Hasan Davulcu

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RESEARCH INTERESTS

Responsible and Explainable AI: *Safety, Security, Transparency, and Governance of AI Systems*;
Socio-Technical AI Systems: *Polarization, Disinformation, and Social Influence*;
Programmable and Human-Centered AI Architectures: *Virtuous AI and Proof-Carrying AI*;
AI for Public Interest and National Security: *Workflow Security and Trusted AI Systems.*

EDUCATION

- **Stony Brook University** (1995 – 2002), New York, USA
  Doctor of Philosophy in **Computer Science**
  Thesis: A Game Logic for Workflows of Non-cooperative Services
  Advisor: Prof. Michael Kifer and Prof. I.V. Ramakrishnan
- **Stony Brook University** (1993 – 1995), New York, USA
  Master of Science in Engineering in **Computer Science**
- **Middle East Technical University (METU)** (1989 – 1993), Ankara, Turkey
  Diploma (B.S.) in **Mathematics**; Rank in graduating class: 2/160

ACADEMIC EMPLOYMENT

- **Professor**, Aug. 2020 – up to now
  Arizona State University, Tempe, USA
  Appointment: School of Computing, Informatics and Decision Systems Engineering.
  Director: Cognitive Information Processing Systems Laboratory (CIPSLab)
  Honors Faculty, Honours College at ASU
- **Associate Professor**, Aug. 2009 – Aug. 2020
  Arizona State University, Tempe, USA
  Appointment: School of Computing, Informatics and Decision Systems Engineering.
- **Assistant Professor**, Aug. 2002 – 2009
  Arizona State University, Tempe, USA
  Appointment: School of Computing, Informatics and Decision Systems Engineering.

PROFESSIONAL EMPLOYMENT

- **Co-founder**, ARTIS MAGI, LLC. - April 18, 2020, Phoenix, AZ.
  An AI-Powered Marketing and Advertising Platform. web: https://magi.ai/
- **Co-founder**, ARTIS Looking Glass, LLC. - Oct 7, 2016, Phoenix, AZ.
  Powerful social media advertising and analytics platform to empower marketers to listen, publish, and engage across media. web: http://artislookingglass.com/
- **Intern and Consultant**, Bell Labs, Lucent Technologies June 1997 - August 1998, NJ, USA
  Designed and implemented a Layered Architecture for Querying Dynamic Web Content.

RESEARCH SUPPORT

SUMMARY OF RESEARCH SUPPORT:

- Total amount of all pending proposals in which Prof Davulcu is the PI or co-PI: $1,324,852
- Total amount of all awards in which Prof Davulcu is the PI or co-PI: $31,061,367
- Prof. Davulcu's share (recognition) in all awards as PI or co-PI: $8,719,622
- Total amount of all awards in which Prof Davulcu is the PI: $9,041,828
- Prof Davulcu's share (recognition) of the total award amount received at ASU as PI or co-PI as of 05/20/2019: $6,219,016
- Prof Davulcu's share (recognition) of research expenditures as of 05/20/2019: $5,882,254
- **Summary Statistics - Major Recent Grants**

ID	Sponsor	Years	PI\co-PI	Project Total	Percentage	Recognition
AP1	DOD-ONR	2018 - 21	PI	$1,135,088	(34%)	$385,929
AP2	DOD-ONR	2018 - 21	co-PI	$1,641,060	(33%)	$541,549
AP3	DOS-GEC	2018 - 19	co-PI	$291,805	(50%)	$145,902
AP4	DOS-PA	2018 - 19	co-PI	$497,536	(30%)	$149,260
AP5	DOD-MINERVA	2015 - 19	PI	$2,399,401	(30%)	$719,820
AP6	NSF-PFI:BIC	2014 - 19	PI	$800,000	(50%)	$400,000
AP7	NSF-II-New	2016 - 19	co-PI	$749,999	(9%)	$67,499

Recent Projects

(AP1) **Modeling Political Polarization, Mobilization and Conflict De-Escalation through Gravity Models**, **PI: H. Davulcu (34%)**, ASU; Funding source: DOD-ONR, Award # N00014-18-1-2761, Period: Aug. 2018 - Jul. 2021, **Recognized Amount: $385,929**. (Collaborative with co-PI's: Yang, Cohen, ASU, Total Award: $1,135,088)

Brief Description: In this proposal we aim to develop gravity models to understand online groups, their leaders and propaganda themes acting as push and pull driving polarization, mobilization for collective action and risky behaviors – such as joining extremist or anti-corruption groups, registering to participate a protest or a flash mob.

(AP2) **Detecting and Tracking Adversarial Framing in Mainstream and Social Media**, **co-PI: H. Davulcu (33%)**, ASU; Funding source: DOD-ONR, Award # N00014-18-1-2692, Period: Aug. 2018 - Jul. 2021, **Recognized Amount: $541,549**. (Collaborative with PI: Corman, ASU, Total Award: $1,641,060)

Brief Description: An important aspect of information operations (IO) are influence campaigns where a state actor or organizations under its control attempt to shift public opinion by framing information to support a narrative that facilitate their goals. If there is a playbook in operation, then in principle it should be possible to detect its signatures in mainstream media and to potentially provide early warning of malicious intent.

(AP3) **Tracking and Refuting Disinformation in Georgia**, **co-PI: H. Davulcu (50%)**, ASU; Funding source: DOS-GEC, Award # AWD00033256, Period: Sep. 2018 - Sep. 2019, **Recognized Amount: $145,902**. (Collaborative with PI: Nahzi, ASU, Total Award: $291,805)

Brief Description: To counter efforts by foreign entities to use disinformation and propaganda to influence the policies and social and political stability of the United States and United States allies and partner nations, Arizona State University's (ASU) McCain Institute for International Leadership has partnered with ASU's advanced digital data mining program Looking Glass.

(AP4) **Ideological Techniques and Operational Procedures: Analyzing the Tactics of Propaganda and Disinformation**, **co-PI: H. Davulcu (30%)**, ASU; Funding source: DOS-PA, Award # AWD00033184, Period: Sep. 2018 - Sep. 2019, **Recognized Amount: $149,260**. (Collaborative with PI: Ruston, ASU, Total Award: $497,536)

Brief Description: The recipient will enhance the capability U.S. allies and partners to detect and defend against foreign state-sponsored disinformation efforts through the development and/or refinement of techniques and automated tools for identification and analysis of digital disinformation and propaganda.

(AP5) **New Analytics for Measuring and Countering Social Influence and Persuasion of Extremist Groups**, **PI: H. Davulcu (30%)**, ASU; Funding source: DOD-MINERVA, Award # N00014-16-1-2015, Period: Dec. 2015 - Jun. 2019, **Recognized Amount: $719,820**. (Collaborative with co-PI's: Li, Shakarian, ASU, Total Award: $2,399,401)

Brief Description: The overall aim of this project is to develop novel measurement and analytic methods for detecting Information Cascades (ICs) and automated approaches informed by social science to determine what types of information "goes viral" and under what circumstances.

(AP6) **PFI:BIC: Fraud Detection via Visual Analytics: An Infrastructure to Support Complex Financial Patterns-based Real-Time Services Delivery**, **PI: H. Davulcu (50%)**, ASU; Funding source: National Science Foundation (NSF), Award # 1430144, Period: Jun. 2014 - Jul. 2019, **Recognized Amount: $400,000**. (Collaborative with co-PI: Candan, ASU, Total Award: $800,000)

Brief Description: The proposed platform will enable integration and enrichment of limited private financial data with larger publicly available data sets to detect fraud and reduce losses due to fraudulent transactions. The data linkage and financial pattern discovery platform which is to be developed via visual analytics will enable "smart" fraud detection and prevention services.

(AP7) **II-New: GEARS - An Infrastructure for Energy-Efficient Big Data Research on Heterogenous and Dynamic Data**, **co-PI: H. Davulcu (9%)**, ASU; Funding source: National Science Foundation (NSF), Award # 1629888, Period: Sep. 2016 - Aug. 2019, **Recognized Amount: $67,499**. (Collaborative with PI: Zhao, ASU, co-PI: Liu,Ren,Candan ASU, Total Award: $749,999)

Brief Description: This project aims to develop the needed computational infrastructure to support GEARS (an enerGy-Efficient big-datA Research System) for studying heterogeneous and dynamic data using heterogeneous computing and storage resources.

- **Summary Statistics - Completed Major Grants**

ID	Sponsor	Years	PI\co-PI	Project Total	Percentage	Recognition
CP1	DOD-ONR	2015 - 18	PI	$985,643	(50%)	$443,539
CP2	DOD-ONR	2014 - 17	co-PI	$849,998	(50%)	$424,999
CP3	NSF-IUCRC	2015 - 17	co-PI	$15,625	(30%)	$4,687
CP4	DOD-MINERVA	2005 - 15	co-PI	$5,886,813	(20%)	$1,177,362
CP5	USAID	2016 - 16	PI	$73,012	(75%)	$54,759
CP6	UNDP-BD	2016 - 16	PI	$124,575	(100%)	$124,575
CP7	DOD-DURIP	2015 - 16	PI	$250,000	(50%)	$125,000
CP8	DOD-NGA	2014 - 15	co-PI	$3,161,513	(2%)	$63,230
CP9	NSF-CAREER	2007 - 12	PI	$413,112	(100%)	$413,112
CP10	DOD-ONR	2011 - 14	co-PI	$2,906,050	(10%)	$290,605
CP11	NSF-NSDL	2011 - 12	co-PI	$599,254	(25%)	$149,813
CP12	NSF-NSDL	2008 - 10	co-PI	$499,922	(20%)	$99,984
CP13	NSF-AOC	2006 - 10	co-PI	$749,984	(12%)	$89,998
CP14	DOD-MURI	2004 - 06	co-PI	$992,834	(20%)	$198,566
CP15	NSF-HSD	2004 - 06	co-PI	$3,987,278	(5%)	$199,363
CP16	DOD-ARMY	2003-05	PI	$115,639	(100%)	$115,639

Completed Projects

(CP1) **LookingGlass Multimedia: Radio and Programmable Antenna for Social Media Monitoring**, **PI: H. Davulcu (50%)**, ASU; Funding source: DOD - Office of Naval Research (ONR), Award # N00014-15-1-2722, Period: Jun. 2015 - May. 2018, **Recognized Amount: $443,539**. (Collaborative with co-PI's: Li, ASU, Total Award: $985,643)

Brief Description: LookingGlass is a social movements tracker tool which is able to detect radical hot-spots of social networks, their narratives and activities, and socio-cultural, economic, and political drivers. LookingGlass is bootstrapped by highly trained area experts with social science and subject matter expertise as well as local cultural knowledge.

(CP2) **Emerging Trends in Muslim Discourse: The Rise of Religious Intolerance Sectarianism and Shariah Consciousness**, **co-PI: H. Davulcu (50%)**, ASU; Funding source: DOD - Office of Naval Research (ONR), Award # N00014-14-1-0477, Period: Jun. 2014 - May. 2017, **Recognized Amount: $424,999**. (Collaborative with PI: Woodward, ASU, Total Award: $849,998)

Brief Description: The objectives of this project are to: 1) document and explain the emergence of sectarianism and Shariah in extremist Muslim discourse, and the elements of oppositional discourse; and 2) advance the development of computational tools for tracking the dynamics of group formation and fragmentation in virtual communities around these issues as part of a larger effort to develop socio-cultural predictive modeling and analytics.

(CP3) **Planning Grant: I/UCRC for Assured and SCAlable Data Engineering (CASCADE)**, **co-PI: H. Davulcu (30%)**, ASU; Funding source: National Science Foundation (NSF), Award # 1464579, Period: Apr. 2015 - May. 2017, **Recognized Amount: $4,687**. (Collaborative with PI: Candan, ASU, co-PI: Ahn, ASU, Total Award: $15,625)

Brief Description: This planning grant's objective is to organize a meeting with industry partners and the universities to outline a research agenda for CASCADE. The industrial/academic partnerships of CASCADE will enable new algorithms, tools, and systems that securely manage, share, access, and analyze heterogeneous sets of static or transient data to accommodate diverse security requirements, including trust, availability, confidentiality, and integrity.

(CP4) **Funding Allies for the War of Words: Mapping the Diffusion and Influence of Counter-Radical Muslim Discourse**, **co-PI: H. Davulcu (20%)**, ASU; Funding source: DOD - Minerva, Award # N00014-15-1-2924, Period: Apr. 2009 - May. 2015, **Recognized Amount: $1,177,362**. (Collaborative with PI: Woodward, Co-PI: Corman, ASU Total Award: $5,886,813)

Brief Description: The project is characterized by an integrative approach that brings together a broad range of disciplines and methods—Islamic and area studies; field research and discourse analysis; survey research; computer science and statistics—and triangulates methods to reveal patterns in CVE discourse at the local, regional, and global levels.

(CP5) **Through The Looking Glass To More Effective Programming**, **PI: H. Davulcu (75%)**, ASU; Funding source: United States Agency for International Development (USAID), Award # NAT013-1, Period: Jul. 2016 - Aug. 2016, **Recognized Amount: $54,759**.

Brief Description: Libya Transition Initiative (LTI) by Chemonics International, supports activities that reinforce stability and build an inclusive and peaceful democratic future in Libya. We developed a LookingGlass Libya platform to allow for evaluating the spread and impact of LTI2 social media activities.

(CP6) **Mapping the Extremist and Counter Extremist Online Narrative with a focus on deep dive on Facebook Social Media Analytics PI: H. Davulcu (100%)**, ASU; Funding source: The United Nations Development Programme (UNDP-BD), Award # UNDP-BD/CPS/2016/017, Period: Nov. 2016 - Dec. 2016, **Recognized Amount: $124,575**.

Brief Description: A comprehensive social-media monitor for UNDP in Bangladesh to identify propaganda outlets, and social media followers, and trending narratives of extremist and counter-extremist groups.

(CP7) **DURIP: Big Data Server for Social Media Analytics: Social-Radio and Programmable Antenna Implementation**, **PI: H. Davulcu (50%)**, ASU; Funding source: DOD - Office of

Naval Research (ONR)), Award # N00014-15-1-2722, Period: Aug. 2015 - Aug. 2016, **Recognized Amount: $125,000**. (Collaborative with co-PI's: Baral, ASU, Total Award: $250,000)

Brief Description: In this DURIP project we purchased a CLOUDOOP RAX HADOOP SOLUTION (PN: PS-CDPRAX) for big data integration, processing and visualization.The custom configured high performance computing server came with 6 Data Nodes, 288 TB High Performance SATA III Enterprise Storage Space, 768 GB High Performance ECC Registered Memory, Total 120 x Intel Xeon E5 2600 v2 Cloud Ready Processor Cores with MapR Hadoop Distribution.

(CP8) **The Foresight Initiative**, **co-PI: H. Davulcu (2%)**, ASU; Funding source: DOD-National Geospatial-Intelligence Agency (NGA), Period: Jun. 2014 - Jul. 2015, **Recognized Amount: $63,230**. (Collaborative with PI: Bliss, Co-PI: Maciejewski, White, Westerhoff, Bliss, Corman, Liu, Dirks, Thies, Lobo, Cooke, Ahn, Finn, ASU, Total Award: $3,161,513)

Brief Description: Climate change and its effects on global landscapes and human welfare create exceptional complexities for policy makers. A new research partnership called the Foresight Initiative is developing tools to inform decision makers as they confront wicked problems such as the web of climate change, water security and national security.

(CP9) **CAREER: A Logic-Based Dynamic Policy Model for Adaptive Workflow Management**, **PI: H. Davulcu (100%)**, ASU; Funding source: National Science Foundation (NSF), Award # 0644459, Period: Mar. 2007 - Feb. 2012, **Recognized Amount: $413,112**.

Brief Description: The main thrust of his project is the development of proof theoretic reasoning and analysis algorithms to enable system integrators and end users to leverage diverse and heterogeneous Web services through local policy specifications.

(CP10) **Identifying Terrorist Narratives and Counter-Narratives: Embedding Story Analysts in Expeditionary Units**, **co-PI: H. Davulcu (10%)**, ASU; Funding source: DOD - Office of Naval Research (ONR), Period: Apr. 2011 - Mar. 2014, **Recognized Amount: $290,605**. (Collaborative with PI: Steven Corman, Co-PI: Bernardi, Trethewey, Cheong, Goodall, Torrens, ASU, Total Award: $2,906,050)

(CP11) **MiNC: NSDL Middleware for Network- and Context-aware Recommendations**, **co-PI: H. Davulcu (25%)**, ASU; Funding source: National Science Foundation (NSF), Award # 1043583, Period: Jan. 2011 - Dec. 2012, **Recognized Amount: $149,813**. (Collaborative with PI: Candan, ASU, co-PI: Sundaram, ASU, Total Award: $599,254)

(CP12) **MAISON: Middleware for Accessible Information Spaces on NSDL**, **co-PI: H. Davulcu (20%)**, ASU; Funding source: National Science Foundation (NSF), Award # 0735014, Period: Jan. 2008 - Dec. 2010, **Recognized Amount: $99,984**. (Collaborative with PI: Candan, ASU, co-PI: Sundaram, Hedgpeth, Li, ASU, Total Award: $499,922)

(CP13) **AOC: Archaeological Data Integration for the Study of Long-Term Human and Social Dynamics**, **co-PI: H. Davulcu (12%)**, ASU; Funding source: National Science Foundation (NSF), Award # 0624341, Period: Nov. 2006 - Oct. 2010, **Recognized Amount: $89,998**. (Collaborative with PI: Kintigh, ASU Co-PI: Candan, Kambhampati Spielmann, Nelson, ASU Total Award: $749,984)

(CP14) **MURI: Adaptable Situation-Aware Secure Service-Based (AS3) Systems**, **co-PI: H. Davulcu (20%)**, ASU; Funding source: DOD - Office of Naval Research (ONR), Period: Jul. 2004 - Jun. 2006, **Recognized Amount: $198,566**. (Collaborative with PI: Yau, ASU Co-PI: Mukhopadhyay, Total Award: $992,834)

(CP15) **HSD: Enabling the Study of Long-Term Human and Social Dynamics: A Cyberinfrastructure for Archaeology**, **co-PI: H. Davulcu (5%)**, ASU; Funding source: National Science Foundation (NSF), Award # 0433959, Period: Oct. 2004 - Aug. 2006, **Recognized Amount: $199,363**. (Collaborative with PI: Kintigh, Co-PI: Candan, Kambhampati Spielmann, Nelson, ASU, Total Award: $3,987,278)

(CP16) **A System for Discovering Bioengineered Threats By Knowledge Base Driven Mining of Toxin Data**, **PI: H. Davulcu (100%)**, ASU; Funding source: DOD - U.S. Army), Period: Dec. 2003 - Jul. 2005, **Recognized Amount: $115,639**.

AWARDS AND HONORS

- Fulton Exemplar Faculty, Arizona State University (2014).

  https://tinyurl.com/l9juwd3

- IEEE Social Computing Best Paper Award (2013).

  for the paper titled "*MultiScale Modeling of Islamic Organizations in UK*."

- HSCB Focus Exceptional Scientific Achievement Award (2011)

  CAPT Dylan Schmorrow, MSC, USN, Ph.D Deputy Director, Directorate Office of the Assistant Secretary of Defense (Research and Engineering): "*On behalf of the HSCB Government Program Management Team, I would like to personally recognize your exceptional scientific achievements and contributions to the field of social cultural modeling. Your Minerva project, "Finding Allies for the War of Words: Mapping the Diffusion and Influence of Counter-Radical Muslim Discourse," has significantly increased our understanding in countering violent extremist ideologies.*"

  http://www.nytimes.com/2011/10/11/science/11predict.html

- NSF CAREER Award for the project titled: "*A Logic-Based Dynamic Policy Model for Adaptive Workflow Management.*" (2007)

  Citation from NSF website: "*The Faculty Early Career Development (CAREER) Program is a Foundation-wide activity that offers the National Science Foundation's most prestigious awards in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organizations.*"

  https://www.nsf.gov/awardsearch/showAward?AWD_ID=0644459

- First Prize, Intel+UC Berkeley Technology Entrepreneurship Challenge, ASU (2005)

- World Wide Web (WWW) Conference Best Paper Runner-Up (2004)

- Long Island Software Award, for Intelligent Agent Systems, XSB Inc, NY. (2002)

- Catacosinos Fellowship for Excellence in Computer Science, Stony Brook, NY (1998)

- Fulbright Full Scholarship for M.S. in Computer Science, (1993)

IN THE NEWS

- New York Times, Oct. 10, 2011: "*Government Aims to Build a 'Data Eye in the Sky'*" by JOHN MARKOFF http://www.nytimes.com/2011/10/11/science/11predict.html

- intheloop.engineering.asu.edu, November 18, 2014: "*FULTON EXEMPLAR FACULTY WILL HELP SHAPE THE FUTURE OF OUR SCHOOLS*" by Paul Johnson https://tinyurl.com/l9juwd3

- techcrunch.com, Sep 27, 2015: "*Researchers From Arizona State University Take The War Online Back To ISIS*" by John Holden https://tinyurl.com/kaucwvo

- International Business Times , July 08, 2015: "*ISIS Propaganda: Researchers Track, Neutralize Terrorists' Twitter Recruitment With Defense Department Backing*" by JEFF STONE https://tinyurl.com/mj782cp

- HOMELAND SECURITY, July 08, 2015: "*Arizona State University Awarded Minerva Grant To Research Terrorist Use Of Social Media* " By: Krysta Dodd, Staff Writer http://goo.gl/P8wV25

- www.devex.com, 01 August 2016: "*Through the looking glass: Harnessing big data to respond to violent extremism*" By: By Michele Piercey, Carolyn Forbes, Hasan Davulcu https://tinyurl.com/h539blh

PUBLICATIONS AND INTELLECTUAL PROPERTY

My publications are available online at `http://www.public.asu.edu/~hdavulcu` through links.
Convention for name ordering: Student names usually appear first. Among both student authors and non-student authors, the ordering of the names is based on the effort invested in writing the paper. The advisor of the major contributing author is typically listed as the last author.

SUMMARY OF PUBLICATIONS AND INTELLECTUAL PROPERTY

- Book Chapters Published: 6
- Refereed Conference Papers: 72
- Total Journal Publications (Published, In Press, and /or Accepted): 26
- Journal Publications (Published, In Press, and /or Accepted) from ASU: 22
- Intellectual Property from ASU: Patents 3; Patents pending 1

Citation information: As provided by Google Scholar on 09/19/2024.

	All	Since 2021
Citations	3,395	1,055
h-index	31	15
i10-index	64	24

For citation information see `https://scholar.google.com/citations?user=P9IivpwAAAAJ&hl=en`.

LEGEND
(*) Corresponding Author
Bold Font: ASU Ph.D. Student
Underline: ASU Master's Student
(∞) Other/Visiting Student
($\times$) ASU Postdoctoral Researcher

Peer-Reviewed Journal Publications

(J1) **Trivedi, A.**, Cetinkaya, Y. M., Cowan, A. M., Newson, M., Vlahovic, N., Davulcu, H., 2026, Beyond the Black Box: Programmable AI and Explainable Text Analysis for Trustworthy Social Intelligence, *IEEE Transactions on Computational Social Systems (TCSS)*, doi: 10.1109/TCSS.2026.3686080.

(J2) Aksu, D., Toroslu, I.H., Davulcu, H., 2025, Neighborhood Search with Heuristic-Based Feature Selection for Click-Through Rate Prediction, *Engineering Applications of Artificial Intelligence*, Vol. 146, Issue. 0952-1976, pp. 110261.

(J3) Cetinkaya, Y.M., Külah, **Lee, Y.**, E., Toroslu, I.H., Cowan, M.A., Davulcu, H., 2024, Towards a Programmable Humanizing AI through Scalable Stance-Directed Architecture, *IEEE Internet Computing, Special Issue on Civilizing and Humanizing AI*, **28**(5), pp. 20-27.

(J4) Cetinkaya, Y.M., Külah, E., Toroslu, I.H., Davulcu, H., 2024, Targeted Marketing on Social Media: Utilizing Text Analysis to Generate Personalized Landing Pages, *Social Network Analysis and Mining (SNAM)*, **14**(77), pp. 1-15.

(J5) **Lee, Y.**, Ozer, M., Corman, S., Davulcu, H., 2023, Identifying Behavioral Factors Leading to Differential Polarization Effects of Adversarial Botnets. *ACM SIGAPP Appl. Comput. Rev.*, **23**(2), pp. 44–56.

(J6) Alostad H, Dawiek S, Davulcu H., 2023, Q8VaxStance: Dataset Labeling System for Stance Detection towards Vaccines in Kuwaiti Dialect. *Big Data and Cognitive Computing.*, **7**(3), pp. 151-165.

(J7) Zhou, D., Zhang, S., Yildirim, M., Alcorn, S., Tong, H., Davulcu, H., He, J., 2021, High-Order Structure Exploration on Massive Graphs: A Local Graph Clustering Perspective, *ACM Transactions on Knowledge Discovery from Data (TKDD)*, **15**(2), pp. 18:1-18:26.

(J8) Cetinkaya, Y.M., Toroslu, I.H., Davulcu, H., 2020, Developing a Twitter Bot that can join a Discussion using State-of-the-art Architectures, *Social Network Analysis and Mining (SNAM)*, **10**(51), pp. 1-21.

(J9) **Ozer, M.*, Yildirim, M.**, Davulcu, H., 2018, Implicit Negative Link Detection on Online Political Networks via Matrix Tri-factorizations, *New Review of Hypermedia and Multimedia (NRHM)*, **24**(2), pp. 63-87.

(J10) **Koç, S.***, **Ozer, M.**, Toroslu, H., Davulcu, H., Jordan, J., 2018, Triadic Co-Clustering of Users, Issues and Sentiments in Political Tweets, *Expert Systems with Applications (ESWA)*, **100**, pp. 79-94.

(J11) **Alostad, H.***, Davulcu, H., 2017, Directional Prediction of Stock Prices using Breaking News on Twitter, *Web Intelligence Journal*, **15**(1), pp. 339-357.

(J12) **Yang, P.***, Davulcu, H., Zhu, Y., He, J., 2016, A Generalized Hierarchical Multi-Latent Space Model for Heterogeneous Learning, *IEEE Transactions on Knowledge and Data Engineering*, **28**(12), pp. 3154-3168.

(J13) **Lu, Y.*, Steptoe, M., Burke, S., Wang, H.**, Tsai, J.×, Davulcu, H., Montgomery, D., Corman, S.R., Maciejewski, R., 2016, Exploring Evolving Media Discourse Through Event Cueing, *IEEE Transactions on Visualization and Computer Graphics*, **22**(1), pp. 220-229.

(J14) **Alashri, S.*, Alzahrani, S.**, Tsai, J.×, Corman, S., Davulcu, H., 2016, "Climate Change" Frames Detection and Categorization Based on Generalized Concepts, *International Journal of Semantic Computing (IJSC)*, **10**(2), pp. 147-166.

(J15) **Ozer, M.*, Keles, I.**, Toroslu, H., Karagoz, P., Davulcu, H., 2016, Predicting the Location and Time of Mobile Phone Users by Using Sequential Pattern Mining Techniques, *The Computer Journal, Oxford University Press*, **59**(6), pp. 908-922.

(J16) **Wang, Z.*, Lai, M.J., Lu, Z., Fan, W.**, Davulcu, H., Ye, J., 2015, Orthogonal Rank-One Matrix Pursuit for Low Rank Matrix Completion, *SIAM Journal on Scientific Computing (SISC)*, **37**(1), pp. A488-A514.

(J17) **Kim, N.*, Tikves, S.**, Wang, Z., Githens-Mazer, J., Davulcu, H., 2013, MultiScale Modeling of Radical and Counter-Radical Islamic Organizations, *ASE Human Journal*, **2**(3), pp. 182-194.

(J18) **Gokalp, S.***, Temkit, M., Toroslu H., Davulcu, H., 2013, Partitioning and Social Scaling of Political Debates using Signed Bipartite Graphs, *ASE Human Journal*, **2**(2) pp. 112-124.

(J19) **Tikves, S.*, Banerjee, S., Temkit, H., Gokalp, S.**, Davulcu, H., Sen, A., Corman, S., Woodward, M., Rohmaniyah, I, and Amin, A., 2013, A System for Ranking Organizations Using Social Scale Analysis, *Social Network Analysis and Mining Journal*, **3**(3), pp. 313-328.

(J20) **Ahmed, S.***, Davulcu, H., **Tikves, S.**, Nair, R., Zhao, Z., 2012, BioEve Search: A Novel Framework to Facilitate Interactive Literature Search, *Advances in Bioinformatics*, vol. 2012, Article ID 509126, pp. 1-12.

(J21) **Vadrevu, S.***, **Gelgi F.**, Davulcu, H., 2007, Information Extraction from Web Pages using Presentation Regularities and Domain Knowledge, *World Wide Web*, **10**(2), pp. 157-179.

(J22) Yau S.S.*, Davulcu, H., Mukhopadhyay, S., **Huang, D.**,**Gong, H.**, **Singh, P.**, **Gelgi, F.**, 2007, Automated Situation-Aware Service Composition in Service-Oriented Computing, *International Journal of Web Services Research on Services Engineering (JWSR)*, **4**(4), pp. 59-82.

(J23) **Vadrevu S.***, **Gelgi F.**, Nagarajan S., Davulcu H., 2006, Gathering Metadata and Instances from Object Referral Lists on the Web, *Online Information Review*, **30**(3), pp. 278-296.

(J24) **Nguyen H. V.***, Davulcu H., Ramachandran V., 2006, Boosting Item Findability: Bridging the Semantic Gap between Search Phrases and Item Descriptions, *International Journal of Intelligent Information Technologies (IJIIT)* **2**(3), pp. 1-20.

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Refereed Conference Papers with Indexed Proceedings

(C1) **Çetinkaya, Y. M.***, Trivedi, A., Yanamandala, V. D., Cowan, M. A., Toroslu, I. H., Davulcu, H., 2025, NARRA-SCALE: Scaling Users and Messaging through Narrative Detection in Retweet Networks, *IEEE International Conference on Tools with Artificial Intelligence (ICTAI'25)*, pp. 187-194.

(C2) **Lee, Y.***, Çetinkaya, Y., Külah, E., Toroslu, I.H., Davulcu, H., 2024, Masking the Bias: From Echo Chambers to Large Scale Aspect-Based Sentiment Analysis, *In Proceedings of the IEEE/ACM International Conference on Advances in Social Network Analysis and Mining (ASONAM'24)*, Calabria, Italy.

(C3) **Lee, Y.***, Ozer, M., Corman, S., Davulcu, H., 2023, Detecting and Measuring the Polarization Effects of Adversarial Botnets on Twitter, *In Proceedings of the ACM/SIGAPP Symposium On Applied Computing (SAC'23)*, Association for Computing Machinery, Tallinn, Estonia.

(C4) **Mousavi, M.***, Davulcu, H., Ahmadi, M., Axelrod, R., Davis, R., and Atran, S., 2022, Effective Messaging on Social Media: What Makes Online Content Go Viral?, *In Proceedings of the Web Conference 2022 (WWW'22)*, Association for Computing Machinery, New York, NY, USA.

(C5) Cetinkaya, Y.M., Toroslu, I.H., Davulcu, H., 2022, Coherent Personalized Paragraph Generation for a Successful Landing Page, *In Proceedings of the IEEE/ACM International Conference on Advances in Social Network Analysis and Mining (ASONAM'22)*, pp. 252-255, Istanbul, Turkey.

(C6) **Mousavi, M.***, Steiner, E., Corman, S., Ruston, S., Weber, D., Davulcu, H., 2021, STIF: Semi-Supervised Taxonomy Induction using Term Embeddings and Clustering, *ACM International Conference on Natural Language Processing and Information Retrieval (NLPIR'21)*, Hainan, China.

(C7) **Salehi, A.***, Davulcu, H., 2020, Graph Attention Auto-Encoders, *IEEE International Conference on Tools with Artificial Intelligence (ICTAI'20)*, pp. 989-996.

(C8) **Alvari, H.***, Beigi, G., Sarkar, S., Ruston, S., Corman, S., Davulcu, H., Shakarian, P., 2020, A Feature-Driven Approach for Identifying Pathogenic Social Media Accounts. *International Conference on Data Intelligence and Security (ICDIS'20)*, pp. 26-33, Texas, USA.

(C9) **Alzahrani, S.***, Gore, C., **Salehi, A.**, Davulcu, H., 2018, Finding Organizational Accounts Based on Structural and Behavioral Factors on Twitter, *International Conference Social, Cultural, and Behavioral Modeling (SBP-BRiMS'18)*, pp. 164-175, Washington, DC.

(C10) **Salehi, A.*, Ozer, M.**, Davulcu, H., 2018, Sentiment-driven Community Profiling and Detection on Social Media, *Proc. of the 29th on ACM Hypertext and Social Media (HT'18)*, pp. 229-237, Baltimore, MD.

(C11) **Salehi, A.***, Davulcu, H., 2018, Detecting Antagonistic and Allied Communities on Social Media, *IEEE/ACM International Conference on Advances in Social Network Analysis and Mining (ASONAM'18)*, pp. 99-106, Barcelona, Spain.

(C12) **Yildirim, M.*, Ozer, M.**, Davulcu, H., 2018, Cost-Sensitive Decision Making for Online Fraud Management, *International Conference on Artificial Intelligence Applications and Innovations (AIAI'18)*, pp. 323-336, Rhodes, Greece.

(C13) **Zhou, D.***, He, J., Davulcu, H., Maciejewski, R., 2018, Motif-Preserving Dynamic Local Graph Cut, *Big Data 2018*, pp. 1156-1161, Seattle, WA.

(C14) **Alashri, S.**, Tsai, J., Koppela, A., Davulcu, H., 2018, Snowball: Extracting Causal Chains from Climate Change Text Corpora, *IEEE International Conference on Data Intelligence and Security (ICDIS'18)*, pp. 234-241, South Padre Island, TX.

(C15) **Zhou,D.*, Zhang, S., Yildirim, M.**, Alcorn, S., Tong, H., Davulcu, H., He, J., 2017, A Local Algorithm for Structure-Preserving Graph Cut, *ACM SIGKDD Conference of Knowledge, Discovery, and Data Mining (KDD'17)*, pp. 655-664, Halifax, Nova Scotia.

(C16) **Ozer, M.*, Yildirim, Y.**, Davulcu, H., 2017, Negative Link Prediction and Its Applications in Online Political Networks, *The 28th ACM Conference on Hypertext and Social Media (ACM Hypertext 17)*, pp. 125-134, Prague, Czech Republic.

(C17) **Zhang, S.*, Zhou, D., Yildirim, Y.**, Alcorn, S., He, J., Davulcu, H., Tong, H., HiDDen: Hierarchical Dense Subgraph Detection with Application to Financial Fraud Detection, *SIAM International Conference on Data Mining (SDM'17)*, pp. 570-578, Texas, USA.

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(C19) **Alashri, S.***, Tsai, J-Y.×, **Alzahrani, S.**, Corman, S., Davulcu, H., 2016,"Climate Change" Frames Detection and Categorization Based on Generalized Concepts, *Proceedings of the Tenth IEEE International Conference on Semantic Computing (ICSC'16)*, pp. 277-284, Laguna Hills, CA.

(C20) Koc, S.*, Toroslu, I.H., Davulcu, H., 2016, Co-Clustering Signed 3-Partite Graphs, *International Symposium on Foundations and Applications of Big Data Analytics (FAB'16)*, pp. 945-948, San Francisco, USA.

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(C24) **Alostad, H.***, Davulcu, H., 2015, Directional Prediction of Stock Prices using Breaking News on Twitter, *IEEE/WIC/ACM International Conference on Web Intelligence (WI-IAT'15)*, Singapore, pp. 523-530.

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(C27) **Alashri, S.*, Alzahrani, S.**, Bustikova, L., Siroky, D., Davulcu, H., 2015, What Animates Political Debates? Analyzing Ideological Perspectives in Online Debates between Opposing Parties, *Proceedings of the ASE/IEEE International Conference on Social Computing (SocialCom'15)*, Stanford, CA.

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(C33) **Kim, N.*, Gokalp, S.**, Davulcu, H., Woodward M., 2013, LookingGlass: A Visual Intelligence Platform for Tracking Online Social Movements, *Proceedings of International Symposium on Foundation of Open Source Intelligence and Security Informatics (FOSINT-SI'13), in conjunction with IEEE ASONAM 2013*, Niagara Falls, Canada, pp. 1020-1027.

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(C48) **Singh P.*, Gelgi F.**, Davulcu H., Yau S.S., Mukhopadhyay S., 2008, A Risk Reduction Framework for Dynamic Workflows, *Proc. of the IEEE International Conference on Services Computing (SCC'08)*, pp. 134-143

(C49) **Nguyen, H.***, Davulcu, H., 2008, Mining Search-Phrase Definition from Item Descriptions, *Proc. of the 24th IEEE International Conference on Data Engineering (ICDE'08)* pp. 1346-1348

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(C51) **Gelgi, F.*, Vadrevu, S.**, Davulcu, H., 2007, Fixing Weakly Annotated Web Data using Relational Models, *Proc. of the 7th International Conference on Web Engineering (ICWE'07)*, pp. 385-399

(C52) **Gelgi, F.*, Vadrevu, S.**, Davulcu, H., 2007, Relational Model Based Annotation of Web Data, *Poc. of the 5th Atlantic Web Intelligence Conference (AWIC'07)*, pp. 124-129

(C53) **Gelgi, F.***, Davulcu, H., **Vadrevu, S.**, 2007, Term Ranking for Clustering Web Search Results, *Proc. of the Tenth International Workshop on the Web and Databases (WebDB'07)*, pp. 20-26

(C54) **Gelgi, F.*, Vadrevu, S.**, Davulcu, H., 2007, ScubaDiver: Subspace Clustering of Web Search Results, *Proc. of the 3rd International Conference on Web Information Systems and Technologies (WebIST'07)*, pp. 35-40

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(C56) Yau S.S.*, **Huang D., Gong H.**, Davulcu H., 2005, Situation-Awareness for Adaptive Coordination in Service-Based Systems, *Proc. of the 29th Annual International Computer Software and Applications Conference (COMPSAC'05)*, pp. 107-112.

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(C62) **Aswath, D.*, Ahmed, S., D'Cunha J.**, Davulcu, H., 2005, Boosting Item Keyword Search with Spreading Activation, it IEEE/WIC/ACM International Conference on Web Intelligence (WI'05), pp. 704-707

(C63) Lacroix Z.*, **Parekh, K.**, Davulcu, H., Ramakrishnan I.V., **Julasana, N.**, 2004, Automating the Biological Data Collection Process with Agents, *Proc. of IEEE Computer Society Computational Systems Bioinformatics Conference (CSB'04)*, pp. 489-499

(C64) Davulcu H.*, Kifer, M., Ramakrishnan I.V., 2004, CTR-S: A Logic for Specifying Contracts in Semantic Web Services. *Proc. of the International World Wide Web Conference (WWW'04)*, pp. 144-153 [**Best Paper Runner-Up**]

(C65) Julasana, N.*, Khandelwal, A., Lolage, A., Singh, P., Vasudevan, P., Davulcu, H., Ramakrishnan, I.V, 2004, WinAgent: A System for Creating and Executing Personal Information Assistants Using a Web Browser, *Proc. of the 9th international conference on Intelligent User Interfaces (IUI'04)*, pp. 356 - 357

(C66) **Nguyen H.***, Velamuru, P., Kolippakkam, D., Davulcu, H.,Liu, H., 2003, Mining "Hidden Phrase" Definitions from the Web, *Proc. of the 5th Asia Pacific Web Conference (APWeb'03)*, pp. 156-165

(C67) Davulcu, H.*, Mukherjee, S., Ramakrishnan, I.V., 2002, Extraction Techniques for Mining Services from Web Sources, *Proc. of the IEEE International Conference on Data Mining (ICDM'02)*, pp. 601 - 604

(C68) Davulcu, H.*, Mukherjee, S., Ramakrishnan, I.V., 2002 A Clustering Technique for Mining Data from Text Tables, *Proc. of SIAM International Conference on Data Mining (ICDM'02).*

(C69) Davulcu, H.*, Kifer, M., Yang, G., Ramakrishnan, I.V., 2000, Design and Implementation of the Physical Layer in WebBases: The XRover Experience. *6th International Conference in Rules and Objects in Databases (DOO'00)*, pp. 1094-1105

(C70) Davulcu H.*, Kifer, M., Yang, G., Ramakrishnan, I.V., 2000, Computational Aspects of Resilient Data Extraction from Semistructured Sources, *Proc. of the ACM Symposium on Principles of Database Systems (PODS'00)*, pp. 136-144.

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(C72) Davulcu, H.*, Kifer, M., Ramakrishnan, C.R., Ramakrishnan, I.V., 1998, Logic Based Modeling and Analysis of Workflows, Proc. of the ACM Symposium on Principles of Database Systems (PODS'98), pp. 25-33.

Book Chapters Published

(BC1) Davulcu, H., Woodward, M., 2015, LookingGlass: A Visual Intelligence Platform for Tracking Online Social Movements. Invited chapter in book "Illumination Dark Networks: The Study of Clandestine Groups and Organizations". Edited by Luke Gerdes, Cambridge University Press.

(BC2) **Ahmed, S.**, Davulcu, H., **Tikves, S., Nair, R., Patel, C**, 2013, Protein-Protein Relation Extraction from Biomedical Abstracts. Invited chapter in book "Biological Knowledge Discovery Handbook: Preprocessing, Mining and Postprocessing of Biological Data". Edited by Mourad Elloumi and Albert Y. Zomaya, Wiley-Blackwell (John Wiley & Sons).

(BC3) S. S. Yau, S. Mukhopadhyay, H. Davulcu, **D. Huang, R. Bharadwaj**, and **K. Shenai** Rapid Development of Adaptable Situation-Aware Service-based Systems, *Service-Oriented Architecture in Industries: Best Practices (Advances in Web Services Research)* Liang-Jie Zhang (Editor), Information Science Publishing, pp., 1-57.

(BC4) **Nguyen, H.**, Davulcu, H., 2007, On the Problem of Mining Phrase Definition from Item Descriptions, *Advanced Topics in Intelligent information Technologies and Applications,* Vol 2, IGI Global.

(BC5) **Ahmed S.T., Vadrevu S.**, Davulcu H., 2006, DataRover: An Automated System for Extracting Product Information From Online Catalogs, *In Studies in Computational Intelligence,* Vol. 23, Eds. Last, M., Szczepaniak, P.S., Volkovich, Z., Kandel, A., pp., 86 - 96

(BC6) Mukherjee S., Davulcu H., Kifer M., Senkul P., Yang G, 2003, Logic Based Approaches to Workflow Modeling and Verification *Logics for Emerging Applications of Databases*, pp. 167-202

Patents

(P1) Davulcu, H., Woodward, M., Corman, S., Ye, J., March 2014, SYSTEM AND METHOD FOR CONTEXTUAL ANALYSIS (U.S. Patent: US9524464 B2), Dec 20, 2016.

(P2) Warren, D., Swift, T., Vidrevich, T., Ramakrishnan, I.V., Pokorny, L., Beggs, A., Rued, C., Epstein, M., Singh, H., Davulcu, H., METHODS FOR DETERMINING THE SIMILARITY OF CONTENT AND STRUCTURING UNSTRUCTURED CONTENT FROM HETEROGENEOUS SOURCES, (U.S. Patent: US7542958 B1), Jun 2, 2009.

(P3) Davulcu, H., Corman, S., August 2016, SYSTEMS AND METHODS FOR NARRATIVE DETECTION AND FRAME DETECTION USING GENERALIZED CONCEPTS AND RELATIONS (U.S. Patent: US10599700), March 24, 2020.

PERSONNEL: STUDENT SUPERVISION / MENTORING, TEACHING, DISSERTATION COMMITTEES, RESEARCHERS, AND OUTREACH

SUMMARY OF MENTORING:

- Mentored Personnel in US Academia (Tenure-track Positions): 1
- Ph.D. Students Graduated: 16
- M.S. Students Graduated: 34
- M.S. Students Current: 2

SUMMARY OF TEACHING:

- Undergraduate Courses Taught, including New Course Development: 25
- Graduate Courses Taught, including New Course Development: 6
- Average Teaching Evaluation Score for Undergraduate Courses taught at ASU: 4.09/5
- Average Teaching Evaluation Score for Graduate Courses taught at ASU: 3.77/5

Students Graduated

- **Ph.D. Students Graduated**

  1. Gelgi, Fatih (Summer 2007, CIDSE, ASU)
     Dissertation Title: *Effective Use of Term Relationships in Web Content Mining.*
  2. Nguyen, Hung Viet (Spring 2008, CIDSE, ASU)
     Dissertation Title: *Content-Based Mining of Query Replacements.*
  3. Vadrevu, Srinivas (Spring 2008, CIDSE, ASU)
     Dissertation Title: *Information Extraction from Web pages Using Presentation and Domain Regularities.*

4. Ahmed, Syed (Summer 2010, CIDSE, ASU)
   Dissertation Title: *Information Extraction to Enable Faceted Search Over Large Text Document Collections.*
5. Gokalp,Sedat (Spring 2015, CIDSE, ASU)
   Dissertation Title: *Controversy Analysis: Clustering and Ranking Polarized Networks with Visualizations.*
6. Tikves, Sukru (Summer 2016, CIDSE, ASU)
   Dissertation Title: *W.I.S.D.Or. Web Intelligence for Scaling Discourse of Organizations.*
7. Alostad,Hana (Summer 2016, CIDSE, ASU)
   Dissertation Title: *Directional Prediction of Stock Prices using Breaking News on Twitter.*
8. Ceran,Saadet Betul (Summer 2016, CIDSE, ASU)
   Dissertation Title: *Semantic Feature Extraction for Narrative Analysis.*
9. Saud Abdullah H Alashri (Fall 2018, CIDSE, ASU)
   Dissertation Title: *Detecting Frames and Causal Relationships in Climate Change Related Text Databases Based on Semantic Features.*
10. Sultan Saad M Alzahrani (Fall 2018, CIDSE, ASU)
    Dissertation Title: *Detecting Political Frameshifts and Adversarial Frames among Rival Factions in Social Media.*
11. Nyunsu Kim (Summer 2018, CIDSE, ASU)
    Dissertation Title: *Perspective Scaling and Trait Detection on Social Media*
12. Mehmet Yigit Yildirim (Spring 2019, CIDSE, ASU)
    Dissertation Title: *Cost-Sensitive Selective Classification and its Applications to Online Fraud Management*
13. Mert Ozer, (Spring 2019, CIDSE, ASU)
    Dissertation Title: *Online Political Networks: Communities, Antagonisms, and Polarization*
14. Amin Salehi, (Spring 2019, CIDSE, ASU)
    Dissertation Title: *Unsupervised Attributed Graph Learning: Models and Applications*
15. Maryam Mousavi, (Spring 2023, CIDSE, ASU)
    Dissertation Title: *Virality in the Digital Age: Contextualization, Messaging Strategies, and Framing Detection*
16. Yeonjung Lee, (Spring 2024, CIDSE, ASU)
    Dissertation Title: *Unmasking Online Polarization: Automated Detection of Topics and Stances in Social Networks*

- **M.S. Students Graduated**

1. Chidambaram, Deepthi (Spring 2005)
2. Bhimavarapu, Ravi Sekhar (Fall 2005)
3. Aswath, Dipti (Fall 2005)
4. Ahmed, Syed Toufeeq Ali (Spring 2006)
5. Savla, Purvi (Fall 2006)
6. Alex, Newton (Summer 2008)
7. Pendharkar, Bhushan (Summer 2008)
8. Bhindwale, Ruchi (Fall 2008)
9. Poornachandran, Sumitha (Fall 2008)
10. Dittakavi, Sushma (Spring 2009)
11. Nair, Radhika (Summer 2009)
12. Patel, Chintan (Summer 2009)

13. Verma, Indu (Summer 2009)
14. Vijayarajan, Suvitha (Summer 2009)
15. Gangaraju, Sashi (Fall 2009)
16. Ramalingam, Madhu (Fall 2009)
17. Denduluri, sai Krishna (Spring 2010)
18. Sriramulu Iyyappan, Harish Kumar (Summer 2010)
19. Sudha, Chiranjeevi (Summer 2010)
20. Kanwar, Pradeep (Fall 2010)
21. Sanaka, Srinivasa (Fall 2010)
22. Nair, Shreejay (Spring 2012)
23. Thirumalai, Dananjayan (Spring 2012)
24. Nair, Apurva Aravindakshan (Summer 2012)
25. Karad, Ravi (Spring 2013)
26. Poornachandran, Sathishkumar (Summer 2013)
27. Awasthi,Piyush (Spring 2015)
28. Garipalli,Sravan Kumar (Spring 2015)
29. Nadella, Sravan (Summer 2015)
30. Ejaz,Samira (Spring 2016)
31. Chandrashekar,Pramod Bharadwaj (Spring 2016)
32. Reeves, Tyler (Summer 2016)
33. Bollapragada,Lakshmi Gayatr Niharika (Summer 2016)
34. Baskaran,Swetha (Summer 2016)

Courses Taught

- **Undergraduate Courses Taught**

1. ASU 101 The ASU Experience: Sp09
2. CSE 205 Object Oriented Programming and Data Structures: Sp08
3. CSE 412 Database Management: Sp 24, Fa21, Fa14, Sp14, Fa13, Sp13, Fa12, Sp12, Sp11, Sp10, Sp07, Sp06, Fa05, Fa03, Sp03
4. CSE 485 Computer Science Capstone Project I: Sp16, Fa10, Fa09, Sp08, Sp07, Fa06
5. CSE 486 Computer Science Capstone Project II: Sp16, Fa09, Fa07
6. CSE 494 Information Retrieval, Mining and Integration on the Internet: Fa04

- **Graduate Courses Taught**

1. **CSE 573 Semantic Web Mining**: Sp 24, Fa 23, Sp 23, Fa 22, Sp 22, Sp 21, Sp 20, Sp19, Sp12, Sp05, Fa05, Sp04, Fa02. CSE 573 is a highly popular advanced course that I developed for graduate students in Computer Science and Computer Engineering who possess backgrounds in databases, algorithms, and the theory of computation. Upon completing this course, students gain the ability to leverage AI and machine learning algorithms to extract valuable insights from multilingual text, images, and videos sourced from networks. In this course, students learn to harness weak supervision and ground-truthing of large language models (LLMs) big data with human-level wisdom and judgement to enable the safest, most effective secure and trustworthy Programmable and Explainable AIs (PX-AI). To promote teamwork, I organize students into groups of four to five members. These groups are tasked with designing, implementing, and evaluating an end-to-end application that utilizes data streams from social networks, news outlets, and financial sources to create decision interfaces that capture user preferences and deliver personalized recommendations aligned with users' contexts, interests and needs.

PROFESSIONAL ACTIVITIES AND SERVICE

SUMMARY OF PROFESSIONAL ACTIVITIES AND SERVICE

- Editor, Associate Editor for 1 peer-reviewed journals
- 2 International/national conferences chaired
- 28 International/national conferences committees
- 6 International/national conference sessions chaired
- Member of Editorial Board 1
- Peer Reviewer for 7 Journals
- Proposal Review Service for 2 Funding Agencies
- 10 ASU-level Committees, 9 Engineering School-level Committees and 24 Unit-level Committees
- Chair of 1 School-level Committees
- Program-level leadership 11

- ASU Internal Service
  - 2022 - 2024:
    - **SCAI Personnel Committee, CHAIR, 2022-2024**. As Chair of the SCAI Personnel Committee for two consecutive years, I was responsible for overseeing and facilitating a comprehensive evaluation of faculty performance, ensuring alignment with the school's promotion and tenure processes and criteria. This role involves coordinating evaluation activities, providing guidance and recommendations to the School Director, faculty, and committees, and fostering informed decision-making regarding professional advancement. Additionally, I led the design and implementation of an innovative annual evaluation system for over 120 faculty members spanning various ranks and disciplines. This system establishes a secure, robust, and transparent framework for assessing faculty contributions, effectively integrating information from diverse enterprise sources to evaluate faculty performance across the three pillars of academia: teaching, research, and service.
  - 2018:
    - Co-Director of ABOR approved Center for Assured and Scalable Data Engineering (CASCADE)
    - FSE Research Committee, Member, 2018
  - 2017:
    - Co-Director of ABOR approved Center for Assured and Scalable Data Engineering (CASCADE)
    - Developed and received approval for a new course CSE 573 - Semantic Web Mining
    - Awarded an ASU FSE-TIL Seed Grant on May 13, 2016 to commercialize a patented technology "System and Method for Contextual Analysis" (U.S. Patent: US9524464 B2)
  - 2016:
    - Co-Director of ABOR approved Center for Assured and Scalable Data Engineering (CASCADE)
    - CIDSE, CSE Undergraduate Program Committee, Chair
    - CIDSE Personnel Committee, Member
  - 2015:
    - CIDSE, CSE Undergraduate Program Committee, Chair
    - ASU FURI Selection Committee member
    - CSE Graduate Admissions Committee
    - ASU Student Faculty Policy Committee
  - 2014:

    * Created Big Data Systems MS and MCS Graduate Concentration (with Prof. Candan)
    * CIDSE, CSE Graduate Program Committee member
    * ASU FURI Selection Committee member
    * CSE Graduate Admissions Committee
    * ASU Student Faculty Policy Committee
- 2013:
    * CIDSE Senate Member
    * CSE Graduate Admissions Committee
    * ASU Student Faculty Policy Committee
    * ASU FURI Selection Committee member
- 2012:
    * CIDSE Senate Member
    * CSE Graduate Admissions Committee
    * ASU Student Faculty Policy Committee
    * ASU FURI Selection Committee member
    * Coordinator, CSE Capstone Courses and Internship Program
- 2011:
    * CIDSE Senate Member
    * CSE Graduate Admissions Committee
    * Coordinator, CSE Capstone Courses and Internship Program
- 2010:
    * CIDSE Senate Member
    * CSE Graduate Admissions Committee
    * Program Coordinator of SCIDSE Capstone and Internship Program
- 2009:
    * SCI Graduate Admissions Committee, Member
    * Program Coordinator of SCI's Capstone and Internship Program
    * Member of President Crow's Committee on Scaling Student Entrepreneurship at ASU
- 2008:
    * Program Coordinator of SCI's Capstone and Internship Program
- 2007:
    * College/School, SCI Capstone Course Committee, Member
    * SCI Graduate Admissions Committee, Member
    * SCI Scholarship/TA Committee, Member
- 2006:
    * Capstone Course (CSE 485/486) Curriculum Development
    * TA Selection Committee member
    * Computer Science (CS) Graduate Admissions Committee
- 2005:
    * Information science certificate meeting
    * Computer Science (CS) Graduate Admissions Committee
- 2004:
    * Chair of the College's Quality of Instruction Committee
    * Enterprise Computing research working group
    * Computer Science (CS) Graduate Admissions Committee

  - 2003:
    * Chair, Ira A. Fulton Schools of Engineering - Quality of Instruction Committee
    * Computer Science (CS) Graduate Admissions Committee
  - 2002:
    * Executive Committee Member for the Computational Biosciences Degree Program
    * Ira A. Fulton Schools of Engineering - Quality of Instruction Committee
    * Computer Science (CS) Graduate Admissions Committee

- Professional Society Membership
  - 2002 to date: IEEE, ACM, AAAI
- Journal Editorial Board Member
  - Social Network Analysis and Mining (SNAM) - Springer)
- Conference Organizer:
  - ASONAM 2012 Chair for Panels, Exhibits & Demos
  - ACM SIGMOD 2012 Demonstration and Workshop Local Arrangements Chair
  - WWW Track Chair at ISCIS 2010
  - WWW Track Chair at ISCIS 2009
- Workshop Organizer:
  - Co-Chair, Workshop on Information Integration on the Web, VLDB 2004, August 29, 2004.
- Conference Organizing Committee member:
  - Database Systems for Advanced Applications (DASFAA 2017, 2018)
  - AAAI Conference on Artificial Intelligence (AAAI 2017, 2018)
  - IEEE/ACM Advances in Social Network Analysis and Mining (ASONAM 2015, 2016, 2017, 2018)
  - International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction (SBP 2015, 2016, 2017, 2018)
  - SIAM International Conference on Data Mining (SDM 2015, 2017, 2018)
  - International Symposium on Foundations of Open Source Intelligence and Security Informatics (FOSINT-SI 2015, 2016, 2017, 2018)
  - Semantic Web Track, WWW Conference (WWW 2013)
  - International Conference on Data Engineering (ICDE 2007).
  - IEEE International Conference on Scientific Workflows (SWF 2007)
  - Int'l Conf. Ontologies, DataBases, and Applications of Semantics (ODBASE 2005)
  - Very Large Data Bases (VLDB 2005), Aug 30 - Sept 2, 2005, Trondheim, Norway.
  - Indian International Conference on Artificial Intelligence (IICAI-05), India.
  - International Semantic Web Conference (ISWC 2004), 7-11 November 2004.
  - Indian International Conference on Artificial Intelligence (IICAI-05), Dec 20-22.
  - National Conference on Artificial Intelligence (AAAI-04), July 25-29, 2004.
  - International Conference on Data Engineering (ICDE 2004), March 30-April 2, 2004.

- NSF Panels
  - NSF CAREER
  - NSF BigData
  - NSF PFI:BIC Partnerships for Innovation
  - NSF Data and Knowledge Management
  - NSF Expeditions in Computing

- Reviewer for Journals:
  - IEEE Transactions on Knowledge and Data Engineering (TKDE)
  - ACM Transactions on Knowledge Discovery from Data (TKDD)
  - International Journal of Cooperative Information Systems (IJCIS)
  - Journal on Educational Resources in Computing (JERIC)
  - Theoretical Computer Science (TCS)
  - Data and Knowledge Engineering (DKE)
  - IEEE Transactions on Services Computing (TSC)

REFERENCES

- **Prof. Shashi Shekhar, University of Minnesota** – email: `shekhar@umn.edu` – Tel: `6126248307`

  McKnight Distinguished University Professor – Prof. Shekhar, a spatial database and data mining researcher and a Geo-Informatica co-EIC, coauthor-ed a Spatial Database text, and co-edited an Encyclopedia of GIS. Honors include IEEE-CS Technical Achievement Award, AAAS Fellow, and IEEE Fellow.

- **Prof. Amit P. Sheth, University of South Carolina** – email: `amit@sc.edu` – Tel: `8037771910`

  Professor Sheth is an educator, researcher, and entrepreneur. He is the founding director university-wide AI Institute at the University of South Carolina.

- **Prof. M. Tamer Özsu, University of Waterloo** – email: `tozsu@cs.uwaterloo.ca` – Tel: `5198884043`

  University Professor - Fellow of the Royal Society of Canada, the Association for Computing Machinery (ACM), of the Institute of Electrical and Electronics Engineers (IEEE). University Research Chair, University of Waterloo (2004-2011) Prof. Özsu's research is on data management following two threads: large-scale data distribution, and management of non-traditional data.

- **Prof. Louiqa Raschid, University of Maryland** – email: `louiqa@umiacs.umd.edu` – Tel: `3014052228`

  ACM Fellow – Prof. Raschid is a professor at the University of Maryland where she holds appointments in the Smith School of Business, the Institute of Advanced Computer Studies (UMIACS) and the Department of Computer Science. She is a member of the Computational Linguistics and Information Processing (CLIP) Lab, the Database Group.

- **Prof. Munindar P. Singh, NC State University** – email: `mpsingh@ncsu.edu` – Tel: `9195155677`

  SAS Institute Distinguished Professor of Computer Science – Prof. Singh is a professor at NC State. His research areas are Artificial Intelligence and intelligent agents, service-oriented computing; electronic commerce; agents; multiagent systems; databases.