZ, April 2021. (Initial career placement: Nammo-Talley, Phoenix, AZ now at NASA/Langley Research Center, Hampton, VA)
12. Plaban, Punya. M.S. thesis, "Revisiting Aerodynamic Modifications to a Thin Transonic Wing & Küchemann's Critical Pressure Co-efficient Rule," Arizona State University, Tempe, AZ, April 2021. (Initial career placement: Skyroot Aerospace, Hyderabad, India, presently PhD student at Penn State)
13. Armenta, Francisco X., Jr., M.S. thesis, "Revisiting the Transonic Area Rule for Conceptual Aerodynamic Design," Arizona State University, Tempe, AZ, April 2021. (Initial career placement: Boeing, Everett, WA)
14. Chaudhary, Bhargav, M.S. thesis, "Assessing Flight Performance of a Supersonic Airliner with Swing Wing Capabilities using Energy Maneuverability Theory," Arizona State University, Tempe, AZ, April 2021.
15. Kurus, Noah J., M.S. thesis, "An Exploration into the Nuances of Supersonic Transport Design," Aerospace Engineering, Arizona State University, Tempe, AZ, November 2020. (Initial career placement: Honeywell, Phoenix, AZ)

Students Advised (cont'd)

M.S. Thesis Advisor (cont'd)

16. Gadekar, Vipul P., M.S. thesis, "Design of Wings for Jump Gliding in a Biped Robot," Aerospace Engineering, Arizona State University, Tempe, AZ, August 2020. (Co-Advised with Prof. Daniel Aukes)
17. Thomas, Philip R., M.S. thesis, "Aircraft are not Fair-Weather Friends: An Analysis of Aircraft En-Route Performance and Economy with Real-World Atmospheric Conditions," Aerospace Engineering, Arizona State University, Tempe, AZ, November 2019. (Initial career placement: Engineering Research and Consulting, Inc. Contractor at Eglin AFB, FL)
18. Burgett, Luke M.S. thesis, "Comparison of Traditional Two-Spool and Three-Spool with Vaneless Counter-Rotating Low-Pressure Turbine for Aircraft Propulsion Power Extraction," Aerospace Engineering, Arizona State University, Tempe, AZ, April 2019. (Initial career placement: Williams International, Walled Lake, MI)
19. Ou, Che Wei, M.S. thesis, "The Effect of Leading-Edge Geometry on the Induced Drag of a Finite Wing," Aerospace Engineering, Arizona State University, Tempe, AZ, April 2019. (Initial career placement: National Chung-Shan Institute of Science & Technology, Lung-Tan, Tao-Yuan, Taiwan, R.O.C.)
20. Miskin, Daniel L., M.S. thesis, "Early Wing Structural Design for Stiffness and Frequency Response," Aerospace Engineering, Arizona State University, Tempe, AZ, November 2018. (Initial career placement: Raytheon Missile Systems, Tucson, AZ)
21. Raines, Taylor, M.S. thesis, "Propellant Mass Scaling and Decoupling and Improved Plasma Coupling in a Pulsed Inductive Thruster," Aerospace Engineering, Arizona State University, Tempe, AZ, June 2018. (Co-advisor with Daniel B. White) (Initial career placement: General Atomics, San Diego, CA)
22. Delisle, Mathew, M.S. thesis, "Destabilized Aircraft Response: The Implications of Pilot Trim Error," Aerospace Engineering, Arizona State University, Tempe, AZ, April 2018. (Initial career placement: Boeing Commercial Aircraft, Everett, WA)
23. Cleary, Spencer, M.S. thesis, "The Supersonic Performance of High Bypass Ratio Turbofan Engines with Fixed Conical Spike Inlets," Aerospace Engineering, Arizona State University, Tempe, AZ, April 2018. (Initial career placement: Boeing, Huntington Beach, CA)
24. Wilson, John R., M.S. thesis, "The Doghouse Plot: History, Construction Techniques, and Application," Aerospace Engineering, Arizona State University, Tempe, AZ, November 2017 *winner of The Fall 2017 ASU Outstanding Engineering Graduate Student award (Initial career placement: Orbital Sciences, Chandler, AZ)
25. Wood, Donald L., M.S. thesis, "Experimental Investigation of Typical Aircraft Field Performance Versus Predicted Performance Targets," Aviation Management Technology (co-advised with Mary Niemczyk), Arizona State University, Tempe, AZ, May 2017. (Initial career placement: Academic Professional, Arizona State University, Mesa, AZ)
26. Beard, John E., M.S. thesis, "Takeoff Obstacle Clearance Procedures: The Feasibility of Extended Second Segment Climb," Aerospace Engineering, Arizona State University, Tempe, AZ, April 2017. (Initial career placement: Raytheon Missile Systems, Tucson, AZ) * runner up for the 2017 Outstanding SEMTE Graduate Thesis award
27. Anderson, Benjamin K., M.S. thesis, "Conceptual Fuselage Design with Direct CAD Modeling," Aerospace Engineering, Arizona State University, Tempe, AZ, April 2017. (Initial career placement: Textron Aviation, Wichita, KS)
28. Verbin, A.J., M.S. thesis, "Detail Design of a Pulsed Plasma Test Stand," Aerospace Engineering, Arizona State University, Tempe, AZ, April 2017. (Initial career placement: Raytheon Missile Systems, Tucson, AZ)

Students Advised (cont'd)

M.S. Thesis Advisor (cont'd)

29. Hadder, Eric, M.S. thesis, "Predicting Minimum Control Speed On The Ground (VMCG) And Minimum Control Airspeed (VMCA) Of Engine Inoperative Flight Using Aerodynamic Database And Propulsion Database Generators," Aerospace Engineering, Arizona State University, Tempe, AZ, November 2016. (Initial career placement: Earth Air, Mesa, AZ)
30. Kirkman, Jeffrey J., M.S. thesis, "Transonic Flow Around Swept Wings: Revisiting Von Karman's Similarity Rule," Aerospace Engineering, Arizona State University, Tempe, AZ, April 2016. (Initial career placement: Textron Aviation, Wichita, KS)
31. Heitzman, Nicholas, M.S. thesis, "Comparison of Commercial Aircraft Fuel Requirements in Regards to FAR, Flight Profile Simulation, and Flight Operational Techniques," Aerospace Engineering, Arizona State University, Tempe, AZ, April 2014. (Initial career placement: Honeywell, Phoenix, AZ)

M.S. Applied Project Advisor

1. Ratnayake, S.. Three-Dimensional Geometry Synthesis to Achieve a Wing Target Pressure Distribution, Arizona State University, May 2020. (Now PhD student at ASU)
2. Frede, K., Engine Installation Interference Effects on a Transonic Wing, Arizona State University, Tempe, AZ, May 2019. (Initial career placement: Northrop Grumman, Chandler, AZ)
3. Shillingburg, Ryan. Hypersonic Vehicle Aerodynamic Configuration Studies, Arizona State University, Tempe, AZ, May 2019. (Initial career placement: Raytheon Missile Systems, Tucson, AZ)
4. Snodgrass, N. High Speed Propulsion, Arizona State University, Tempe, AZ, December 2018. (Initial career placement: General Dynamics, Tempe, AZ)
5. McCourt, Anthony. Materials Selection and Structural Design for a Hybrid Rocket Combustion Chamber, Arizona State University, Tempe, AZ, May 2018. (Initial career placement: Honeywell, Phoenix, AZ)
6. Leader, Robert. High-Bypass Ratio Turbofan Engine Design Studies, M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2018. (Initial career placement: Honeywell, Phoenix, AZ)
7. Winsryg, Benjamin. Aerothermal Environments Developed By High Speed Atmospheric Flight. M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2018. (Initial career placement: Lockheed Martin Space Systems, Denver, CO)
8. Stone, Nathan. Power and bleed air extraction from small commercial turbofan engines intended to power HALE aircraft. M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2018. (Initial career placement: General Atomics Aeronautical Systems, Adelanto, CA)
*winner of the Spring 2018 SEMTE Outstanding Graduate TA award
9. Garnica, Isaac. Power and bleed air extraction from single and multi-shaft turbofan engines. M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2016. (Initial career placement: Honeywell, Phoenix, AZ)
10. Allyn, Mathew. Wing structural design consequences of active load alleviation. M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, December 2015. (Initial career placement: Boeing Commercial Airplane Company, Seattle, WA)
11. Quackenbush, Jess, Induced Drag of Sharp Leading Edge Wings. M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, December 2015. (Initial career placement: Orbital Sciences, Chandler, AZ)

Students Advised (cont'd)

M.S. Applied Project Advisor (cont'd)

12. Palma, Ryan M., Inlet / Engine Matching for Supersonic Turbofan Engines. M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, December 2015. (Initial career placement: Raytheon Missile Systems, Tucson, AZ now at NASA/Langley Research Center, Hampton, VA)
13. Swann, Matthew, Flight Dynamics Screening Tools. M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2015. (Initial career placement: Raytheon Missile Systems, Tucson, AZ)
14. Dickmann, Christopher A., Installed Performance Modelling of Supersonic Normal Shock Engines using NPSS. M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2015. (Initial career placement: Northrop/Grumman, El Segundo, CA)
15. Jensen, James C., Spanwise Effects of Wing Thickness. M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2015. (Initial career placement: NASA/Ames Research Center, Moffett Field, CA)
16. Barchfield, Christopher A., Induced Drag of Low Aspect Ratio Wings. M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2015.
17. Merrell, Michael Q., Peakey Leading Edge Airfoil Design M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2015. (Initial career placement: Raytheon Missile Systems, Tucson, AZ)
18. Kamat, Sagar. Wing Speed Theory Validation Through Higher-Order Computation. M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2015. (Initial career placement: Product Engineer-Vehicle Engineering at Ford Motor Company, Dearborn, MI)
19. Smith, Danis B., Reverse Thrust Certification as a Primary Ground Deceleration Device. M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2015. (Current Position: Engineer at Honeywell Aerospace, Phoenix, AZ)
20. Mirochnitchenko, Vladimir, Wing-in-ground-effect Vehicle Concept Design, M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2015. (Initial career placement: Raytheon Missile Systems, Tucson, AZ)
21. Dulin, Derek J., Fundamental Aerodynamics of Swept Wings, M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2015. (Initial career placement: Raytheon Missile Systems, Tucson, AZ)
22. Lemonds, Tyler, Automated Wing Structural Design, M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, December 2014. (Initial career placement: Textron Aerospace, Wichita, KS)
23. Gedeon, Christopher, Energy Maneuverability of Combat Aircraft, M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2014. (Initial career placement: Honeywell Aerospace, South Bend, IN presently at Northrop/Grumman, Baltimore, MD)
24. Kady, Christopher, Aero-Structural Design of Transonic Wings, M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2014. (Initial career placement: Honeywell Aerospace, Phoenix, AZ presently at Boom Aerospace, Denver, CO)
25. DeStories, Jason, "A Method for Optimizing and Evaluating Propeller Performance Established on Airfoil Test Data," M.S. applied project, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2013. (Current Position: Boeing Helicopters, Mesa, AZ)

Students Advised (cont'd)

B.S. Honors Thesis Advisor

1. De Roo, M., "A Feasibility Study of Global Commercial SST, Building a Database on Routing Financials and Logistics for Major Airline Corporations," ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, April 2023.
2. Cruz, B.M., "Signal Analysis of High Frequency Binaural Audio," ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, April 2023.
3. Marino III, M.A., "Robust Autopilot Control of a Ground Vehicle," ASU Barrett Honors College B.S. thesis, Mechanical Engineering, Arizona State University, Tempe, AZ, October 2022.
4. Stauffer, M.T., "Generalized Propulsion Force Accounting," ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, April 2022. (Initial career placement: Northrop-Grumman, Chandler, AZ)
5. Walther, C. & Mazza, S., Automobile Drag Reduction through Vortex Generators, ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, April 2022.
6. O'Brien, K. "An Investigation of the Bell X-2 and the Factors that lead to its Fatal Accident," ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, November 2021. (Initial career placement: M.S. Candidate at ASU)
7. Heitmann, K. "Analyzing Internal Stresses in a Dragon Boat Paddle to Optimize First Stroke Technique," Aerospace Engineering, Arizona State University, Tempe, AZ, April 2021. (Initial career placement: Boeing, St. Louis, MO)
8. Ranganathan, A. & Karthikeyan, S. "Exploration of Intercontinental Rocket Travel Using the Commercialization of the Airline Industry," Aerospace Engineering, Arizona State University, Tempe, AZ, April 2021.
9. Olzak, P. "Analytical Drag Analysis of Drafting NASCAR Models," ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, April 2021.
10. Roden, M., "Dynamics of Oversteer: Modelling Drift by Solving a System of Equations," ASU Barrett Honors College B.S. thesis, Mechanical Engineering, Arizona State University, Tempe, AZ, August 2020.
11. Blair, M., & Armenta, F. "Modeling Trajectories of Supersonic Projectiles," ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2020. (Initial career placement: M.S. Candidates at ASU)
12. Schierbrock, A. "Design of Tool to Predict Flight Envelope Properties," ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2020. (Initial career placement: M.S. Candidate at ASU)
13. Kolesov, N., "Automated Generation of Aircraft Wing Structure," ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, December 2019. (Initial career placement: Contractor at NASA/Ames Research Center, CA)
14. Glynn, Julia, "An Experimental Investigation of Aerodynamic Drag on Different Cycling Outfits," ASU Barrett Honors College B.S. thesis, Mechanical Engineering, Arizona State University, Tempe, AZ, December 2019.

Students Advised (cont'd)

B.S. Honors Thesis Advisor

15. Jordan, A. Claire, "Theory vs. Practice: An In-Depth Analysis of Engineering Education and the Careers that Follow," ASU Barrett Honors College B.S. thesis, Mechanical Engineering, Arizona State University, Tempe, AZ, May 2019. (Initial career placement: Texas Instruments, Dallas, TX)
16. Goudamanis, Christy M. and Lai, E. "Future of Patentability for Biotechnology," ASU Barrett Honors College B.S. thesis, BioMedical Engineering, Arizona State University, Tempe, AZ, May 2019.
17. Sanchez, Z. "Effects of Diffusers With and Without Vortex Generators on Overall Flow and Velocity Distribution," ASU Barrett Honors College B.S. thesis, Mechanical Engineering, Arizona State University, Tempe, AZ, May 2018. (Initial career placement: Cypress Semiconductors, Austin, TX)
18. McCourt, A. "Aerodynamic Stability of a Small Bluff-Bodied Vehicle," ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2018. (Initial career placement: M.S. Candidate at ASU)
19. Patrick, N. "A Tool for Parametric Modelling of Aircraft Landing Gear," ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2018. (Initial career placement: Northrop Grumman, El Segundo, CA)
20. Morrow, M. "Leading Edge Geometry Effects on Pressure Drag and Pressure Thrust for Various Wing Geometries" ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2017. (Initial career placement: Ph.D candidate in Aerospace Engineering at Georgia Tech)
21. Coote, P.J. "Investigation into the von Karman Vortex Street and the Relationship Between Reynolds and Strouhal Numbers," ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2017.
22. Leader, R. "Automatic Area-Ruling of Aircraft Geometries" ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2017. (Initial career placement: M.S. candidate at ASU)
23. Sparks, G. Philip "Planing and The Effect of Bicycle Frame Stiffness on Rider Performance" ASU Barrett Honors College B.S. thesis, Mechanical Engineering, Arizona State University, Tempe, AZ, May 2017.
24. Elliott, S. "A Tool for the Parametric Modeling of Aircraft Bodies" ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2017. (Initial career placement: M.S. candidate at ASU)
25. Brausch, M. "Wake Surveys behind Golf Club Heads" ASU Barrett Honors College B.S. thesis, Mechanical Engineering, Arizona State University, Tempe, AZ, May 2016. (Initial career placement: M.S. candidate at ASU)
26. Milroy, M. "How Surface Roughness Contributes to the Overall Drag of Certain Spherical Objects." ASU Barrett Honors College B.S. thesis, Mechanical Engineering, Arizona State University, Tempe, AZ, May 2016. (Initial career placement: Microsoft, Seattle, WA)
27. Sexton, T., "Optimal Modeling of Knots in Wood: A study into the severity of wood-grain defects on beam stiffness," ASU Barrett Honors College B.S. thesis, Mechanical Engineering, Arizona State University, Tempe, AZ, May 2015. (presently M.S. candidate at ASU)

Students Advised (cont'd)

B.S. Honors Thesis Advisor

28. Creighton, A., "Analysis of Regulations on the Landing and Take-Off of Commercial Aircraft," ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2014. (Initial career placement: Raytheon Missile Systems, Tucson, AZ)
29. Duensing, J., "PID Control Techniques for the Autonomous Quadrotor and a Frequency Approach to Analyzing and Identifying Dynamic Models," ASU Barrett Honors College B.S. thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2014. (Initial career placement: M.S. graduate studies in Aerospace Engineering, Arizona State University, Tempe, AZ)

Undergraduate Research Advisor (ASU Dean's Office – Fulton Undergraduate Research Initiative)

1. Lucas Van Noord, Aircraft Mass Properties Estimation (Spring 2023)
2. Zak Norris, Aircraft Structural Joints (Spring 2022, Fall 2022)
3. Jack Griffin, Aircraft Structural Mass Estimation (Spring 2021)
4. Ivan Pesquiera, Carbon Fibre Aircraft Structures (Spring 2021)
5. Kevin O'Brien, Flight Dynamics of Small Aircraft (Spring 2020, Fall 2020)
6. Nitish Chennjou, Flight Test Data Reduction (Spring 2020, Fall 2020)
7. Maxwell Stauffer, In Flight Propulsion Testing (Spring 2020, Fall 2020)
8. Nikolay Kolesov, Lightweight Structural Design for Strength and Buckling Resistance, (Fall 2018, Spring 2019)
9. Daniel Kosendar, In Flight Propulsion Testing (Spring 2019, Fall 2019)
10. J. Evan Barker, Wind Tunnel Propulsion Testing (Spring 2019)
11. A Claire Jordan, Thermally Induced Buckling of Aerospace Structures, (Spring 2018, Fall 2018)
12. Ivan Milosavljevic, Aircraft Flight Operations (Spring 2017, Fall 2017)
13. Matthew Bajamundi, Electric aircraft propulsion (Fall 2017)
14. Galen Kingsley, Leading Edge Suction Investigation through Wake Surveys (Fall 2017, Spring 2018)
15. Erik Krutchen, Aircraft Flight Operations (Spring 2017)
16. Ivan Kruts, Propeller testing (Fall 2016, Spring 2017)
17. Robert Leader, Parametric CAD of supersonic aircraft (Spring 2016, Fall 2016)
18. Edgar Castillo, Wake Survey Probe (Fall 2015, Spring 2016)
19. Aaron Molina, Wake Survey System (Fall 2015, Spring 2016)
20. Tanguy Toulouse, Propeller Thrust Stand Fixture (Fall 2015, Spring 2016)
21. Steven Elliott, Parametric CAD of subsonic aircraft (Fall 2015, Spring 2016)
22. Michael Benassi, Advanced Materials / Aviation Safety Public Policy (Fall 2014, Spring 2015)
23. Eric Chang, Materials & Fabrication Techniques for Small UAV (Fall 2014, Spring 2015)
24. Garrett Heuer, Field Performance / Aviation Safety Public Policy (Fall 2014, Spring 2015)
25. Eric Horton, Flight Operations / Aviation Safety Public Policy (Summer 2014, Fall 2014)
26. Andrew Creighton, Runway Excursions / Aviation Safety Public Policy (Fall 2013, Spring 2014)
27. Matthew Swann, CAD Integrated Analysis (Spring 2013, Fall 2013)
28. Derek Dulin, CAD Integrated Aerodynamic Analysis (Spring 2013)
29. Zachary Branum, CAD Integrated Aerodynamic Analysis (Spring 2013)

Undergraduate Research Advisor (ASU NASA Space Grant)

1. Ryan Oppen – Aircraft Loads and Subsystem Design (Fall 2023, Spring 2024)
2. Lina Youssfi – Materials Selection of Aerospace Structures (Fall 2023, Spring 2024)
3. Lucas Guaglardi – Design of Electric Ducted Fan Propulsors (Fall 2022, Spring 2023, Fall 2023, Spring 2024)
4. David Ordaz Perez – Design of Rocket Recovery Parachutes (Fall 2021, Spring 2022, Fall 2022, Spring 2023)
5. Dustin Eilers – Ramjet Propulsion System Design (Fall 2021)
6. Cole Errico – Design of Launch Vehicle Structures (Fall 2020, Spring 2021)
7. Sepideh Jafarzadeh - Rocket Nozzle Testing (Fall 2014, Spring 2015)

Students Advised (cont'd)

Outside Committee Member

1. Burgett, J.K., "Schlieren Optics and Photoacoustic Imaging," B.S. Honors Thesis, Biomedical Engineering, Arizona State University, Tempe, AZ, 2022.
2. Mulford, P.M., "Environment Sensor Coverage Using Multi-Agent Robot Headings," M.S. Thesis, Mechanical Engineering, Arizona State University, Tempe, AZ, August 2020.
3. Schmollgruber, P., "Enhancement of the Aircraft Design Process Through Certification Constraints Management and Full Mission Simulations," PHD, ISAE – SUPAERO, Toulouse, FRANCE, 2019.
4. Haug, A.J. "Ionic Wind Propulsion," ASU Barrett Honors College B.S. Honors thesis, Mechanical Engineering, Arizona State University, Tempe, AZ, May 2017.
5. Gibson, G.S., "Rocket Engine Nozzle Ejectors," ASU Barrett Honors College B.S. Honors thesis, Aerospace Engineering, Arizona State University, Tempe, AZ, May 2014.
6. Gyllenhall, W., M.S. applied project, Mechanical Engineering, Arizona State University, Tempe, AZ, May 2013.
7. Martinjako, J., "Simple Method for Estimating Shaft-Power Gas Turbine Off-Design Point Performance," B.S. Honors Thesis, Mechanical Engineering, Arizona State University, Tempe, AZ, April 2013.
8. Vallone, M., "Parameter Estimation of Fundamental Technical Aircraft Information Applied to Aircraft Performance," M.S. thesis, Aerospace Engineering, California Polytechnic State University, San Luis Obispo, CA, September 2010
9. Calabretta, J., "A Three Dimensional Vortex Particle-Panel Code for Modeling Propeller-Airframe Interaction," M.S. thesis, Aerospace Engineering, California Polytechnic State University, San Luis Obispo, CA, June 2010.
10. Ramos, A., "Development of a Meshless Method to Solve Compressible Potential Flows, M.S. thesis, Aerospace Engineering," California Polytechnic State University, San Luis Obispo, CA, June 2010.
11. Lane, K.A., "Novel Inverse Airfoil Design Utilizing Parametric Equations," M.S. thesis, Aerospace Engineering, California Polytechnic State University, San Luis Obispo, CA, June 2010.
12. Baukol, C. R., "Development of an Integrated Gaussian Process Metamodeling Application for Engineering Design," M.S. thesis, Aerospace Engineering, California Polytechnic State University, San Luis Obispo, CA, June 2009.
13. Morrisey, B. J., "Multidisciplinary Design Optimization of an Extreme Aspect Ratio HALE UAV," M.S. thesis, Aerospace Engineering, California Polytechnic State University, San Luis Obispo, CA, June 2009.

PROFESSIONAL REFERENCES FOR PROF. TAKAHASHI

1. M Christopher Cotting, PhD, Director of Research & GNC, EpiSys Science, Inc., 1635 Staffordshire Drive, Lancaster CA, 93534, former Director of Research for the USAF Test Pilot School, Edwards AFB, Edwards, CA. 661-547-7975 chris@cottings.com OR cotting@episci.com
2. Ruben E. Perez, PhD P.Eng, Associate Professor Department of Mechanical and Aerospace Engineering, Royal Military College of Canada PO Box 17000, Station Forces Kingston, ON, K7K 7B4 (613) 541-6000 ext. 6168 Ruben.Perez@rmc.ca
3. András Sóbester, PhD, Associate Professor in Aircraft Engineering, Faculty of Engineering and Physical Sciences, Building 176 - Boldrewood Campus, University of Southampton, Southampton SO16 7QF +44 023 80592350 A.SOBESTER@soton.ac.uk
4. Patrick Rodi, PhD, Professor in the Practice (retired), Mechanical Engineering, Rice University, B133 Abercrombie Engineering Lab, P.O. Box 1892, Houston, TX 77251. CTO, Adelante Sciences, 2542 Du Lac Trace, Seabrook, TX, 7786, 832-496-3899 Patrick.Rodi@AdelanteSciences.com
5. Jeffrey Kirkman, MS, Staff Engineer, Lockheed Martin Skunkworks – Control Law Development Department, Mail Drop 4283, P.O. Box, 748, Fort Worth, TX 76101 USA 210-445-7576 Jeffrey.J.Kirkman@lmco.com