K. Selçuk Candan

Curriculum Vitae

School of Computing and Augmented Intelligence (SCAI)
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Position

Aug 25 – Present	**President's Professor of Computer Science and Engineering**, *School of Computing and Augmented Intelligence (SCAI)*, Arizona State University, Tempe, Arizona.
Aug 21 – Aug 25	**Professor of Computer Science and Engineering**, *School of Computing and Augmented Intelligence (SCAI)*, Arizona State University, Tempe, Arizona.
Jan 16 – Present	**Director**, *ASU Center for Assured and Scalable Data Engineering (CASCADE)*, Tempe, Arizona.
Sept 24 – Present	**Associate Director**, *NSF Center for Analysis and Prediction of Pandemics (APPEX)*, Tempe, Arizona.
Mar 22 – Dec 22	**(Interim) Co-Director**, *School of Computing and Augmented Intelligence (SCAI)*, Arizona State University, Tempe, Arizona.
Aug 09 – Aug 21	**Professor of Computer Science and Engineering**, *School of Computing, Informatics, and Decision Systems Engineering*, Arizona State University, Tempe, Arizona.
Jan 2018 – Present	**PhD Faculty and Member of the Scientific Board**, *Modeling and Data Science PhD Program*, University of Torino, Turin, Italy.
Oct 10 – 2013	**PhD Faculty**, *Scuola di Dottorato in Scienze della Natura e Tecnologie Innovative*, University of Torino, Turin, Italy.
Sept 09 – Present	**Graduate Faculty**, *School of Arts, Media, and Engineering*, Tempe, Arizona.
Sept 10 – Present	**Senior Sustainability Scientist**, *Global Institute of Sustainability*, Tempe, Arizona.
Aug 03 – Aug 09	**Associate Professor**, *Department of Computer Science and Engineering*, Arizona State University, Tempe, Arizona.
Jan 07 – Sept 09	**Associate Director**, *Arts, Media, and Engineering Program*, Tempe, Arizona.
Sept 05 – Aug 06	**Affiliate Faculty**, *Center for Health Informatics & Research*, Arizona State University, Tempe, Arizona.
Aug 97 – Aug 03	**Assistant Professor**, *Department of Computer Science and Engineering*, Arizona State University, Tempe, Arizona.

Education

Aug 93 – Aug 97	**Ph.D. in Computer Science**, *University of Maryland*, College Park, Maryland, GPA: 4.0. Advisor: Dr. V. S. Subrahmanian Thesis: *A Framework for Distributed Multimedia Collaborations*

Sept 89 – June 93 **B.S. in Computer Engineering and Information Sciences**, *Bilkent University*, Ankara, Turkey, GPA: 3.94.
Ranked 1st in department, 2nd in engineering school

Academic Experience

Aug 97 – Present **Faculty Member**, *Arizona State University*, Tempe, Arizona.

Teaching Summary by Course

1998–2025 **Multimedia and Web Databases**, *Arizona State University*, Tempe, Arizona, CSE515 (Graduate), CSE591 (Graduate), PhD-level.
Fall 1997; Spring 2001; Spring 2003; Fall 2003; Spring 2005; Spring 2006; Spring 2007; Spring 2008; Spring 2009; Fall 2009; Fall 2010; Fall 2011; Fall 2012; Fall 2013; Fall 2014; Fall 2016; Fall 2017; Fall 2018; Fall 2019; Fall 2020; Fall 2021; Fall 2023; Fall 2024; Fall 2025.
Additional PhD offerings: Nov 2004 (University of Venice); Dec 2004 (University of Torino).

1998–2025 **Database Management System Implementation**, *Arizona State University*, Tempe, Arizona, CSE510 (Graduate).
Spring 1998; Spring 2001; Fall 2002; Spring 2004; Spring 2005; Spring 2006; Spring 2007; Spring 2008; Spring 2009; Fall 2009; Spring 2010; Spring 2011; Spring 2012; Spring 2013; Spring 2014; Spring 2017; Spring 2018; Spring 2019; Spring 2020; Spring 2021; Spring 2022; Spring 2024; Spring 2025.

1998–2016 **Multimedia Information Systems**, *Arizona State University*, Tempe, Arizona, CSE408 (Senior/Graduate).
Fall 1998; Fall 2005; Fall 2006; Fall 2010; Fall 2011; Fall 2012; Fall 2013; Fall 2015.

1999–2001 **Database Management Systems**, *Arizona State University*, Tempe, Arizona, CSE412 (Senior/Graduate).
Fall 1999; Fall 2001; Spring 2015.

2000–2001 **Multimedia Databases**, *Arizona State University*, Tempe, Arizona, CSE591 (Graduate).
Spring 1998; Spring 2000.

1999–1999 **Advanced Databases**, *Arizona State University*, Tempe, Arizona, CSE510 (Graduate).
Fall 1998; Fall 1999.

2007–2010 **Data and Information Security**, *Arizona State University*, Tempe, Arizona, CSE467 (Senior/Graduate).
Fall 2007; Fall 2008; Spring 2010.

2008 **The ASU Experience**, *Arizona State University*, Tempe, Arizona, ASU100 (Freshman).
Fall 2008.

2003 **Introduction to Engineering Design**, *Arizona State University*, Tempe, Arizona, ECE100 (Freshman).
Fall 2003.

1997 **Data Structures and Algorithms**, *Arizona State University*, Tempe, Arizona, CSE310 (Junior).
Fall 1997.

Academic Appointments and Sabbaticals

Spring 2023 **Sabbatical Visit**, *University of Torino*, Torino, Italy.

Sept 2004 – Dec 2004	**Sabbatical Visit**, *University of Torino*, Torino, Italy.
	Investigated interactive and adaptive multimedia system design.
June 1994 – Aug 1997	**Research Assistant**, *University of Maryland (UMCP)*, College Park, Maryland.
Aug 1993 – June 1994	**Teaching Assistant**, *University of Maryland (UMCP)*, College Park, Maryland.

Industrial Experience

Summer 2004	**Sabbatical Visit**, *IBM Almaden Research Labs*, San Jose, California.
	Investigated information integration and data placement challenges.
June 1998 – May 2010	**Visiting Research Scientist**, *NEC, USA Inc.*, Cupertino, California.
	Investigated multimedia systems, content delivery networks, and Internet caching technologies.
June 2000 – Dec 2000	**Research Scientist**, *CCRL, NEC, USA Inc.*, San Jose, California.
	Investigated web acceleration, content delivery networks, caching, and invalidation technologies.
July 1996 – Sept 1996	**Intern**, *CCRL, NEC, USA Inc.*, San Jose, California.
	Investigated language design, visual interface, and query processing issues in semantics and content-based image retrieval (SEMCOG).

Books and Proceedings

2010 **Data Management for Multimedia Retrieval**, *K. Selcuk Candan, Maria Luisa Sapino*, Cambridge University Press, ISBN-10: 0521887399; ISBN-13: 978-0521887397.
May 31, 2010

2023 **Companion of the 2023 International Conference on Management of Data**, *Sudipto Das, Ippokratis Pandis, K. Selçuk Candan, Sihem Amer-Yahia*, SIGMOD/PODS 2023, Seattle, WA, USA, ACM.
ISBN 978-1-4503-9507-6

2022 **IEEE International Conference on Data Mining Workshops**, *K. Selçuk Candan, Thang N. Dinh, My T. Thai, Takashi Washio*, ICDM Workshops, Orlando, FL, USA, IEEE.
ISBN 979-8-3503-4609-1

2022 **The Fifteenth ACM International Conference on Web Search and Data Mining**, *K. Selcuk Candan, Huan Liu, Leman Akoglu, Xin Luna Dong, Jiliang Tang*, WSDM 2022, Virtual Event / Tempe, AZ, USA, ACM.
ISBN 978-1-4503-9132-0

2021 **Report on the 12th Conference and Labs of the Evaluation Forum (CLEF 2021)**, *K. Selçuk Candan et al.*, SIGIR Forum 55(2), ACM.
15:1–15:12

2021 **Experimental IR Meets Multilinguality, Multimodality, and Interaction**, *K. Selcuk Candan et al.*, 12th International Conference of the CLEF Association (CLEF 2021), Springer, LNCS 12880.
ISBN 978-3-030-85250-4

2020 **IEEE International Conference on Smart Data Services**, *K. Selcuk Candan, Tevfik Kosar*, SMDS 2020, IEEE.
DOI: 10.1109/SMDS49396.2020.00004

2019 **Proceedings of the International Conference on Multimedia Retrieval**, *Abdul-motaleb El-Saddik et al.*, ICMR 2019, Ottawa, ON, Canada, ACM.
ISBN 978-1-4503-6765-3

2018 **Proceedings of the 27th ACM International Conference on Information and Knowledge Management**, *Alfredo Cuzzocrea et al.*, CIKM 2018, Torino, Italy, ACM.
ISBN 978-1-4503-6014-2

2017 **Database Systems for Advanced Applications**, *K. Selcuk Candan et al.*, DASFAA 2017, Suzhou, China, Springer, LNCS 10177–10178.

2015 **IEEE International Conference on Cloud Engineering**, *K. Selcuk Candan et al.*, IC2E 2015, Tempe, AZ, USA, IEEE.
ISBN 978-1-4799-8218-9

2014 **Proceedings of the Workshops of the EDBT/ICDT Joint Conference**, *K. Selcuk Candan et al. (Eds.)*, EDBT/ICDT 2014, Athens, Greece.

2012 **Proceedings of the ACM SIGMOD International Conference on Management of Data**, *K. Selcuk Candan et al. (Eds.)*, SIGMOD 2012, Scottsdale, AZ, USA, ACM.
ISBN 978-1-4503-1247-9

2011 **Proceedings of the 19th International Conference on Multimedia**, *K. Selcuk Candan et al. (Eds.)*, ACM Multimedia 2011, Scottsdale, AZ, USA, ACM.

2011 **New Frontiers in Information and Software as Services**, *Divy Agrawal, K. Selcuk Candan, Wen-Syan Li (Eds.)*, Lecture Notes in Business Information Processing 74, Springer.
ISBN 978-3-642-19293-7

2009 **Advances in Web and Network Technologies, and Information Management**, *L. Chen et al. (Eds.)*, Lecture Notes in Computer Science, Springer.
ISSN 0302-9743 / 1611-3349

2008 **Proceedings of the 16th International Conference on Multimedia**, *Abdulmotaleb El-Saddik et al. (Chairs)*, ACM Multimedia 2008, Vancouver, Canada, ACM.

2005 **Advances in Multimedia Information Systems**, *K. Selcuk Candan, Augusto Celentano (Eds.)*, Lecture Notes in Computer Science 3665, Springer.
ISBN 978-3-540-28792-6

Journal Publications

2026 **A cyber-resilient control framework with adaptive model predictive control (AMPC) for securing energy systems in smart buildings**, *Guowen Li, Yangyang Fu, Zheng O'Neill, Z. Yang, Veronica Adetola, Jin Wen, Lingyu Ren, Teresa Wu, Qi Zhu, K. Selçuk Candan, Chirag Parikh*, Science and Technology for the Built Environment.

2025 **Metadata supported scale space attention networks for multivariate time series prediction**, *Manjusha Ravindranath, K. Selçuk Candan, Brian Appavu*, Data Mining and Knowledge Discovery.

2025 **Graph-based unsupervised domain adaptation for fault diagnosis of HVAC systems**, *Naghmeh Ghalamsiah, Jin Wen, Teresa Wu, K. Selçuk Candan, Zheng O'Neill*, Building and Environment.

2025 **Unsupervised domain adaptation for HVAC fault diagnosis using contrastive adaptation network**, *Naghmeh Ghalamsiah, Jin Wen, K. Selçuk Candan, Teresa Wu, Zheng O'Neill, Ali Aghaei*, Energy and Buildings, Vol. 337, Article 115659.

2025 **An Interdisciplinary Perspective of the Built-Environment Microbiome**, *John S. McAlister; Michael J. Blum; Yana Bromberg; Nina H. Fefferman; Qiang He; Eric Lofgren; Debra L. Miller; Courtney Schreiner; Kasim Selçuk Candan; Heather Szabo-Rogers*, FEMS Microbiology Ecology, Volume 101, Issue 1, January 2025.

2024 **MMA: Metadata Supported Multi-Variate Attention for Onset Detection and Prediction**, *Manjusha Ravindranath; K. Selçuk Candan; Maria Luisa Sapino; Brian Appavu*, Data Mining and Knowledge Discovery, 38(4): 1545–1588.

2024 **(Vision Paper) A Vision for Spatio-Causal Situation Awareness, Forecasting, and Planning**, *Fahim Tasneema Azad; K. Selçuk Candan; Ahmet Kapkiç; Mao-Lin Li; Huan Liu; Pratanu Mandal; Paras Sheth; Bilgehan Arslan; Gerardo Chowell-Puente; John Sabo; Rebecca Muenich; Javier Redondo Anton; Maria Luisa Sapino*, ACM Transactions on Spatial Algorithms and Systems, 10(2): Article 14.

2024 **An Entropy-Based Causality Framework for Cross-Level Fault Diagnosis and Isolation in Building HVAC Systems**, *Jiajing Huang; Naghmeh Ghalamsiah; Abhidnya Patharkar; Ojas Pradhan; Mengyuan Chu; Teresa Wu; Jin Wen; Zheng O'Neill; Kasim Selçuk Candan*, Energy and Buildings.

2024 **Emulation and Detection of Physical Faults and Cyber-Attacks on Building Energy Systems through Real-Time Hardware-in-the-Loop Experiments**, *Guowen Li; Lingyu Ren; Ojas Pradhan; Zheng O'Neill; Jin Wen; Zhiyao Yang; Yangyang Fu; Mengyuan Chu; Jiajing Huang; Teresa Wu*, Energy and Buildings.

2024 **Evaluation of Data Imputation Approaches for Multi-Stream Building Systems Data**, *Ojas Pradhan; Jin Wen; David Hälleberg; Zhelun Chen; Noresh Varman; Jiajing Huang; Teresa Wu; Kasim Selçuk Candan; Zheng O'Neill*, Science and Technology for the Built Environment.

2023 **A Critical Review of Cyber-Physical Security for Building Automation Systems**, *Guowen Li; Lingyu Ren; Yangyang Fu; Zhiyao Yang; Veronica Adetola; Jin Wen; Qi Zhu; Teresa Wu; Kasim Selçuk Candan; Zheng O'Neill*, Annual Reviews in Control, 55: 237–254.

2023 **A New Paradigm for Pandemic Preparedness**, *Nina H. Fefferman et al., including Kasim Selçuk Candan*, Current Epidemiology Reports, 10: 240–251.
DOI: 10.1007/s40471-023-00336-w

2023 **Causal Disentanglement for Implicit Recommendations with Network Information**, *Paras Sheth; Ruocheng Guo; Lu Cheng; Huan Liu; Kasim Selçuk Candan*, ACM Transactions on Knowledge Discovery from Data, 17(7): 94:1–94:18.

2023 **Eigen-Entropy: A Metric for Multivariate Sampling Decisions**, *Jiajing Huang; Hyunsoo Yoon; Teresa Wu; Kasim Selçuk Candan; Ojas Pradhan; Jin Wen; Zheng O'Neill*, Information Sciences, 619: 84–97.

2023 **Tensor-Train Decomposition in the Presence of Interval-Valued Data**, *Francesco Di Mauro; Kasim Selçuk Candan; Maria Luisa Sapino*, IEEE Transactions on Knowledge and Data Engineering, 35(4): 4267–4280.

2022 **GTT: Leveraging Data Characteristics for Guiding the Tensor Train Decomposition**, *Mao-Lin Li; Kasim Selçuk Candan; Maria Luisa Sapino*, Information Systems, 108: 102047.

2022 **Evaluation Methods and Measures for Causal Learning Algorithms**, *Lu Cheng; Ruocheng Guo; Raha Moraffah; Paras Sheth; Kasim Selçuk Candan; Huan Liu*, IEEE Transactions on Artificial Intelligence, 3(6): 924–943.

2022 **SIRTEM: Spatially Informed Rapid Testing for Epidemic Modeling and Response to COVID-19**, *Fahim Tasneema Azad et al., including Kasim Selçuk Candan*, ACM Transactions on Spatial Algorithms and Systems, 8(4): 29:1–29:43.

2021 **Selego: Robust Variate Selection for Accurate Time Series Forecasting**, *Manoj Tiwaskar; Yash Garg; Xinsheng Li; Kasim Selçuk Candan; Maria Luisa Sapino*, Data Mining and Knowledge Discovery, 35(5): 2141–2167.

2021 **DataStorm: Coupled, Continuous Simulations for Complex Urban Environments**, *Hans Walter Behrens et al., including Kasim Selçuk Candan*, Transactions on Data Science, 2(3): 19:1–19:37.

2021 **SMM: Leveraging Metadata for Contextually Salient Multi-Variate Motif Discovery**, *Silvestro R. Poccia; Kasim Selçuk Candan; Maria Luisa Sapino*, Applied Sciences, 11(22): 10873.

2021 **Matrix Factorization with Interval-Valued Data**, *Mao-Lin Li; Francesco Di Mauro; K. Selcuk Candan; Maria Luisa Sapino*, EEE Transactions on Knowledge and Data Engineering, 33(4): 1644-1658 .

2020 **Decreasing Loneliness and Social Disconnectedness among Community-Dwelling Older Adults: The Potential of Information and Communication Technologies and Ride-Hailing Services**, *C. Talmage, R. Knopf, E. Wu, D. Winkel, P. Mirchandani, K. Selçuk Candan*, Journal of Activities, Adaptation & Aging, 2020. https://doi.org/10.1080/01924788.2020.1724584

2019 **Crowd Sourced Semantic Enrichment (CroSSE) for Knowledge Driven Querying of Digital Resources**, *Giacomo Cavallo, Francesco Di Mauro, Paolo Pasteris, Maria Luisa Sapino, K. Selçuk Candan*, Journal of Intelligent Information Systems, 53(3): 453–480.

2019 **Generalized Ordinal Learning Framework (GOLF) for Decision Making with Future Simulated Data**, *G. Pedrielli, K. Selçuk Candan, J. Xu, C.-H. Chen, L. H. Lee, X. Chen, L. Mathesen, A. Inanlouganji*, Asia Pacific Journal of Operational Research, 36(06): 1940011.

2018 **DataStorm-FE: A Data- and Decision-Flow and Coordination Engine for Coupled Simulation Ensembles**, *Hans Behrens, K. Selçuk Candan, Xilun Chen, Ashish Gadkari, Yash Garg, Mao-Lin Li*, Proceedings of the VLDB Endowment, 11(12): 1906–1909.

2018 **Robust Multi-Variate Temporal Features of Multi-Variate Time Series**, *Sicong Liu, Silvestro R. Poccia, K. Selçuk Candan, Maria Luisa Sapino, Xiaolan Wang*, ACM TOMCCAP, 14(1): 7:1–7:24.

2017 **Data Integration in the Service of Synthetic Research**, *Keith W. Kintigh et al., K. Selçuk Candan*, Advances in Archaeological Practice, Society for American Archaeology.

2016 **epiDMS: Data Management and Analytics for Decision-Making from Epidemic Spread Simulation Ensembles**, *Sicong Liu, Silvestro Poccia, K. Selçuk Candan, Gerardo Chowell-Puente, Maria Luisa Sapino*, Journal of Infectious Diseases, Vol. 214.

2016 **Decomposition-by-Normalization (DBN): Leveraging Approximate Functional Dependencies for Efficient CP and Tucker Decompositions**, *Mijung Kim, K. Selçuk Candan*, Data Mining and Knowledge Discovery, 30(1): 1–46.

2016 **Reducing Seed Noise in Personalized PageRank**, *Shengyu Huang, Xinsheng Li, K. Selçuk Candan, Maria Luisa Sapino*, Social Network Analysis and Mining, 6(1): 6:1–6:25.

2015 **Efficient Processing of Skyline-Join Queries over Multiple Data Sources**, *Mithila Nagendra, K. Selçuk Candan*, ACM Transactions on Database Systems, 40(2): Article 10.

2015 **Locality-Sensitive and Re-use Promoting Personalized PageRank Computations**, *Jung Hyun Kim, K. Selçuk Candan, Maria Luisa Sapino*, Knowledge and Information Systems, pp. 1–39.

2015 **Compressed Spatial Hierarchical Bitmap (cSHB) Indexes for Efficiently Processing Spatial Range Query Workloads**, *Parth Nagarkar, K. Selçuk Candan, Aneesha Bhat*, PVLDB, 8(12): 1382–1393.

2014 **Multiresolution Tensor Decompositions with Mode Hierarchies**, *Claudio Schifanella, K. Selçuk Candan, Maria Luisa Sapino*, ACM TKDD, 8(2).

2013 **SkySuite: A Framework of Skyline-Join Operators for Static and Stream Environments**, *Mithila Nagendra, K. Selçuk Candan*, PVLDB, 6(12): 1266–1269.

2012 **PhC: Multi-resolution Visualization and Exploration of Text Corpora with Parallel Hierarchical Coordinates**, *Luigi Di Caro, K. Selçuk Candan, Maria Luisa Sapino*, ACM TIST, 3(2): Article 22.

2012 **Narrative-based Taxonomy Distillation for Effective Indexing of Text Collections**, *Mario Cataldi, K. Selçuk Candan, Maria Luisa Sapino*, Data and Knowledge Engineering, 72: 103–125.

2012 **On Context-Aware Co-Clustering with Metadata Support**, *Claudio Schifanella, Maria Luisa Sapino, K. Selçuk Candan*, Journal of Intelligent Information Systems, 38(1): 209–239.

2012 **SBV-Cut: Vertex-Cut Based Graph Partitioning Using Structural Balance Vertices**, *Mijung Kim, K. Selçuk Candan*, Data & Knowledge Engineering, 72: 285–303.

2011 **SCENT: Scalable Compressed Monitoring of Evolving Multi-Relational Social Networks**, *Yu-Ru Lin, K. Selçuk Candan, Hari Sundaram, Lexing Xie*, ACM TOMCCAP, 7S(1): Article 29.

2011 **Navigating Within News Collections Using Tag-Flakes**, *Luigi Di Caro, Kasim Selçuk Candan, Maria Luisa Sapino*, Journal of Visual Languages and Computing, 22(2): 120–139.

2010 **Organization and Tagging of Blog and News Entries Based on Content Reuse**, *Jong Wook Kim, K. Selçuk Candan, Junichi Tatemura*, Journal of Signal Processing Systems, 58(3).

2010 **Object and Combination Shedding Schemes for Adaptive Media Workflow Execution**, *Lina Peng, Renwei Yu, K. Selçuk Candan, Xinxin Wang*, IEEE Transactions on Knowledge and Data Engineering, 22(1): 105–119.

2009 **SEA: Segment-Enrich-Annotate Paradigm for Adapting Digital Content for Improved Accessibility**, *K. Selçuk Candan et al.*, ACM Transactions on Information Systems, 27(3).

2009 **Topic Development Pattern Analysis Based Adaptation of Information Spaces**, *Syed T. Ahmed, K. Selçuk Candan, Sangwoo Han, Yan Qi*, New Review of Hypermedia and Multimedia, 15(1).

2008 **System Support for Exploration and Expert Feedback in Resolving Conflicts During Integration of Metadata**, *K. Selçuk Candan et al.*, VLDB Journal, 17(6): 1407–1444.

2008 **Scalable Filtering of Multiple Generalized-Tree-Pattern Queries over XML Streams**, *Songting Chen et al., K. Selçuk Candan*, IEEE TKDE, 20(12): 1627–1640.

2008 **Distributed XML Processing: Theory and Applications**, *Dirceu Cavendish, K. Selçuk Candan*, Journal of Parallel and Distributed Computing, 68(8): 1054–1069.

2007 **Enabling Access-Privacy for Random Walk Based Data Analysis Applications**, *Ping Lin, K. Selçuk Candan*, Data and Knowledge Engineering, 63(3): 667–683.

2007 **Demand-Scalable Geographic Multicasting in Wireless Sensor Networks**, *Shibo Wu, K. Selçuk Candan*, Computer Communications, 30(14–15): 2931–2953.

2007 **Power-Aware Single- and Multipath Geographic Routing in Sensor Networks**, *Shibo Wu, K. Selçuk Candan*, Ad Hoc Networks, 5(7): 974–997.

2007 **Virtual Active Network for Live Streaming Media Delivery**, *Wen-Syan Li et al., K. Selçuk Candan*, Journal of Interconnection Networks, 8(1): 45–74.

2007 **Annotating Educational Discussion Boards to Help Students Who Are Blind**, *Maria Luisa Sapino, K. Selçuk Candan et al.*, International Journal of Continuing Education and Life-Long Learning, 17(4/5): 294–318.

2006 **Discovering Mappings in Hierarchical Data from Multiple Sources Using the Inherent Structure**, *K. Selçuk Candan et al.*, Journal of Knowledge and Information Systems, 10(2): 185–210.

2005 **Similarity-Based Retrieval of Temporal Documents in Digital Libraries**, *Prakash Yamuna, K. Selçuk Candan*, Multimedia Tools and Applications, 27(1): 143–180.

2005 **Hiding Tree Structured Data and Queries from Untrusted Data Stores**, *Ping Lin, K. Selçuk Candan*, Information Systems Security Journal, 14(4).

2004 **Effects of User Request Patterns on a Multimedia Delivery System**, *Christopher B. Mayer, K. Selçuk Candan, Venkatesh Sangam*, Multimedia Tools and Applications, pp. 233–251.

2004 **Multi-Criteria Query Optimization in the Presence of Predicates with Result Size and Quality Tradeoffs**, *Lakshmi P. Mahalingam, K. Selçuk Candan*, Multimedia Tools and Applications, 23(3): 167–183.

2003 **Freshness-Driven Adaptive Caching for Dynamic Content Web Sites**, *Wen-Syan Li et al., K. Selçuk Candan*, Data and Knowledge Engineering, 47(2): 269–296.

2002 **Reasoning for Web Document Associations and Its Applications in Site Map Construction**, *K. Selçuk Candan, Wen-Syan Li*, Data and Knowledge Engineering, 43(2): 121–150.

2002 **Evaluations of Architectural Designs and Implementation for Database-Driven Web Sites**, *Wen-Syan Li et al., K. Selçuk Candan*, Data and Knowledge Engineering, 43(2): 151–177.

2002 **WebDB: A System for Querying Semi-Structured Data on the Web**, *Wen-Syan Li, J. Shim, K. Selçuk Candan*, Journal of Visual Languages and Computing, 13(1): 3–33.

2002 **Query Relaxation by Structure and Semantics for Retrieval of Logical Web Documents**, *Wen-Syan Li et al., K. Selçuk Candan*, IEEE TKDE, 14(4): 768–791.

2001 **On Similarity Measures for Multimedia Database Applications**, *K. Selçuk Candan, Wen-Syan Li*, Knowledge and Information Systems, 3(1): 30–51.

2001 **Supporting Efficient Multimedia Database Exploration**, *Wen-Syan Li et al., K. Selçuk Candan*, VLDB Journal, 9(4): 312–326.

2000 **View Management in Multimedia Databases**, *K. Selçuk Candan, E. Lemar, V. S. Subrahmanian*, VLDB Journal, 9(2): 131–153.

2000 **Similarity-Based Ranking and Query Processing in Multimedia Databases**, *K. Selçuk Candan, Wen-Syan Li, M. L. Priya*, Data and Knowledge Engineering, 35(3): 259–298.

1999 **SEMCOG: A Hybrid Object-Based Image and Video Database System**, *Wen-Syan Li, K. Selçuk Candan*, ACM TAPOS, 5(3): 163–180.

1999 **Integrating Content Search with Structure Analysis for Hypermedia Retrieval and Management**, *Wen-Syan Li, K. Selçuk Candan*, ACM Computing Surveys, 31(4es): Article 13.

1998 **Retrieval Schedules Based on Resource Availability and Flexible Presentation Specifications**, *K. Selçuk Candan, B. Prabhakaran, V. S. Subrahmanian*, ACM–Springer Multimedia Systems Journal, 6(4): 232–250.

1998 **Collaborative Multimedia Documents: Authoring and Presentation**, *K. Selçuk Candan, B. Prabhakaran, V. S. Subrahmanian*, International Journal of Intelligent Systems, 13(12).

1998 **Collaborative Multimedia Systems: Synthesis of Media Objects**, *K. Selçuk Candan, V. S. Subrahmanian, P. Venkat Rangan*, IEEE TKDE, 10(3): 433–457.

1998 **An Event-Based Model for Continuous Media Data on Heterogeneous Disk Servers**, *K. Selçuk Candan, E. Hwang, V. S. Subrahmanian*, ACM–Springer Multimedia Systems Journal, 6(4): 251–270.

1998 **Hierarchical Image Modeling for Object-Based Media Retrieval**, *Wen-Syan Li et al., K. Selçuk Candan*, Data and Knowledge Engineering, 27(2): 139–176.

1997 **A Unified Treatment of Null Values Using Constraints**, *K. Selçuk Candan, J. Grant, V. S. Subrahmanian*, Information Systems Journal, 98(1–4): 99–156.

1996 **Advanced Video Information System: Data Structures and Query Processing**, *S. Adali, K. Selçuk Candan, Su-Shing Chen, K. Erol, V. S. Subrahmanian*, ACM–Springer Multimedia Systems Journal, 4: 172–186.

Magazine Publications

2011 **RanKloud: Scalable Multimedia Data Processing in Server Clusters**, *K. Selcuk Candan, Jong Wook Kim, Parth Nagarkar, Mithila Nagendra, Renwei Yu*, IEEE Multimedia, Special Issue on Large-Scale Multimedia Retrieval and Mining, 18(1): 64–77.

Conference Publications

2025 **CauSTream: Causal Spatio-Temporal Representation Learning for Streamflow Forecasting**, *Shu Wan, Reepal Shah, John Sabo, Huan Liu, K. Selçuk Candan*, IEEE Big Data.

2025 **CausalBench-ER: Causally-Informed Explanations and Recommendations for Reproducible Benchmarking**, *Ahmet Kapkiç, Pratanu Mandal, Abhinav Gorantla, Shu Wan, Ertuğrul Çoban, Paras Sheth, Huan Liu, K. Selçuk Candan*, Proceedings of the 34th ACM International Conference on Information and Knowledge Management(CIKM).

2025 **Cross-Domain Conditional Diffusion Models for Time Series Imputation**, *Kexin Zhang, Baoyu Jing, K. Selçuk Candan, Dawei Zhou, Qingsong Wen, Han Liu, Kaize Ding*, European Conference on Machine Learning and Knowledge Discovery in Databases (ECML PKDD).

2025 **CausalBench: Causal Learning Research Streamlined**, *Ahmet Kapkiç, Pratanu Mandal, Abhinav Gorantla, Shu Wan, Ertuğrul Çoban, Paras Sheth, Huan Liu, K. Selçuk Candan*, Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) – Tutorials, Toronto, ON, Canada; pp. 6239–6240.

2025 **PySIRTEM: An efficient modular simulation platform for the analysis of pandemic scenarios**, *P. Biswas, G. Pedrielli, K. Selçuk Candan*, 2025 Winter Simulation Conference.

2024 **Prioritizing Potential Wetland Areas via Region-to-Region Knowledge Transfer and Adaptive Propagation**, *Yoonhyuk Choi, Reepal Shah, John Sabo, Huan Liu, K. Selçuk Candan*, IEEE International Conference on Big Data (BigData).

2024 **A Feature Extraction Framework with Entropy on Graphs for Cross-Dataset Building Fault Detection**, *Jiajing Huang, Abhidnya Patharkar, Teresa Wu, Jin Wen, Zheng O'Neill, K. Selçuk Candan*, IEEE International Conference on Automation Science and Engineering (CASE).

2024 **Introducing CausalBench: A Flexible Benchmark Framework for Causal Analysis and Machine Learning**, *Ahmet Kapkiç, Pratanu Mandal, Shu Wan, Paras Sheth, Abhinav Gorantla, Yoonhyuk Choi, Huan Liu, K. Selçuk Candan*, ACM International Conference on Information and Knowledge Management (CIKM).

2024 **Causally Informed Factorization Machines**, *Mao-Lin Li, K. Selçuk Candan, Maria Luisa Sapino*, IEEE International Conference on Big Data (BigData).

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2023	**Invited Lecture: On the Synergy between Game Theory and Data Science & Engineering**, *K. Selcuk Candan*, Evolutionary Game Theory and Population Dynamics (EvoGamesPlus) Ecology and Epidemiological Modeling School.
2023	**Invited Talk: Machine Learning to Support Sensemaking in (Human-Centered) Complex, Dynamic Systems**, *K. Selcuk Candan*, ASU EVE Graduate Seminar. Arizona State University
2022	**Presentation: Securing the Future of Critical (Engineered and/or Natural) Systems through Data-and Model-Driven Resilience**, *K. Selcuk Candan*, Network for Engineering With Nature (N-EWN).
2022	**Keynote: Smart Data Services for Sensemaking in Human-Centered Dynamic Systems**, *K. Selcuk Candan*, International Conference on Similarity Search and Applications.
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2016 **Data-Driven Sensemaking in an Evolving, Noisy World**, *K. Selcuk Candan*, IBM Cognitive Computing Seminar Series (invited talk).

2016 **Assured and Scalable Data Engineering — Challenges and Opportunities**, *K. Selcuk Candan*, FastData.

2016 **(Scalable) Retrieval and Analysis of Simulation and Observation Ensemble Data Sets**, *K. Selcuk Candan*, Max Planck Institute of Evolutionary Biology (invited talk).

2015 **EPIDMS: Understanding the Evolution of Epidemics and Supporting Real-Time Decision Making and Hypothesis**, *K. Selcuk Candan*, Ebola Deep Dive, Ebola Modelling Community (invited talk).

2015 **EPIDMS: Understanding the Evolution of Epidemics and Supporting Real-Time Decision Making and Hypothesis Testing Through Large Scale Simulations**, *K. Selcuk Candan*, Symposium on Data Science for Healthcare (DaSH) (invited talk).

2014 **Keynote: Scalable Retrieval and Analysis of Simulation and Observation Data Sets**, *K. Selcuk Candan*, 7th International Conference on Similarity Search and Applications (SISAP'14), October 2014.

2014 **Invited talk: Scalable Retrieval and Analysis of Multi-variate Temporal Data Sets**, *K. Selcuk Candan*, University of Torino, Torino, Italy.
June

2014 **Invited talk: Scalable Retrieval and Analysis of Multi-variate Temporal Data Sets**, *K. Selcuk Candan*, ACS Seminar Series, University of Winnipeg, Winnipeg, Canada.
February 26

2014 **Poster: E-SDMS: Energy Simulation Data Management System Software**, *K. Selcuk Candan*, NSF SI2 PI Meeting, Feb 2014.
February

2014 **Presentation: I2AV: Integrate, Index, Analyze, and Visualize Energy Data for Data-driven Simulations and Optimizations**, *K. Selcuk Candan and Xilun Chen*, Consortium of Embedded Systems PI Meeting, Jan 2014.

2013 **Presentation: MS and MCS Concentrations on "Big Data Systems"**, *K. Selcuk Candan*, CIDSE Industrial Advisory Board, ASU, Nov 2013.

2013 **Presentation: Data Management and Analytics Research @ EmitLab**, *K. Selcuk Candan*, IO Delegation, ASU, Nov 2013.

2013 **Panelist: "Cross-Media Analysis and Mining" (Thoughts on Cross-[Multi]Media Analysis and Mining)**, *K. Selcuk Candan*, ACM Multimedia Conference (MM'14 panel, presented Oct 2013), Oct 2013.

2013 **Presentation: Big Data Management and Analytics Research Discussion**, *K. Selcuk Candan*, Chinese Academy of Sciences Delegation, ASU, Oct 2013.

2013 **Presentation: Data Management and Analytics Research @ EmitLab**, *K. Selcuk Candan*, Monterey Tech Delegation, ASU, Sep 2013.

2013 **Presentation: (Big) Data Management and Analytics Research @ EmitLab**, *K. Selcuk Candan*, Lab41 (invited presentation), Aug 2013.

2013 **Invited talk: Multimedia Data Management and Analytics Research**, *K. Selcuk Candan*, University of Torino, June 2013.

2013 **Invited talk: Data Management and Analytics Research at EmitLab**, *K. Selcuk Candan*, Johnson Control Inc. (JCI), May 2013.

2013 **Overview: Data Management and Analytics Research and Teaching at ASU**, *K. Selcuk Candan*, ASU–IBM Big Data Roundtable, Jan 2013.

2012 **Invited talk: RanKloud — Scalable Multimedia and Social Media Retrieval and Analysis in the Cloud**, *K. Selcuk Candan*, Symposium on "Next Generation Multimedia Research and Development", NYU Abu Dhabi Institute, May 2–3, 2012.

2011 **Job opportunities and career perspective for fresh graduates of the multimedia community (panel)**, *K. Selcuk Candan, Lyndon Kennedy, Yu-Ru Lin, Vincent Oria, Dulce B. Ponceleon, Hari Sundaram, Rong Yan, Roger Zimmerman*, ACM Multimedia'11.
Pages 599–600 (proceedings entry)

2011 **Keynote: RanKloud — Scalable Multimedia and Social Media Retrieval and Analysis in the Cloud**, *K. Selcuk Candan*, 9th International Workshop on Large-Scale and Distributed Systems for Information Retrieval (LSDS-IR), Oct 2011.

2011 **Invited talk: Data Placement for Policy-based Data Management in the Cloud**, *K. Selcuk Candan*, HP Labs, Jan 2011.

2010 **Invited talk: Multimedia Data Processing — Efficiency, Scalability, and Effectiveness**, *K. Selcuk Candan*, KAIST, July 2010.

2010 **Invited talk: Grand Challenges (and Opportunities) in IA Research and Education**, *K. Selcuk Candan*, Information Assurance Workshop, ASU, May 2010.

2010 **Invited talk: Multimedia Data Processing — Efficiency, Scalability, and Effectiveness**, *K. Selcuk Candan*, University of Genova, March 2010.

2010 **Invited talk: Efficient Processing of Top-K Joins on Batch-Oriented Cluster Architectures**, *K. Selcuk Candan*, HP Labs, Feb 2010.

2009 **Invited talk: Multimedia Data Processing — Efficiency and Effectiveness**, *K. Selcuk Candan*, University of Padova.

2009 **Invited talk: Multimedia Data Mining Workflows — Efficiency and Effectiveness**, *K. Selcuk Candan*, SIAM SDM Workshop on Multimedia Data Mining.

2009 **Panel talk: "Now that you have spent 12 years in the academia, are you any wiser?"**, *K. Selcuk Candan*, SIAM Data Mining Conference (SDM) Student Doctoral Forum.

2008 **Talk: "Interactive Art and Us, 'the Scientists"' (panel)**, *K. Selcuk Candan*, ACM Multimedia Conference.

2008 **Invited Panelist: Sensors Networks for Ambient Systems**, *K. S. Candan*, VLDB International Workshop on Data Management for Sensor Networks (DMSN).

2008 **Invited paper: Enabling Scientific Data Integration through Exploration and Expert Feedback**, *K. S. Candan*, Information Science and Technology (IST) symposium of UKC 2008, Aug 2008.

2007 **Oasis System for Serving Digital Information to Students without Sight (presentation; presented by Terri Hedgpeth)**, *K. Selcuk Candan, Terri Hedgpeth, Qing Li*, 11th Annual Vision Rehabilitation and Technology Expo, Nov 2007.

2006 **OASIS: Organizing, Annotating, and Serving Information to Individuals without Sight**, *K. S. Candan*, Conference of Korean Computer Scientists and Engineers Association in America, Dec 2006.

2006 **Context-Aware Navigation Research at EmitLab (presentation)**, *K. S. Candan*, Telecom Italia, Nov 2006.

2005 **Ubiquitous Environment to Facilitate Access to Textbooks and Related Materials for Individuals who are Blind or Visually Impaired**, *K. Selcuk Candan*, Rehabilitation Services Administration, June 2005.

2004 **Indexing and Matching Web Data and Metadata**, *K. S. Candan*, Center for Research and Technological Innovation, RAI, Dec 2004.

2004 **Multimedia and Web Databases (invited tutorial)**, *K. S. Candan*, University of Venice, Nov 2004.

2004 **Multimedia Database Research at EmitLab (invited presentation)**, *K. S. Candan*, University of Torino, Mar 2004.

2003 **Quality- and Freshness-Sensitive Object Replication (invited presentation)**, *K. S. Candan*, Dagstuhl Seminar on Data Quality on the Web.

2003 **ARIA: Quality-Adaptive Media-Flow Architectures for Sensor Data Management**, *K. S. Candan*, NSF-IDM Workshop, Seattle, WA; Sept 16, 2003.

2002	**Secure Computation Outsourcing**, *K. S. Candan*, AFOSR Software Systems & Information Fusion Workshop, Syracuse, NY; June 2002.
1999	**Multimedia Database Support for Digital Libraries (invited presentation abstract)**, *K. S. Candan*, Dagstuhl Seminar on Multimedia Databases (Report 249).
1998	**A Framework for Distributed Collaborations and Distance Learning (invited talk)**, *K. S. Candan*, Multidisciplinary Initiative on Distance Learning (MIDL), ASU, March.
1997	**Invited talk: A Hybrid Approach to Multimedia Database Systems through Integration of Semantics and Media-based Search (presented by co-author)**, *W.-S. Li, K. S. Candan, K. Hirata, Y. Hara*, 1st International Conference on The Worldwide Computing and Its Applications (WWCA'97), Tsukuba, Japan; March 10–11, 1997.
1998	**Storage and Retrieval of Multimedia Data: Challenges and Solutions (monthly seminar)**, *K. S. Candan*, IEEE Communications and Signal Processing Society Monthly Seminar, ASU.

Scientific and Professional Society Memberships

2012–2022; 2023–2024	**Member**, *ACM SIGMOD Executive Committee.*
2024–Present	**Member**, *ACM Multimedia Information Retrieval Advisory Committee.*
2019–2024	**Member**, *ACM Multimedia Information Retrieval Steering Committee.*
2015–2017	**Ambassador / Point of Contact**, *NSF West Regional Innovation Hub.*
2016–2017	**Advisory Board Member**, *Bioinformatics Center, Tomsk State University*, Russia.
2011–2012	**Member**, *ACM SIGMM Executive Committee.*
1997–Present	**Member**, *Association for Computing Machinery (ACM).*
1997–Present	**Member**, *IEEE Computer Society.*

Editorships

2025–	**Associate Editor**, *ACM Computing Surveys (CSUR).*
2023	**Founding Managing Editor**, *ACM Proceedings on Management of Data.*
2018; 2019–2024	**Associate Editor**, *Proceedings of the VLDB Endowment (PVLDB).*
2016–2023	**Associate Editor**, *IEEE Transactions on Knowledge and Data Engineering (TKDE).*
2016–2020	**Associate Editor**, *IEEE Transactions on Cloud Computing (TOCC).*
2015–	**Associate Editor**, *ACM Transactions on Database Systems.*
2014	**Best Paper Selection Committee**, *IEEE Transactions on Multimedia.*
2015–Present	**Review Board Member**, *Proceedings of the VLDB Endowment.*
2012–2016	**Associate Editor**, *IEEE Transactions on Multimedia.*
Sept 2005–Aug 2011	**Associate Editor**, *The VLDB Journal.*
Jan 2010–2015	**Associate Editor**, *Journal of Multimedia.*
2015–	**Associate Editor**, *Journal of Information and Data Management (JIDM).*
2020	**Guest Editor**, *ICMR 2019 Special Issue, International Journal of Multimedia Information Retrieval.*
2015	**Guest Editor**, *IEEE Cloud Computing, Special Issue on "Cloud Engineering".*

2017	**Guest Editor**, *IEEE Transactions on Big Data, Special Issue on "Big Scholar Data Discovery and Collaboration".*
April 2014	**Guest Editor**, *IEEE Transactions on Multimedia, Special Section on "Socio-Mobile Media Analysis and Retrieval".*
2009	**Guest Editor**, *ACM Transactions on Multimedia Computing, Communications and Applications (TOMCCAP), Special Section for Best Papers of ACM Multimedia 2008.*
2008–2010	**Review Board Member**, *Proceedings of the VLDB Endowment.*
2002–2008	**Editorial Board Member**, *ACM SIGMOD Digital Symposium Collection (DiSC).*
2008	**Guest Editor**, *Mobile Networks and Applications, Special Issue on Ambient Media and Systems*, Eds. A. El Saddik, Ben Liang, K. Selcuk Candan, K. Moessner, J. C. Liu.
August 2006	**Guest Editor**, *ACM Transactions on Multimedia Computing, Communications and Applications, Special Issue on the Use of "Context" in Multimedia Information Systems*, Eds. K. Selcuk Candan, Augusto Celentano, Wolfgang Klas.
2005	**Editor**, *Advances in Multimedia Information Systems, Lecture Notes in Computer Science, Vol. 3665*, Eds. K. Selcuk Candan, Augusto Celentano; ISBN 978-3-540-28792-6.
July 2004	**Guest Editor**, *Multimedia Systems Journal, Special Issue on Multimedia Information Systems*, Eds. K. Selcuk Candan, Wolfgang Klas.
2003	**Guest Editor**, *Multimedia Tools and Applications Journal, Special Issue on Multimedia Information Retrieval*, Eds. M. A. Nascimento, K. Selcuk Candan, N. Babaguchi.

Awards

2012	**ACM "Distinguished Scientist" Recognition**, *Association for Computing Machinery (ACM).*
2025	**ASU "President's Professor" Recognition**, *Arizona State University.*
2024	**ACM CIKM Best Demo Award**, *ACM International Conference on Information and Knowledge Management (CIKM).*
2023	**FSE Dan Jankowski Legacy Award**, *ASU Fulton Schools of Engineering.* Recognizes engineering faculty with exemplary contributions in teaching, research, and public service.
2023	**ACM SIGMOD Contributions Award**, *Association for Computing Machinery.* For extensive and outstanding service to the database community.
2022	**"Top-5% Faculty Award"**, *ASU Fulton Schools of Engineering.*
2021	**"Top-5% Faculty Award"**, *ASU Fulton Schools of Engineering.*
2020	**Best Paper Runner-Up**, *SISAP 2020.* Mao-Lin Li, K. Selcuk Candan, Maria Luisa Sapino: *GTT: Guiding the Tensor Train Decomposition.*
2020	**"Best Teacher Award"**, *ASU Fulton Schools of Engineering.*
2018–2019	**"Exemplar Faculty"**, *ASU Fulton Schools of Engineering.*
2018	**"Top-5% Faculty Award"**, *ASU Fulton Schools of Engineering.*
2015–2016	**"Exemplar Faculty"**, *ASU Fulton Schools of Engineering.*
2015	**"Best Teacher Award"**, *ASU Fulton Schools of Engineering.*
2014	**"Top-5% Faculty Award"**, *ASU Fulton Schools of Engineering.*
2013	**"Best Teacher Award"**, *ASU Fulton Schools of Engineering.*
2012	**"Top-5% Faculty Award"**, *ASU Fulton Schools of Engineering.*

2009	**Service Faculty of the Year Award**, *School of Computing and Informatics*.
2008	**ACM "Recognition of Service Award"**, *Association for Computing Machinery*.
2008	**Research Faculty of the Year Award**, *School of Computing and Informatics*.
2007	**Service Faculty of the Year Award**, *School of Computing and Informatics*.
2004	**Co-inventor of CachePortal Technology — "Best of CeBIT America" Award**, *Enterprise Platform Software Category*.
2004	**Co-PI, iCare Research Group — "Innovator of the Year in Academia"**, *Celebration of Innovation, State of Arizona*. Presented by the Governor of Arizona.
Oct. 27, 1999	**Student Affairs Honors**, *Arizona State University*.
Apr. 14, 1999	**Certificate of Appreciation (Outstanding Service)**, *Arizona State University*.
Feb. 25, 1999	**SOAR Awards and Mentions**, *ASU–SOAR, ACM*.
1997	**Samuel N. Alexander Doctoral Fellowship Award**, *ACM Washington, DC Chapter*. Awarded for Ph.D. thesis.
–	**Scholarship Recipient**, *Turkish Scientific and Technical Research Institute (TUBITAK)*. For both undergraduate and graduate studies.

Grants

2025–2028	**NSF ACED: "Collaborative Research: ACED: Track 1: PanAX: Accelerating Epidemic Science through Causally-Informed Domain Generalization and Knowledge Transfer"**, *Role: PI*, National Science Foundation.
2024–2031	**NSF PIPP: "Theme 4: Human Systems – The Center for Analysis and Prediction of Pandemic Expansion (APPEX)"**, *Role: co-PI*, National Science Foundation.
2024–2025	**NSF CIVIC-PG: "Track A: Building Resilient and Responsible Arizona Heat Relief Network"**, *Role: co-PI; PI: Wu*, National Science Foundation.
2023–2026	**NSF Elements: "CausalBench: A Cyberinfrastructure for Causal-Learning Benchmarking for Efficacy Reproducibility and Scientific Collaboration"**, *Role: PI: Candan*, National Science Foundation.
2023–2025	**NSF Engines: "Type-2: Sustainability Innovation Engine for the Southwest (SIES)"**, *Role: Senior Personnel*, National Science Foundation.
2023–2025	**NSF PIRE: "Building Decarbonization via AI-empowered District Heat Pump Systems"**, *Role: co-PI*, National Science Foundation.
2022–2024	**NSF PIPP: "Phase I: Predicting Emergence in Multidisciplinary Pandemic Tipping-points (PREEMPT)"**, *Role: co-PI*, National Science Foundation.
2021–2025	**DOD Army Corps of Engineers: "Designing nature to enhance resilience of built infrastructure in western US landscapes"**, *Role: PI*, U.S. Department of Defense.
2021–2024	**NSF-CNS: "PanCommunity: Leveraging Data and Models for Understanding and Improving Community Response in Pandemics"**, *Role: PI: Candan*, National Science Foundation.
2020–2021	**NSF RAPID: "RTEM: Rapid Testing as Multi-fidelity Data Collection for Epidemic Modeling"**, *Role: co-PI; PI: Pedrielli*, National Science Foundation.

2020–2022   **DOE: "Securing Grid-interactive Efficient Buildings (GEB) through Cyber Defense and Resilient System (CYDRES)"**, *Role: co-PI; PI: Wu*, Department of Energy.

2020–2021   **BARC: "Multi-Signal Fingerprinting"**, *Role: PI: Candan*.

2020–2021   **DOD-PCH: "Deep Phenotyping for Physiologic Biomarkers of Post-Traumatic Epilepsy in Children"**, *Role: ASU-PI*, U.S. Department of Defense.

2019–2022   **NSF-III: "pCAR: Discovering and Leveraging Plausibly Causal (p-causal) Relationships to Understand Complex Dynamic Systems"**, *Role: PI: Candan*, National Science Foundation.

2018–2021   **NSF PFI-RP: "Building Doctor's Medicine Cabinet (BDMC): Data-Driven Services for High Performance and Sustainable Buildings"**, *Role: co-PI; PI: Teresa Wu*, National Science Foundation.

2016–2019   **NSF-CDSE: "DataStorm: A Data Enabled System for End-to-End Disaster Planning and Response"**, *Role: PI: Candan*, National Science Foundation.

2016–2019   **NSF-BigData: "Discovering Context-Sensitive Impact in Complex Systems"**, *Role: PI: Candan*, National Science Foundation.

2017–2018   **NSF-III: "III: EAGER: Data Management Systems Support for Personalized Recommendation Applications"**, *Role: co-PI; PI: Sarwat*, National Science Foundation.

2016–2019   **NSF-II-New: "GEARS – An Infrastructure for Energy-Efficient Big Data Research on Heterogenous and Dynamic Data"**, *Role: co-PI; PI: Zhao*, National Science Foundation.

2017–2019   **DOD-ARMY-TRADOC: "ASU Decision Theater TRADOC Partnership"**, *Role: co-PI; PI: Miller*, U.S. Department of Defense.

2017–2021   **NSF-CRISP: "Design and Control of Coordinated Green and Gray Water Infrastructure to Improve Resiliency in Chemical and Agricultural Sectors"**, *Role: senior personnel; PI: Sabo*, National Science Foundation.

2018–2019   **NSF-SCC-Planning: "Smart Connected Engaged Senior Communities"**, *Role: co-PI; PI: Wu*, National Science Foundation.

2017–2021   **NSF-CRISP: "Design and Control of Coordinated Green and Gray Water Infrastructure to Improve Resiliency in Chemical and Agricultural Sectors"**, *Role: Senior personnel; PI: Sabo*, National Science Foundation.

2018   **BRAIN IUCRC: "Deep Phenotyping for Physiologic Biomarkers of Post-Traumatic Epilepsy in Children"**, *Role: co-PI*.

2018   **CASCADE IUCRC: "Intelligent AirPlane: Assessment of Onboard Data Processing Architectures and ML Algorithms for Pilot-in-the-loop Operations"**, *Role: co-PI*.

2014–2016   **NSF-III: "Understanding the Evolution Patterns of the Ebola Outbreak in West-Africa and Supporting Real-Time Decision Making and Hypothesis Testing through Large Scale Simulations"**, *Role: PI: Candan*, National Science Foundation.

2015–2016   **NSF: "Collaborative Research: Planning Grant: I/UCRC for Assured and SCAlable Data Engineering (CASCADE)"**, *Role: PI: Candan*, National Science Foundation.

2015–2016	**NSF: "Student Travel Fellowships for ACM Symposium on Cloud Computing 2015"**, *Role: PI: Candan*, National Science Foundation.
2014–2017	**NSF-PFI:BIC#1430144: "Fraud Detection via Visual Analytics: An Infrastructure to Support Complex Financial Patterns (CFP)-based Real-Time Services Delivery"**, *Role: PI: Davulcu*, National Science Foundation.
2013–2016	**NSF-III#1318788: "Data Management for Real-Time Data Driven Epidemic Spread Simulations"**, *Role: PI: Candan*, National Science Foundation.
2013–2016	**NSF-SSE/SI2#1339835: "E-SDMS: Energy Simulation Data Management System Software"**, *Role: PI: Candan*, National Science Foundation.
2014–Present	**Consortium of Embedded Systems/JCI: "I2AV: Integrate, Index, Analyze, and Visualize Energy Data for Data-driven Simulations and Optimizations"**, *Role: PI: Candan*.
2011–2015	**NSF-III#1116394: "RanKloud: Data Partitioning and Resource Allocation Strategies for Scalable Multimedia and Social Media Analysis"**, *Role: PI: Candan*, National Science Foundation.
2010–2015	**NSF-III#1016921: "One Size Does Not Fit All: Empowering the User with User-Driven Integration"**, *Role: PI: Candan*, National Science Foundation.
2010–2014	**NSF DUE#1043583: "MiNC: NSDL Middleware for Network- and Context-aware Recommendations"**, *Role: PI: Candan*, National Science Foundation.
2009–2011	**HP Labs Innovation Research Program (IRP): "Data-Quality Aware Middleware for Scalable Data Analysis"**, *Role: PI: Candan*.
01/01/2009–04/30/2011	**Mellon Foundation: "Digital Antiquity: Enabling and Enhancing Preservation and Access to Archaeological Information"**, *Role: PI: Kintigh*.
2009–2013	**KAIST via Korea Research Foundation: "A Framework for Real-time Context Monitoring in Sensor-rich Personal Mobile Environments"**, *Role: PI: Candan*.
2008–2010	**NSF Award: "MAISON: Middleware for Accessible Information Spaces on NSDL"**, *Role: PI: Candan*, National Science Foundation.
2008–2010	**NSF Award: "Design of Dense RFID Systems for Indexing in the Physical World across Space, Time, and Human Experience"**, *Role: PI: Sundaram*, National Science Foundation.
2007–2009	**NSF Award: "AOC: Archaeological Data Integration for the Study of Long-Term Human and Social Dynamics"**, *Role: PI: Kintigh*, National Science Foundation.
2006–2008	**DES/RSA Award: "Ubiquitous Environment to Facilitate Access to Textbooks and Related Materials for Adults and School Age Children who are Blind or Visually Impaired"**, *Role: PI: Candan*.
2007–2008	**Mellon Foundation: "Digital Antiquity: Planning a Digital Information Infrastructure for Archaeology"**, *Role: PI: Kintigh*.
2007	**ASU-CEINT Award: "Indexing in the Physical World across Space, Time, and Human Experience via Dense RFID Systems"**, *Role: PI: Sundaram*.
09/15/2004–09/14/2005	**NSF Award: "Enabling the Study of Long-Term Human and Social Dynamics: A Cyberinfrastructure for Archaeology"**, *Role: PI: Kintigh*, National Science Foundation.
15/10/2003–14/10/2006	**NSF Award: "Quality-Adaptive Media-Flow Architectures to Support Sensor Data Management"**, *Role: PI: Candan*, National Science Foundation.

2003–2008	**NSF ITR Medium Award: "iLearn: IT-enabled Ubiquitous Access to Educational Opportunities for Blind Individuals"**, *Role: PI: Panchanathan*, National Science Foundation.
2003–2005	**NSF PPD-FRI Award: "Ubiquitous Environment to Facilitate Engineering Education for Blind Persons"**, *Role: PI: Panchanathan*, National Science Foundation.
06/01/2002–05/31/2003	**ARO: "International Workshop on Multimedia Information Systems"**, *Role: PI: Candan.*
2002–2003	**ASU-IT301: "iCARE"**, *Role: PI: Panchanathan.*
2002–2003	**ASU-IT301: "Distributed Digital Media and Arts (DMA)"**, *Role: PI: Thanassis.*
01/01/2001–02/31/2003	**NSF Award: "Replication of Heterogeneous Multimedia Data"**, *Role: PI: Candan*, National Science Foundation.
12/01/1999–11/30/2002	**DOD-AFOSR Award: "Code Hiding Techniques for Mobile Applications"**, *Role: PI: Bazzi*, U.S. Department of Defense.
1998	**ASU-FGIA: "A Distributed Service-provider for Heterogeneous Multimedia Environments"**, *Role: PI: Candan.*

Conference Leadership/Organization Activities

2006–2023	**ACM SIGMOD / ACM International Conference on Management of Data**. Conference Coordinator (2012–2022); General Chair (2012); Program Chair (2023); Organizing Committee Member – Publicity Chair (2006).
2023	**ACM International Conference on Web Search and Data Mining (WSDM)**. Test-of-time Award Chair (2023).
2022	**IEEE International Conference on Data Mining (ICDM)**. WorkshopsChair (2022).
2022	**ACM International Conference on Web Search and Data Mining (WSDM)**. General Chair (2022).
2020–2021	**IEEE International Conference on Smart Data Services (SMDS)**. General Chair (2020, 2021).
2021	**International Conference of the CLEF Association (CLEF)**. General Chair (2021).
2019–2020	**IEEE International Conference on Data Engineering (ICDE)**. Sponsorship Chair (2019, 2020).
2016–2019	**ACM International Conference on Multimedia Retrieval (ICMR)**. Tutorials Chair (2016); Brave New Areas Chair (2017); Program Chair (2019).
2017–2018	**ACM Conference on Information and Knowledge Management (CIKM)**. Demos Chair (2018).
2018	**Euro-Par: European Conference on Parallel and Distributed Computing**. Parallel and Distributed Data Management and Analytics Track Chair (2018).
2019	**International Conference on Very Large Data Bases (VLDB)**. Finance Chair (2019); Panels Co-Chair (2012).

2008–2017 **ACM Multimedia Conference (MM)**.
General Chair (2011);
Publicity Co-Chair (2012);
History Preservation Co-Chair (2013);
History Preservation Chair (2015);
PC Chair, Multimedia Tools, End-Systems, and Applications Track (2008);
Demos Chair (2017).

2014 **EDBT/ICDT Conference**.
Workshops Chair (2014).

2015 **IEEE International Conference on Cloud Engineering (IC2E)**.
General Chair (2015).

2015 **ACM Symposium on Cloud Computing**.
Scholarship Chair (2015).

2020 **IEEE World Congress on Services**.
Panel Organizer and Moderator: "Smart Data and Digital Health Services Beyond COVID-19" (2020).

2017 **International Conference on Database Systems for Advanced Applications (DASFAA)**.
Program Chair (2017).

2010 **ACM International Conference on Image and Video Retrieval (CIVR)**.
PC Co-Chair (2010).

2009–2010 **IEEE Workshop on Information and Software as a Service (WISS)**.
Program Co-Chair, Second Workshop (2010);
Co-Chair, First Workshop (2009).

2008 **International Conference on Ambient Media and Systems (Ambi-Sys)**.
Workshops Chair (2008).

2009 **APWEB/WAIM Workshop on Real-Time Business Intelligence (RTBI)**.
Co-Chair (2009).

2009 **ACM Workshop on Ambient Media Computing (AMC-iWAM)**.
Co-Chair (2009).

2007 **SIGKDD International Workshop on Multimedia Data Mining (MDM/KDD)**.
Co-Chair (2007).

2007 **ICDE International Workshop on Ambient Intelligence, Media, and Sensing (AIMS)**.
Co-Chair (2007).

2002 **ISCAS Conference**.
Organizing Committee Member (2002).

2002 **Web3D Conference**.
Organizing Committee Member (2002).

2001–2005 **International Workshop on Multimedia Information Systems**.
PC Co-Chair (2002, 2005);
Co-Chair, Multimedia Information Retrieval Workshop (2001).

Program Committee and Conference Service (clustered)

2006–2025 **ACM SIGMOD / ACM International Conference on Management of Data**.
PC Member (2006, 2015, 2016, 2017, 2018, 2019 [Core PC, Research track entries], 2021 [Research track], 2025);
Program Group Leader (2010);
PC Member & Session Chair (2014);
(also listed) Core PC Member (2019 Research track).

2011–2024 **ACM Multimedia (MM)**.
PC Member (2009, 2011, 2012 [Brand New Topics Track; PhD Symposium Track], 2013 [Brand New Topics Track], 2017 [Research & PhD Symposium tracks], 2018, 2019, 2020, 2021);
Demos Chair (2017);
PC Member (2009 entry appears repeated in original);
Senior Area Chair (2022, 2023, 2024);
History Preservation Co-Chair (2013);
History Preservation Chair (2015);
PC Member, Best Thesis Selection Committee (2014).

2011–2024 **ACM International Conference on Multimedia Retrieval (ICMR)**.
PC Member (2011, 2012, 2013, 2017, 2018, 2021, 2022, 2023, 2024);
Program Chair (ICMR 2019);
PC Member, Short and Long Paper Tracks (2021, 2022, 2023).

2004–2025 **International Conference on Extending Database Technology (EDBT)**.
PC Member (2004, 2015, 2018, 2020 [Short papers track], 2024, 2025);
Senior PC Member (2020);
Session Chair & PC Member (2014).

2001–2024 **International Conference on Database Systems for Advanced Applications (DASFAA)**.
PC Member (2007, 2014, 2015, 2016);
Senior PC Member (2018, 2019, 2020, 2021, 2023, 2024);
Program Chair (DASFAA 2017).

2009–2024 **Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD)**.
PC Member (2009, 2011, 2012, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024).

2011–2024 **ACM Conference on Information and Knowledge Management (CIKM)**.
PC Member (2011, 2013, 2015);
Senior PC Member, Research Paper Track (2016, 2017, 2018, 2019, 2020, 2022, 2023, 2024);
PC Member, PhD Symposium (2023).

2017–2024 **International Conference on Similarity Search and Applications (SISAP)**.
PC Member (2017, 2018, 2020, 2021, 2022, 2023, 2024);
PC Member, Doctoral Symposium (2020).

2013–2024 **IEEE International Conference on Data Engineering (ICDE)**.
PC Member (2010, 2011, 2012, 2013, 2017, 2018, 2019, 2020, 2021, 2024);
Sponsorship Chair (ICDE 2019, 2020);
PhD Symposium Committee Member (2018);
Session Chair (2010).

2017–2023 **IEEE International Conference on Big Data / BigComp / BDSE**.
PC Member (2013 [IEEE BigData], 2015 [Big Data Science and Engineering BDSE], 2019 [IEEE BigComp / BigComp entries], 2020 [BigComp], 2023 [IEEE International Conference on Big Data]).

2015–2023 **International Symposium on Benchmarking, Measuring and Optimizing (Bench)**.
PC Member (2020, 2021, 2023, 2024).

2018–2023 **APWeb–WAIM Joint International Conference (Web & Big Data)**.
Senior PC Member (2018, 2019, 2020, 2022, 2023).

2017–2024	**ASONAM (IEEE/ACM ASONAM)**. PC Member (2017, 2018, 2019, 2024).
2016–2021	**MultiMedia Modeling (MMM)**. PC Member (2017, 2018, 2019, 2020, 2021).
2015–2020	**IEEE International Conference on Big Data and Smart Computing (BigComp / SC)**. PC Member (2015, 2019, 2020).
2017–2020	**International Conference on Computational Data and Social Networks (CSoNet)**. PC Member (2019, 2020).
2018	**EuroPar**. Track Chair: Parallel and Distributed Data Management and Analytics (2018).
2015–2017	**SIAM International Conference on Data Mining (SDM)**. PC Member (2015, 2016, 2017).
2011–2013	**AAAI – Special Track on AI and the Web (AIW)**. PC Member (2011, 2012, 2013).
2007–2019	**IEEE International Conference on Multimedia and Expo (ICME)**. PC Member (2003, 2007, 2008, 2014, 2017, 2018, 2019).
2005–2009	**SIGKDD International Workshop on Multimedia Data Mining (MDM / MDM-KDD)**. PC Member (2006, 2008, 2009, 2011, 2012, 2013); Co-Chair (2007); Steering Committee Member (2011–2013).
2003–2018	**International Workshop on ExploreDB / ExploreDB workshop**. PC Member (2016, 2017, 2018).
2006–2013	**VLDB (Very Large Data Bases / VLDB workshops)**. PC Member (2010 [Experiments and Analyses], 2012 [Panels Co-Chair; PhD Workshop], 2019 Finance Chair); Panels Co-Chair (2012).
2007–2018	**International Workshop on Multimedia Information Systems / Workshops on Multimedia Info Sys**. PC Co-Chair (2002, 2005); PC Member (1998, 1999, 2001, 2003, 2004, 2005); Seventh and other workshop PC memberships (2001, 2003, 2005).
2007–2018	**Workshops and Small Workshops (various)**. Co-Chair, 1st ICDE Workshop on Ambient Intelligence, Media, and Sensing (AIMS) (2007); Co-Chair, APWEB/WAIM RTBI Workshop (2009); Co-Chair, AMC-iWAM (2009); Co-Chair, First IEEE WISS (2009); PC / Co-Chair roles across many workshops listed in original input (AMDIT 2008, AIEMPro 2008/2010, WIAMIS 2009/2010/2011, MOUND 2010, DBMAN 2007, IWISC 2018, CIA 2018, etc.).
2003–2015	**Workshops, Specialized Conferences and Panels (various)**. CASCADE I/UCRC Kick-off Workshop (Nov 2015); NSF West Big Data Innovation Spokes Stakeholder Workshop (Dec 2015); PC Member roles at IDEAS (2010), DOLAP (2011), FinWeb / FinNLP workshop (2021, 2023), LSDS-IR workshop (2013), ADMA (2013), DATA (2014), SIGMAP (2013,2014), and many others preserved from original list.

1998–2013	**Other conferences and specialty tracks (broad set).**
	PC Member entries preserved as in original for: ADC (2010, 2011), DEXA (2007), AICCSA (2007), ICDE earlier years (2003–2010), WWW Posters track (2011, 2012), LSDS-IR (2013), AIEMPro (2008/2010), SEPS (2008), CleanDB (2006), MDM/KDD recurring, ISCIS (2003,2008,2009), UCS (2007,2009), IE (2007,2008), IDEAS (2010), MOUND (2010), WIAMIS (2009/2010/2011), and many PC memberships listed in the original input for 1998–2013.
1998–2011	**International Conference on Distributed Computing Systems (ICDCS) and related.**
	PC Member (2000, 2001, 2002); Reviewer (2006).
1999–2004	**Miscellaneous workshops and conferences (historic).**
	PC Member, First International Workshop on Multimedia Intelligent Storage and Retrieval Management (1999);
	PC Member, Fourth International Workshop on Multimedia Information Systems (1998);
	PC Member, Multiconference on Systemics, Cybernetics, and Informatics (1999);
	PC Member, ACM Digital Library Workshop on Organizing Web Space (1999);
	PC Member, 4th International Conference on Visual Information Systems (2000).

Journal Referee

Ongoing	**Journal Refereeing Activities.**
	IEEE Transactions on Big Data; IEEE Communications Magazine; ACM Transactions on Multimedia Computing, Communications, and Applications; ACM Transactions on Information Systems; Machine Learning; Future Generation Computer Systems; Computer Vision and Image Understanding; Journal of Biomedical Informatics; IEEE Transactions on Dependable and Secure Computing; IEEE Transactions on Internet Technologies; Journal of Zhejiang University Science C (Computers and Electronics); ACM Transactions on the Web; IEEE Transactions on Parallel and Distributed Systems; IEEE Transactions on Multimedia; ACM Transactions on Database Systems; IEEE Transactions on Circuits and Systems for Video Technology; IEEE Transactions on Knowledge and Data Engineering; IEEE Transactions on Mobile Computing; IEEE Transactions on Systems, Man, and Cybernetics; IEEE Internet Computing; Multimedia Systems Journal; Multimedia Tools and Applications Journal; The VLDB Journal (Very Large Data Bases); Knowledge and Information Systems (KAIS); World Wide Web Journal; International Journal of Software Engineering and Knowledge Engineering; Journal of King Saud University; The Computer Journal; IEEE Internet Computing Magazine; IEEE Multimedia Magazine; Journal of Electronic Imaging; Journal of Computing & Information Science in Engineering; Journal of Information Systems; ACM Computing Surveys; Journal of Visual Languages and Computing; Software: Practice and Experience; Acta Informatica; Data and Knowledge Engineering; Information Sciences; Journal of Intelligent Systems; International Journal of Electronic Business; European Journal of Operational Research; Journal of Parallel and Distributed Computing; Advances in Multimedia; Information Processing and Management; Journal of Web Engineering; IEEE Transactions on Very Large Scale Integration (VLSI) Systems.

Other Conference Referee

Other Conference Referee.

International Conference on Parallel and Distributed Systems;
International Conference on Distributed Computing Systems (ICDCS'03);
ACM SIGMOD Conference;
International Conference on Multimedia Computing and Systems;
European Signal Processing Conference;
International Conference on Data Engineering;
ACM Multimedia Conference;
Web10 Conference;
Third International Workshop on Advanced Issues of E-Commerce and Web-based Information Systems;
International Conference on Information Society in the 21st Century: Emerging Technologies and New Challenges (IS2000);
International Conference on Distributed Computing Systems (ICDCS'98);
World Multiconference on Systemics, Cybernetics and Informatics (SCI'98/ISAS'98);
Fourth International Workshop on Multimedia Information Systems 1998;
IFIP Working Group on Database, Working Conference on Database Semantics (DS-8);
Consortium for Software Engineering Research (CASCON'98);
SPIE's Symposium on Voice, Video, and Data Communications, 1998.

Proposal Referee

2020-202 **Natural Sciences and Engineering Research Council of Canada (NSERC)**, *Proposal Referee*.
Proposal referee (2024; 2021; 2020).

2000-2025 **National Science Foundation (NSF)**, *Proposal Referee / Program Reviews*.
Proposal referee (2025; 2024; 2023; 2020; 2019; 2018; 2017; 2016; 2014; 2012; 2011; 2009);
NSF NSDL Proposal review (2008);
NSF IIS Proposal reviews (2006; 2005);
NSF IDM Proposal review (2004);
NSF DST Proposal review (2004);
NSF SBIR Proposal review (2000).

2008-2021 **National Institutes of Health (NIH)**, *Proposal Referee*.
NIH proposal reviews (2021; 2020; 2016; 2008).

2007-2018 **Research Grants Council (RGC) of Hong Kong**, *Proposal Referee*.
RGC proposal reviews (2007; 2008; 2009; 2010; 2012; 2017; 2018).

2016 **Swiss National Science Foundation (SNSF)**, *Member, Evaluation Committee / Proposal Referee*.
Member, Evaluation Committee for the Projects of the Switzerland National Science Foundation (2016); proposal reviews (2016).

2012 **Czech Science Foundation**, *Proposal Referee*.
Proposal referee (2012).

2010 **Qatar National Research Fund (QNRF)**, *Proposal Referee*.
Proposal referee (2010).

2007 **Ontario Research Fund — Research Excellence (ORF-RE)**, *Proposal Referee*.
Proposal referee (2007).

2001-2003 **Army Research Office (ARO)**, *Proposal Referee*.
ARO proposal reviews (2001; 2002; 2003).

2018 **ASU CASCADE Seed Grant Proposals**, *Proposal Referee*.
Proposal reviewer (2018).

2018	**ASU IoT Seed Grant Proposals**, *Proposal Referee.* Proposal reviewer (2018).
2016	**Member, Evaluation Committee — Ateneo Projects, University of Padova**, *Evaluation Committee Member.* Member, Evaluation committee for the Ateneo Projects of the University of Padova (2015) — listed here as institutional evaluation activity.
2015	**Member, Evaluation Committee — Switzerland National Science Foundation**, *Evaluation Committee Member.* (Listed separately) Member, Evaluation committee for the Projects of the Switzerland National Science Foundation (2016) — included above under Swiss NSF.

School, College, and University Committees

2018–	**Member**, *ASU President's Academic Council*, Arizona State University.
2018–	**Faculty Advisor**, *ACM/IEEE Upsilon Pi Epsilon (UPE) Honor Society, ASU Chapter*, Arizona State University.
2023–	**Member**, *ASU Research Computing Governing Body*, Arizona State University.
2023–	**Faculty Member (Mentor)**, *ASU Science and Engineering Experience (SCENE)*, Arizona State University. Mentoring high school students
2024–2026	**Member**, *CS Graduate Committee*, Arizona State University.
2023–2025	**Member**, *SCAI Administration and Planning Committee*, Arizona State University.
2023–2024	**Member**, *SCAI Formal Verification Methods for Cyberphysical Systems Faculty Search Committee*, Arizona State University.
2023	**Member**, *SCAI – ASU President's Postdoctoral Fellowship Search Committee*, Arizona State University.
2021–2022	**Member**, *SCAI Personnel Committee*, Arizona State University.
2021–2022	**Member**, *AI and Intelligent Systems Faculty Search Committee*, Arizona State University.
2021–2022	**Member**, *AME Augmented Reality Faculty Search Committee*, Arizona State University.
2021	**Member**, *SCAI Development Working Group*, Arizona State University.
2020–2021	**Member**, *CIDSE Personnel Committee*, Arizona State University.
2020–2021	**Chair**, *CIDSE High Performance Machine Learning and Big Data Faculty Search Committee*, Arizona State University.
2019–2022	**Member**, *DSAE Graduate Program Committee*, Arizona State University.
2020–2021	**Member**, *ASU Inaugural Space Cohort*, Arizona State University.
2017–Present	**Member**, *Master's Opportunity for Research in Engineering (MORE) Selection Committee*, Arizona State University.
2019–2020	**Member**, *CIDSE Administration and Planning Committee*, Arizona State University.
2016–2019	**Member**, *CS Graduate Program Committee*, Arizona State University.
2018–2019	**Chair**, *CIDSE High Performance Data Systems Faculty Search Committee*, Arizona State University.
2017–2018	**Member**, *CIDSE Big Data Systems Faculty Search Committee*, Arizona State University.

2016–2017 **Chair**, *CIDSE Director Search Committee*, Arizona State University.

2016– **Member**, *ASU Working Group on Research Computing and Research Computing Analytics Subgroup*, Arizona State University.

2014–2015 **Participant**, *ASU Leadership Academy*, Arizona State University.

Center Director, *Center for Assured and Scalable Data Engineering (CASCADE)*, Arizona State University.

2015– **Member**, *ASU Working Group on Advancing Funded Opportunities for Centers, Institutes and Initiatives*, Arizona State University.

2015 **Member**, *Fulton Schools of Engineering Research Advisory Board*, Arizona State University.

2014– **Coordinator**, *Big Data Systems Concentration, Computer Science MS/MCS Programs*, Arizona State University.

2014–2015 **Member**, *CIDSE "Big Data" Faculty Search Committee*, Arizona State University.

2013–2014 **Chair**, *CIDSE "Big Data" Faculty Search Committee*, Arizona State University.

Spring 2014 **Member**, *Fulton Schools of Engineering "Associate Dean for Research" Search Committee*, Arizona State University.

2013–2014 **Member**, *CIDSE "Human Centered Computing" Faculty Search Committee*, Arizona State University.

2013–2015 **Member**, *CS Graduate Program Committee*, Arizona State University.

2012–2015 **Member**, *CIDSE Personnel Committee*, Arizona State University.

2012–2013 **Chair**, *CIDSE "Big Data" Faculty Search Committee*, Arizona State University.

2012–2013 **Member**, *AME "HCI" Faculty Search Committee*, Arizona State University.

2011–2013 **Member**, *CS Graduate Program Committee*, Arizona State University.

2010–2012 **Member**, *CIDSE Administration and Planning Committee*, Arizona State University.

2009–2012 **Member**, *Fulton Schools of Engineering Deans Personnel Advisory Committee*, Arizona State University.

2010–2011 **Member**, *Scientific Visualization Faculty Recruitment Committee*, Arizona State University.

2008–2009 **Member**, *SCI Steering Committee*, Arizona State University.

2008–2009 **Member**, *Faculty Recruitment Committee*, Arizona State University.

2008–2009 **Member**, *AME Personnel Committee*, Arizona State University.

2006–2008 **Member**, *CSE Personnel Committee*, Arizona State University.

2007–2008 **Member**, *Faculty Recruitment Committee*, Arizona State University.

2006–2008 **Member**, *Information Sciences Certificate Committee*, Arizona State University.

2007–2008 **Chair**, *SCI Steering Committee*, Arizona State University.

2006–2007 **Chair**, *SCI Steering Committee*, Arizona State University.

2007–2008 **Member**, *AME Personnel Committee*, Arizona State University.

2007–2008 **Member**, *AME Recruitment Committee*, Arizona State University.

2005–2006 **Member**, *SCI Steering Committee*, Arizona State University.

2005–2006 **Member**, *BMI Recruitment Committee*, Arizona State University.

2005–2006 **Faculty Secretary**, Arizona State University.

2005 **Member**, *CSE Executive Committee*, Arizona State University.

Spring 2005	**Member**, *AME, Ubiquitous Computing, and Databases Recruitment Committees*, Arizona State University.
2004	**Chair**, *AME Recruitment Committee*, Arizona State University.
2003–2004	**Chair**, *Recruitment Committee*, Arizona State University.
2003–2004	**Member**, *Personnel Committee*, Arizona State University.
2003–2004	**Member**, *CSE/AME Education Committee*, Arizona State University.
2002	**Chair**, *Recruitment Committee*, Arizona State University.
2002	**Member**, *Computing Resources Committee*, Arizona State University.
2001–2002	**Member**, *Graduate Program Committee*, Arizona State University.
1998–2000	**Faculty Advisor**, *Turkish Student Association – ASU*, Arizona State University.
1997–2000	**Faculty Advisor**, *Association of Computer Machinery – ASU*, Arizona State University.
1997–	**Member**, *Graduate Admissions Committee*, Arizona State University.
1998–2000	**Member**, *Faculty Recruitment Committee*, Arizona State University.

Current Students and Post-Doctoral Researchers)

Current Post-Doctoral Researcher

Post-Doctoral Researcher, *Geunsoo Jang*, PhD, NSF Center for the Analysis and Prediction of the Epidemic Expansion (APPEX).

Current Doctoral Students (PhD)

Ongoing	**PhD Student**, *Fahim Tasneema Azad.*

Tasnema's research focuses on machine learning and data science. Her work emphasizes time-series and spatio-temporal modeling, causal inference, and forecasting in complex dynamic systems. She applies these methods to real-world problems, such as epidemic modeling, situational awareness, and data-driven decision support.

Ongoing	**PhD Student**, *Ertugrul Coban.*

Ertugrul's ongoing research includes projects in causal machine learning, such as the development of CausalBench, a benchmarking platform for evaluating causal discovery and causal inference methods within machine learning contexts. This research supports the broader goal of improving the accuracy and reproducibility of causal learning models across diverse data and application scenarios.

Ongoing	**PhD Student**, *Abhinav Gorantla.*

Abhinav's research focuses on machine learning and multi-objective optimization, with active work in causal machine learning and benchmarking frameworks. He contributes to developing CausalBench, a unified benchmarking platform for evaluating causal learning models and metrics, and works on optimized algorithms and causal analysis systems. His research spans both theoretical tools for causal ML evaluation and practical implementations of data-driven systems.

Ongoing	**PhD Student**, *Ahmet Kapkic.*

In addition to his contributions to CausalBench, Ahmet's work within the context of the PIRE project integrates causally informed methods into broader systems research, emphasizing causal discovery from complex, observational data. He is developing approaches that leverage causally-informed Petri nets to enable process discovery from time-series and system logs, blending formal process modeling with causal reasoning to better understand dynamic system behavior.

Ongoing **PhD Student**, *Pratanu Mandal*.

Pratanu's research advances causally informed data management and causal learning, particularly through developing benchmark frameworks like CausalBench that provide standardized datasets, algorithms, and metrics to evaluate causal inference methods. His research aims to overcome limitations of traditional data management techniques by leveraging causal knowledge. His work also includes application of spatio-temporal deep-learning and reinforcement learning approaches to complex prediction tasks, integrating causal insights into data-driven modeling.

Ongoing **PhD Student**, *Armin Hedzic*.

Knowledge graphs are useful in many querying and knowledge management applications, and some difficult data environments have use-cases that would benefit from models that could autonomously create or modify knowledge graphs with context over multiple modalities and/or data-sets. The focus of Armin's research is to solve challenges in this space by developing novel methods to discover or manipulate knowledge graphs to improve querying and knowledge management in difficult data environments with complex multi-modal relationships.

Current Master Students (MS)

N/A

Current Undergraduate Students (BS)

Ongoing **Undergraduate Student**, *Sanskar Srivastava*.

About

Current High School Students

Ongoing **High School Student (K12)**, *Kanav Agarwal*.

Ongoing **High School Student (K12)**, *Iraj Shroff*.

Past Students and Post-Doctoral Researchers)

Past Doctoral Students (PhD)

2005 **PhD**, *Christopher Mayer*, Arizona State University.
Quality-based Replication of Freshness-Differentiated Web Applications

2006 **PhD**, *Ping Lin*, Arizona State University.
PXStore: A Content- and Access-Privacy Preserving XML Data Store

2008 **PhD**, *Lina Peng*, Arizona State University.
Quality-Adaptive Execution and Optimization of Media Processing Workflows

2008 **PhD**, *Gisik Kown*, Arizona State University.
Decentralized Resource Location and Multimedia Service Execution

2008 **PhD**, *Shibo Wu*, Arizona State University.
Power-Efficient Geographic Routing in Sensor Networks

2009 **PhD**, *Jong Wook Kim*, Arizona State University.
Exploiting Structured Knowledge for Segmentation, Enrichment, and Summarization of Data

2009 **PhD**, *Yan Qi*, Arizona State University.
System Support for Exploration and Expert Feedback in Resolving Conflicts

2014 **PhD**, *Mithila Nagendra*, Arizona State University.
Efficient Processing of Skyline Queries on Static Data Sources, Data Streams and Incomplete Datasets

2014 **PhD**, *Mijung Kim*, Arizona State University.
TensorDB and Tensor-Relational Model (TRM)

2017   **PhD**, *Parth Nagarkar*, Arizona State University.
Query Workload-aware Index Structures for Range Searches

2017   **PhD**, *Jung Hyun Kim*, Arizona State University.
Efficient and Effective Node Proximity Computation in Graphs

2018   **PhD**, *Xinsheng Li*, Arizona State University.
On Density and Noise Challenges in Tensor-Based Data Analytics

2018   **PhD**, *Xilun Chen*, Arizona State University.
Efficient Incremental Model Learning on Data Streams

2020   **PhD**, *Sicong Liu*, Arizona State University.
Feature Extraction from Multi-variate Time Series and Resource-Aware Indexing

2020   **PhD**, *Yash Garg*, Arizona State University.
On Feature Saliency and Deep Neural Networks

2021   **PhD**, *Shengyu Huang*, Arizona State University.
Optimization of Block-based Tensor Decompositions

2023   **PhD**, *Hans Behrens*, Arizona State University.
On Counter-Adversarial Resilience in Permeable Networked Systems

2024   **PhD**, *Mao-Lin Li*, Arizona State University.
Searching Latent Semantics in Complex Data

2024   **PhD**, *Manjusha Ravindranath*, Arizona State University.
Metadata Supported Multi-Variate Multi-Scale Attention

Past Master's Students (MS / MCS)

MS, *Lakshmi Priya Mahalingam*, Arizona State University.
Query Optimization in Multimedia Databases

MS, *Amit Jindal*, Arizona State University.
Quorums-Replication of Data in Distributed Systems

MS, *Prakash Yamuna*, Arizona State University.
Similarity-based Retrieval and Indexing of Temporal Structures

MCS, *Namhee Cho*, Arizona State University.
Design and Implementation of a VRML Repository

MS, *Venkatesh Sangam*, Arizona State University.
Failure Handling in Quality-Quorums

MS, *Nikhil Iyer*, Arizona State University.
Server Replication and Object Placement in a Push-based System

MS, *J. Ramamoorthy*, Arizona State University.
RCDEX: An Index Structure for Sequence Matching in the Presence of Commutations

MS, *Prachi Tyagi*, Arizona State University.
Continuous Realtime Indexing

MCS, *Ling Xu*, Arizona State University.
Text Recognition and Correction

MS, *Reshma Suvarna*, Arizona State University.
RDF Indexing and Retrieval

MS, *Maria Goveas*, Arizona State University.
Context-aware Text Segmentation

MS, *Atul Kolhatkar*, Arizona State University.
Text Summarization using Topic Development Patterns

MS, *Sangwoo Han*, Arizona State University.
Automated Reorganization of Text Segments Obtained from Multiple Documents

MS, *Vishal Shah*, Arizona State University.
MIST: On Most Informational Snippet Detection in a Document Corpus

MS, *Hardik Doshi*, Arizona State University.
OER-HMM: An Observations Equivalence Rules Based Hidden Markov Model

MS, *Venkata Cherukuri*, Arizona State University.
Mobility Aware Read/Write Protocol for RFID Rich Environments

MCS, *Mike Balzer*, Arizona State University.

MCS, *Sim Phor Na*, Arizona State University.

MCS, *Mingyi Shu*, Arizona State University.

MCS, *Robert Ivey*, Arizona State University.

2011 **MS**, *Renwei Yu*, Arizona State University.
Time Efficient and Quality Effective K Nearest Neighbor Search in High Dimension Space

2011 **MS**, *Xinxin Wang*, Arizona State University.
CPR: Complex Pattern Ranking for Evaluating Top-k Pattern Queries over Event Streams

2009 **MS**, *Tejas Bapat*, Arizona State University.
Spsearch: Enabling Spatial Search in an RFID Rich Environment

2010 **MS**, *Juan P. Cedeño*, Arizona State University.
A Framework for Top-K Queries over Weighted RDF Graphs

2011 **MS**, *Shruti Gaur*, Arizona State University.
On Summarization of Non-Linear Narratives

2010 **MS**, *Mithila Nagendra*, Arizona State University.
Efficient Processing of Join-based Skyline Queries

MCS, *Mijung Kim*, Arizona State University.

2012 **MCS**, *Songling Liu*, Arizona State University.

2011 **MS**, *Wei Huang*, Arizona State University.
Sequence-based Web Page Template Detection

2013 **MS**, *Xiaolan Wang*, Arizona State University.
Leveraging Metadata for Extracting Robust Multi-Variate Temporal Features

2014 **MS**, *Sriram Rathinavelu*, Arizona State University.
Space Adaptation Techniques for Preference Oriented Skyline Processing

2015 **MS**, *Aneesha Bhat*, Arizona State University.
Locality Sensitive Indexing for Efficient High-Dimensional Query Answering

2015 **MS**, *Yash Garg*, Arizona State University.
Multi-variate Time Series Measures and Their Robustness against Temporal Asynchrony

2018 **MS**, *Ashish Gadkari*, Arizona State University.
Load-balanced Range Query Workload Partitioning for cSHB Indexes

2021 **MS**, *Manoj Tiwaskar*, Arizona State University.
Selego: Robust Variate Selection for Accurate Time Series Forecasting

2020	**MS (non-thesis)**, *Vasishta Harekal*, Arizona State University.
2021	**MS (non-thesis)**, *Ajay Rana*, Arizona State University.
2020	**MS (non-thesis)**, *MD Shadab*, Arizona State University.
2022	**MS (non-thesis)**, *Fateh Singh*, Arizona State University.
	MS (thesis), *Shubodeep Mitra*, Arizona State University.
	MS (thesis), *Abhinav Gorantla*, Arizona State University.

Past Undergraduate Students (BS)

2023	**Research Mentee**, *Sahir Jahan*.
2023	**Research Mentee**, *Utkarsh Bhagat*.
2018	**NSF REU**, *Nickolas Martinez*.
2018	**NSF REU**, *Vivan So*.
2018	**NSF REU**, *Jiayong Mo*.
2018–2019	**NSF REU**, *David Maitha*.
2018	**NSF REU**, *Jason Truong*.
2018–2020	**NSF REU**, *Dalton Turner*.
2016–2017	**NSF REU**, *Reece Bailey*.
2016–2017	**NSF REU**, *Divyanshu Khare*.
2016–2017	**NSF REU**, *Elliot Nester*.
2016–2017	**NSF REU**, *Sarah Fallah-Ad*.
2014–2016	**NSF REU**, *Sam Morton*.
2014–2016	**NSF REU**, *Anisha Gupta*.
2013–2014	**Honors Contract**, *Steven Brown*.
Fall 2014	**FSE294**, *Fatima Naveed*.
Spring 2014	**MiNC**, *Adam Tse*.
Spring 2014	**FURI**, *Arda Unal*.
Fall 2013	**FSE294**, *Jessica Armstrong*.

Past High School Students

2023	, *Raymond Zou*.
2023	, *Pravneet Chadha*.
2021–2022	, *Ryan Jain*.
2020–2021	, *Soma Tummala*.
2019	, *Daksh Gopalani*.
2018–2019	**Human Trafficking**, *Andy Wong*.
2018–2019	**Human Trafficking**, *Sanjana Sarkar*.
2018	**DataStorm**, *Andy Wong*.
2016	**ESDMS/EpiDMS**, *Douglas Yu*.
2015–2016	**Energy Modeling**, *Jerry Zhu*.
2015–2016	**ESDMS/EpiDMS**, *Nancy Li*.
Summer 2015	**EpiDMS**, *Shivam Sadakar*.
Summer 2014	**EpiDMS**, *Luke Zhang*.

Spring/Summer 2014	**EpiDMS**, *Fiona Zhang*.

Past International Students

2005	**Co-Advisor**, *Fabrizo Antonelli*, Tesi di Laurea Magistrale, Facoltà di Scienze, Università di Torino.
2007	**Co-Advisor**, *Eric Arnaduo*, Tesi di Laurea Magistrale, Facoltà di Scienze, Università di Torino.
2007	**Co-Advisor**, *Luigi Di Caro*, Tesi di Laurea Magistrale, Facoltà di Scienze, Università di Torino. PhD 2011
2008	**Visiting Researcher**, *Mario Cataldi*, Università di Torino. PhD 2010
2009	**Co-Advisor**, *Marco Cagna*, Tesi di Laurea Magistrale, Facoltà di Scienze, Università di Torino. "Estrazione automatica di informazione dal Web: un approccio basato su pattern strutturali e visuali."
2013	**Supervisor**, *Giacomo Cappellari*, Tesi di Laurea Magistrale, Facoltà di Ingegneria, Politecnico di Torino. "Parallel Iteration Fabric: Efficient parallel skyline-window-join computation."
2016	**Co-Advisor**, *Ilario Dal Grande*, Tesi di Laurea Magistrale, Facoltà di Scienze, Università di Torino.
2015	**Co-Advisor**, *Leonardo Allisio*, Tesi di Laurea Magistrale, Facoltà di Scienze, Università di Torino.
2017–2018	**PhD Student – Visitor**, *Silvestro Poccia*, EU Marie Curie Project, Università di Torino.
2018–2021	**PhD Student**, *Francesco Di Mauro*, , Università di Torino.
2020–2024	**PhD Student**, *Fabrizio Scarrone*, , Università di Torino.
2022–2025	**PhD Student**, *Javier Redondo Anton*, EU EvoGames Plus Project, Università di Torino.

Past Postdoctoral Researchers and Research Engineers

2002–2004	**Postdoctoral Researcher**, *Mehmet Donderler*.
2006–2008	**Postdoctoral Researcher**, *Qing Li*.
2007–2009	**Postdoctoral Researcher**, *Huiping Cao*.
2015–2016	**Research Engineer**, *Silvestro Pocia*.
2021–2023	**Postdoctoral Researcher**, *Bilgehan Arslan*.
2023	**Postdoctoral Researcher**, *Kaize Ding*.
2023–2024	**Postdoctoral Researcher**, *Yoonhyuk Choi*.