Vijay N. Gadepally

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EDUCATION

Doctor of Philosophy
Electrical and Computer Engineering
The Ohio State University
Committee - Ashok Krishnamurthy (advisor), Giorgio Rizzoni, Umit Ozguner
Thesis - "Estimation of Driver Behavior for Autonomous Vehicle Applications"

Master of Science
Electrical and Computer Engineering
The Ohio State University

Bachelor of Technology
Electrical Engineering
Indian Institute of Technology (IIT), Kanpur
Thesis - "Design, Simulation and Development of a DC Power Supply for Personal Computers"

PROFESSIONAL EXPERIENCE

Massachusetts Institute of Technology (MIT) July 2013 – Present

Lincoln Laboratory Senior Member of the Technical Staff (08/17-Present), Member of the Technical Staff (PI) (07/13-07/17)

- Research Interests: Merging of high performance computing (HPC), databases and scalable algorithms and analytics. Selected accomplishments include:
  - Principal Investigator and Project Lead of a number of research initiatives at MIT Lincoln Laboratory. (2013 - Present)
  - Leading establishment of artificial intelligence focus area for Lincoln Laboratory Supercomputing Center. (2017-Present)
  - Leading research programs on enabling technologies for artificial intelligence applications. (2017-Present)
  - Engineered Computing on Masked Data (CMD) tool to use low overhead cryptographic techniques for key-value store databases (patent pending). (2014-2018)
  - Conceptualized and led study on effect of sampling techniques on predictive analytics for big data applications. (2014-2017)
  - Led study on applications of recommender and cognitive systems to government applications. (2014-2015)
  - Led storage and architecture subgroup of development of Lincoln Laboratory testbed for secure and resilient computing architecture. (2013-2015)
- Teaching: Developed courses on Machine Learning, Big Data and Data Science technologies to help students map a variety of problems to system design.

- Developed course on Modern Algorithms (in collaboration with others) for professional course (30 participants), September 2018
- Coordinated semester course on Modern Graph Analysis, Summer 2018
- Developed course on Privacy Preserving Technologies for Databases, May 2016 (currently being converted to a MOOC)
- Coordinated course on Big Data Tools and Technologies at MIT Lincoln Laboratory, Jan-June 2016
- Coordinated a short course on Database and Storage technologies for the IEEE Boston Section (May 2015).
- Created one-week professional course on Advanced Database Technologies for 40 professional students at MIT (February 2014)
- Developed courses on Apache Accumulo, D4M and SciDB technologies (Fall 2013, Fall 2014).
- Coordinating the development of a Massive Open Online Course (MOOC) on Database Technologies (released September 2016) and Privacy Preserving Technologies (in development).
- Advised numerous students over summer programs and graduate theses.

In collaboration with Computer Science and Artificial Intelligence Laboratory (CSAIL)

- Research Interests: Advancing research in database systems, and application to various big data problems. Selected accomplishments include:
  - Team lead of Data Civilizer project productization in collaboration with MIT CSAIL (2018-Present)
  - Team lead of development of Polystore database technology (BigDAWG) and initial software release (Q1 2017). (2013-2017)
  - Led and designed demonstration of BigDAWG technology for ocean metagenomic analysis in collaboration with Penny Chisholm (2013 National Medal of Science recipient).
  - Coordinated and designed first demonstration of medical big data processing in a Polystore database environment.
  - Team lead for the integration across eight universities and Intel for development of the Big Data Working Group (BigDawg) prototype implementation which was first demonstrated in Fall 2015. This project executes the vision of the Intel Science and Technology Center (ISTC) on Big Data led by Samuel Madden and Michael Stonebraker (2013-2016).
  - Organized first ever medical big data workshop at MIT CSAIL which led to proposals and collaboration with Harvard University and Department of Veterans Affairs. (2014)
  - Big Data team lead for MIT CSAIL and Lincoln Laboratory collaborative development of novel FPGA based data storage engine. (2013-2015)

The Ohio State University September 2006-February 2013

Electrical and Computer Engineering & Ohio Supercomputer Center Graduate Research Associate

- Research Interests: Research to develop mathematical models for driver behavior for autonomous vehicle applications, image processing and high performance computing systems. Selected accomplishments include:
  - Formulated a Hidden Markov Model and Hybrid State System capable of identifying and predicting driver actions based on inputs from vehicle sensors through deep machine learning techniques.
  - Designed an autonomous vehicle research testbed and planned the collection of human subject driver data that is still used for autonomous vehicle research.
  - Developed a novel unsupervised image processing clustering technique that significantly reduced the computational overhead when compared to state of the art implementations.
  - Collaborated with researchers from the Army Research Laboratory and Space and Naval Warfare Systems Command to provide technical expertise in high performance computing to ongoing research efforts.

  - Co-developed a parallel MATLAB toolbox entitled bcMPI.
- Teaching: Teaching fundamentals of signal processing, robotics and high performance computing to students at all levels.
  - Taught numerous lectures in advanced signal processing course (ECE 700) and provided guidance to students through bi-weekly office hours.
  - Established a popular 2 week hands-on program entitled "Obstacle Avoidance Roomba" to gifted high school students as a part of the Ohio Supercomputer Center Summer Institute.
  - Created and taught numerous lectures on bcMPI, and good software practices.

Student Commercialization Board President

- Established first ever student commercialization board for the Ohio State University Technology Commercialization and Knowledge Transfer Office in order to improve quality of commercialized technology.
- Created a grass roots effort entitled CoStart and recruited first ever full time staff member to coordinate activities.
- Developed from scratch a 10 person student board and recruited dozens of student commercialization ambassadors.

Council of Graduate Students President

- Elected to represent nearly 15,000 graduate students at The Ohio State University for the nation's oldest graduate student government. As a part of this role, my job was to preside over all meetings of the Council and serve as the primary liaison between the Council, Graduate School, University Administration, and Ohio State Board of Trustees. In addition to appointing a 13 person cabinet, I managed nearly 75 elected delegates and hundreds of volunteers. Selected accomplishments include:
  - Creating an annual review process for graduate student stipends and facilitating an increase in the minimum graduate stipend by $4,500 over 3 years. Both the annual review and stipend increases have since gone into effect.
  - Establishing a new financial grant to support graduate students conducting international research. Grant is still being offered.
  - Leading an effort to improve the relationship between graduate students and advisors. Final report and recommendations were added to the official Graduate School handbook.
  - Enabling increased state and federal legislative action. For example, heading a team of students to meet with federal legislators in Washington DC which have helped push proposal of the STAPLE act and being invited to testify in the Ohio House of Representatives and State Senate.
  - Creating a first ever think-tank with graduate students in the State of Ohio and State leadership around the topic of job creation. This led to the development of the Student Commercialization Board at Ohio State.
  - Expanding the visibility and partnership of CGS within the community.

Raytheon Company May – August 2007

Surveillance and Sensor Center Post Graduate Technical Intern

- Engineered a publish-subscribe operation framework for an Internal Research and Development (IRAD) project. Development was carried out in C/C++ programming languages.
- Created a new mechanism for inter-process communication of heterogeneous processing units.
- Presented finding of research and technical report to senior leadership at Raytheon Company.

- Trained in six-sigma design practices.

Rensselaer Polytechnic Institute July – December 2005

Department of Electrical Engineering Visiting Scholar

- Designed and implemented a high efficiency boost converter for dc-dc applications.
- Prototyped a coupled inductor boost design for mobile micro fuel cell applications. Completed Printed Circuit Board (PCB) design of prototype.
- Project was completed under the guidance of Prof. Jian Sun.

Indian Institute of Technology, Bombay May – August 2003

Department of Electrical Engineering Summer Intern

- Programmed a simulation of mixed-signal devices using the SPICE software.
- Participated in the development of SEQUEL - a circuit simulation software for mixed signal devices.
- Project was completed under the guidance of Prof. M.B. Patil.

PUBLICATIONS

Book & Book Chapters

- "Polystore Databases and Methods to Manage Heterogenous Data", Edited book being developed with Samuel Madden (MIT), Michael Stonebraker (MIT). To be published by MIT Press (as a part of the MIT Lincoln Laboratory Book Series), Expected 2018.
- "Storage and Databases for Big Data", Vijay Gadepally, Jeremy Kepner, Albert Reuther, Chapter in "Big Data: Storage, Sharing and Security", ISBN 9781498734868, CRC Press, February 2016.
- "Parallel MATLAB Applications in Signal and Image Processing", Ashok Krishnamurthy, Siddharth Samsi, Vijay Gadepally, Chapter in "Image Processing", ISBN 9789533070261, In-Tech, Vienna, December 2009.

Journal and Magazine Articles

- "SoK: Cryptographically Protected Database Search", Benjamin Fuller, Mayank Varia, Arkady Yerukhimovich, Emily Shen, Ariel Hamlin, Vijay Gadepally, Richard Shay, John Mitchell, Robert Cunningham, IEEE Security and Privacy (S&P) , 2017.
- "Learning by doing, High Performance Computing education in the MOOC era", Julia Mullen, Chansup Byun, Vijay Gadepally, Siddharth Samsi, Albert Reuther, Jeremy Kepner, Journal of Parallel and Distributed Computing (JPDC), 2017.
- "A Framework for Estimating Long Term Driver Behavior Estimation", Vijay Gadepally, Ashok Krishnamurthy, Umit Ozguner, Journal of Advanced Transportation (JAT), 2016.
- "Recommender Systems for the Department of Defense and the Intelligence Community", Vijay Gadepally, Braden Hancock, Kara Greenfield, Joseph P. Campbell, William M. Campbell, Albert Reuther, MIT Lincoln Laboratory Journal, June 2016
- "Secure and Resilient Cloud Computing", Nabil Schear, Patrick Cable, Robert Cunningham, Vijay Gadepally, Thomas Moyer, Arkady Yerukhimovich, MIT Lincoln Laboratory Journal, 2016.

- "A Framework for Estimating Driver Decisions near Intersections", Vijay Gadepally, Ashok Krishnamurthy, Umit Ozguner, IEEE Transactions on Intelligent Transportation Systems, Fall 2013.
- "A Hands-on Education Program on Cyber Physical Systems for High School Students", Vijay Gadepally, Ashok Krishnamurthy, Umit Ozguner, Journal on Computational Science Education, Fall 2012.
- "MATLAB for Signal Processing on Multi-Processors and Multi-Cores", Siddharth Samsi, Vijay Gadepally, and Ashok Krishnamurthy, IEEE Signal Processing Magazine, March 2010.
- "A Computational Science IDE for HPC Systems: Design and Applications", David Hudak, Neil Ludban, Ashok Krishnamurthy, Vijay Gadepally, Siddharth Samsi, John Nehrbass, International Journal of Parallel Programming, September 2008.

Conference

- "FastDAWG: An Improved BigDAWG Architecture", Xiangyao Yu, Vijay Gadepally, Stan Zdonik, Tim Kraska, Michael Stonebraker, Poly18@VLDB, 2018.
- "Hyperscaling Internet Graph Analysis with D4M on the MIT SuperCloud", Vijay Gadepally, Jeremy Kepner, Lauren Milechin, William Arcand, David Bestor, Bill Bergeron, Chansup Byun, Vijay Gadepally, Matthew Hubbell, Anna Klein, Peter Michaleas, Lauren Milechin, Julie Mullen, Andrew Prout, Antonio Rosa, Charles Yee, and Albert Reuther, IEEE High Performance Extreme Computing (HPEC), 2018.
- "Measuring the Impact of Spectre and Meltdown", Andrew Prout, William Arcand, David Bestor, Bill Bergeron, Chansup Byun, Vijay Gadepally, Michael Houle, Matthew Hubbell, Michael Jones, Anna Klein, Peter Michaleas, Lauren Milechin, Julie Mullen, Antonio Rosa, Siddharth Samsi, Charles Yee, Albert Reuther, Jeremy Kepner, IEEE High Performance Extreme Computing (HPEC), 2018. **Best Paper Nominee**
- "Design, Generation, and Validation of Extreme Scale Power-Law Graphs", Jeremy Kepner, Siddharth Samsi, William Arcand, David Bestor, Bill Bergeron, Tim Davis, Vijay Gadepally, Michael Houle, Matthew Hubbell, Hayden Jananthan, Michael Jones, Anna Klein, Peter Michaleas, Roger Pearce, Lauren Milechin, Julie Mullen, Andrew Prout, Antonio Rosa, Geoff Sanders, Charles Yee, Albert Reuther, IEEE IPDPS Workshops, 2018.
- "An Emerging Role for Polystores in Precision Medicine", Edmon Begoli, Edmon Begoli, J. Blair Christian, Daniel Jacobson, Vijay Gadepally, Stavros Papadopoulos, Invited paper to VLDB Workshop on Data Management and Analytics for Medicine, 2017.
- "Enabling query processing across heterogenous data models: A survey", Ran Tan, Rada Chirkova, Vijay Gadepally, Timothy G. Mattson, IEEE Big Data Conference (BIGDATA), 2017.
- "Polystore Mathematics of Relational Algebra", Hayden Jananthan, Ziqi Zhou, Vijay Gadepally, Dylan Hutchison, Suna Kim, Jeremy Kepner, IEEE Big Data Conference (BIGDATA), 2017.
- "BigDAWG Version 0.1", Vijay Gadepally, Kyle O'Brien, Adam Dziedzic, Aaron Elmore, Jeremy Kepner, Samuel Madden, Tim Mattson, Jennie Rogers, Zuohao She, Michael Stonebraker, IEEE High Performance Extreme Computing (HPEC), 2017.
- "Cloud-based Large-scale Brain Connectivity Analysis Using Accumulo and D4M", Laura Brattain, Mihnea Bulugioiu, Adam Brewster, Mark Hernandez, Heejin Choi, Taeyun Ku, Kwanghun Chung, Vijay Gadepally, IEEE High Performance Extreme Computing (HPEC), 2017. **Best Student Paper Nominee**
- "Database Engine Integration and Performance Analysis of the BigDAWG Polystore System", Katherine Yu, Vijay Gadepally, Michael Stonebraker, IEEE High Performance Extreme Computing (HPEC), 2017.
- "Exploring big volume sensor data with Vroom (Demo)", Oscar Moll, Samuel Madden, Michael Stonebraker, Aaron Zalewski, Vijay Gadepally, Proceedings of the VLDB Endowment, 2017.

- "Demonstrating the BigDAWG Polystore System for Ocean Metagenomic Analysis (Demo)", Tim Mattson, Vijay Gadepally, Adam Dziedzic, Zuohao She, Jeff Parkhurst, Conference on Innovative Data Research (CIDR), 2017.
- "Cross-Engine Query Execution in Federated Database Systems", Ankush M. Gupta, Vijay Gadepally, Michael Stonebraker, IEEE High Performance Extreme Computing (HPEC) 2016. **Best Student Paper Nominee**
- "The BigDawg Monitoring Framework", Peinan Chen, Vijay Gadepally, Michael Stonebraker, IEEE High Performance Extreme Computing (HPEC), 2016.
- "The BigDAWG Polystore System and Architecture", Vijay Gadepally, Peinan Chen, Jennie Duggan, Aaron Elmore, Brandon Haynes, Jeremy Kepner, Samuel Madden, Tim Mattson, Michael Stonebraker, IEEE High Performance Extreme Computing (HPEC), 2016.
- "Associative Array Model of SQL, NoSQL, and NewSQL Databases", Jeremy Kepner, Vijay Gadepally (MIT), Dylan Hutchison (University of Washington), Hayden Jananthan (MIT), Timothy Mattson (Intel), Siddharth Samsi, Albert Reuther (MIT), IEEE High Performance Extreme Computing (HPEC), 2016.
- "In-Storage Embedded Accelerator for Sparse Pattern Processing", Sang-Woo Jun, Huy T. Nguyen, Vijay Gadepally, Arvind, IEEE High Performance Extreme Computing (HPEC), 2016.
- "From NoSQL Accumulo to NewSQL Graphulo: Design and Utility of Graph Algorithms inside a BigTable Database", Dylan Hutchison, Jeremy Kepner, Vijay Gadepally, Bill Howe, IEEE High Performance Extreme Computing (HPEC), 2016. **Best Student Paper Award**
- "Julia Implementation of the Dynamic Distributed Dimensional Data Model", Alexander Chen, Alan Edelman, Jeremy Kepner, Vijay Gadepally, Dylan Hutchison, IEEE High Performance Extreme Computing (HPEC), 2016. **Best Paper Award**
- "High-throughput Ingest of Data Provenance Records into Accumulo", Thomas Moyer, Vijay Gadepally, IEEE High Performance Extreme Computing (HPEC), 2016.
- "Benchmarking SciDB Data Import on HPC Systems", Siddharth Samsi, Laura Brattain, William Arcand, David Bestor, Bill Bergeron, Chansup Byun, Vijay Gadepally, Matthew Hubbell, Anna Klein, Peter Michaleas, Lauren Milechin, Julie Mullen, Andrew Prout, Antonio Rosa, Charles Yee, Jeremy Kepner and Albert Reuther, IEEE High Performance Extreme Computing (HPEC), 2016. **Best Paper Nominee**
- "PageRank Pipeline Benchmark: Proposal for a Holistic System Benchmark for Big-Data Platforms", Patrick Dreher, Chansup Byun, Chris Hill, Vijay Gadepally, Bradley Kuszmaul, Jeremy Kepner, IEEE International Parallel and Distributed Processing Society Workshops (IPDPSW), 2016.
- "Enforced Sparse Non-Negative Matrix Factorization", Brendan Gavin, Vijay Gadepally, Jeremy Kepner, IEEE International Parallel and Distributed Processing Society Workshops (IPDPSW), 2016.
- "Big Data Sampling Techniques", Vijay Gadepally, Ben Miller, Lauren Edwards, Luke Johnson, Asilomar Conference on Signals, Systems, and Computers, 2015.
- "BigDAWG: a Polystore for Diverse Interactive Applications", Adam Dziedzic, Jennie Duggan, Aaron Elmore, Vijay Gadepally, Michael Stonebraker, IEEE Viz, Data Systems for Interactive Analysis, October 2015.
- "Building successful Open edX instructors from non-faculty domain experts", Julie Mullen, Lauren Edwards, Vijay Gadepally, Open EdX conference, 2015.
- "A demonstration of the BigDAWG Polystore System", Aaron Elmore, Jennie Duggan, Micheal Stonebraker, Magda Balazinska, Ugur Centintemel, Vijay Gadepally, Jeff Heer, Bill Howe, Jeremy Kepner, et al., Proceedings of the VLDB Endowment (Demo), 2015.
- "Using a Power Law Distribution to Describe Big Data", Vijay Gadepally, Jeremy Kepner, IEEE High Performance Extreme Computing (HPEC) Conference, September 2015.

- "Improving Big Data Visual Analytics with Interactive Virtual Reality", Andrew Moran,Vijay Gadepally, Matthew Hubbell, Jeremy Kepner, IEEE High Performance Extreme Computing (HPEC) Conference, September 2015. **Best Student Paper Nominee**
- "D4M: Bringing Associative Arrays to Database Engines", Vijay Gadepally, Jeremy Kepner, William Arcand, David Bestor, Bill Bergeron, Chansup Byun, Lauren Edwards, Matthew Hubbell, Peter Michaleas, Julie Mullen, Andrew Prout, Antonio Rosa, Charles Yee, Albert Reuther, IEEE High Performance Extreme Computing (HPEC) Conference, September 2015.
- "Lustre, Hadoop, Accumulo", Jeremy Kepner, William Arcand, David Bestor, Bill Bergeron, Chansup Byun, Lauren Edwards, Vijay Gadepally, Matthew Hubbell, Peter Michaleas, Julie Mullen, Andrew Prout, Antonio Rosa, Charles Yee, Albert Reuther, IEEE High Performance Extreme Computing (HPEC) Conference, September 2015.
- "Enabling On-Demand Database Computing with MIT SuperCloud Database Management System", Andrew Prout, Jeremy Kepner, Peter Michaleas, William Arcand, David Bestor, Bill Bergeron, Chansup Byun, Lauren Edwards, Vijay Gadepally, Matthew Hubbell, Julie Mullen, Antonio Rosa, Charles Yee, Albert Reuther, IEEE High Performance Extreme Computing (HPEC) Conference, September 2015.
- "Parallel Vectorized Algebraic AES in MATLAB for Rapid Prototyping of Encrypted Sensor Processing Algorithms and Database Analytics", Jeremy Kepner, Vijay Gadepally, Braden Hancock, Peter Michaleas, Elizabeth Michel, Mayank Varia, IEEE High Performance Extreme Computing (HPEC) Conference, 2015.
- "Sampling Large Graphs for Anticipatory Analytics", Lauren Edwards, Luke Johnson, Maja Milosavljevic, Vijay Gadepally, Benjamin A. Miller, IEEE High Performance Extreme Computing (HPEC) Conference, 2015.
- "Graphulo Implementation of Server-Side Sparse Matrix Multiply in the Accumulo Database", Dylan Hutchison, Jeremy Kepner, Vijay Gadepally, Adam Fuchs, IEEE High Performance Extreme Computing (HPEC) Conference, 2015. **Best Student Paper Nominee**
- "Graphulo: A Graph Library for NoSQL Databases", Vijay Gadepally, Dylan Hutchison, Jake Bolewski, Benjamin Miller, Jeremy Kepner, IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW), May 2015.
- "Computing on Masked Data for High Performance Veracity", Vijay Gadepally, Braden Hancock, Jeremy Kepner, Peter Michaleas, Mayank Varia, Arkady Yerukhimovich, IEEE Technologies for Homeland Security (HST), April 2015.
- "Big Data Dimensional Analysis", Vijay Gadepally and Jeremy Kepner, IEEE High Performance Extreme Computing (HPEC), September 2014.
- "A Survey of Cryptographic Approaches to Securing Big-Data Analytics in the Cloud" Sophia Yakoubov", Vijay Gadepally, Nabil Schear, Emily Shen, Arkady Yerukhimovich, IEEE High Performance Extreme Computing (HPEC), September 2014.
- "Computing on Masked Data: a High Performance Method for Improving Big Data Veracity", Jeremy Kepner, Vijay Gadepally, Peter Michaleas, Nabil Schear, Mayank Varia, Arkady Yerukhimovich, Robert Cunningham, IEEE High Performance Extreme Computing (HPEC), September 2014.
- "Using 3D printing to Visualize Social Media Big Data", Zachary Weber and Vijay Gadepally, IEEE High Performance Extreme Computing (HPEC), September 2014.
- "Achieving 100,000,000 database inserts per second using Accumulo and D4M", Jeremy Kepner, William Arcand, David Bestor, Bill Bergeron, Chansup Byun, Vijay Gadepally, Matthew Hubbell, Peter Michaleas, Julie Mullen, Andrew Prout, Albert Reuther, Antonio Rosa, Charles Yee, IEEE High Performance Extreme Computing (HPEC), September 2014.
- "Adjacency Matrices, Incidence Matrices, Database Schemas, and Associative Arrays", Jeremy Kepner and Vijay Gadepally, IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW), May 2014.

- "Driver Behavior Modeling/prediction", Vijay Gadepally, Arda Kurt, Umit Ozguner, Ashok Krishnamurthy, IEEE International Transportation Society Conference, October 2011.
- "Teaching CPS Design Issues at Different Levels starting with a Two-Week CPS Educational Program for Ohio High School Students", Vijay Gadepally, Ashok Krishnamurthy, Umit Ozguner, Cyber-Physical Systems Education Workshop, August 2010.
- "Improving All-to- All communication for parallel MATLAB", David E. Hudak, Neil Ludban, Vijay Gadepally, Ashok Krishnamurthy, SuperComputing (SC) 2007, November 2007.
- "Developing a Computational Science IDE for HPC Systems", David E. Hudak, Neil Ludban, Vijay Gadepally, Ashok Krishnamurthy, Third International Workshop on Software Engineering for High Performance Computing Applications, May 2007.
- "Parallel MATLAB in Production Supercomputing with Applications in Signal and Image Processing", Ashok Krishnamurthy, David Hudak, John Nehrbass, Siddharth Samsi, Vijay Gadepally, SIAM Conference on Parallel Processing for Scientific Computing, March 2008.

Selected Invited Seminars, Articles and Posters

- "Enabling AI research with HPC", Talk given at:
  - MGHPCC Day, Northeastern University (2018)
  - Enterprise Resilience Conference: Software for HPC session (2018)
- Panelist, "Data Analytics", NSF Smart Grids Workshop (2018)
- "Introduction to Polystore Databases and the BigDAWG Polystore System", Tutorial at IEEE High Performance Extreme Computing (HPEC) Conference, 2017.
- "Addressing Big Data Challenges through Innovative Architecture, Databases and Software", Talk given at:
  - Raytheon Technology Networks Symposium (2017)
  - IoT Summit, *Keynote* (2016)
  - University of Michigan (2016)
  - The Ohio State University (2016)
  - Smith College (2015)
  - Tata Consultancy Services (2015)
  - Big Data Innovation Boston (October 2014)
  - Accumulo Summit (June 2014)
  - The Data Warehousing Institute (February 2014)
  - MITRE Corporation (December 2014)
- "BigDAWG Polystore and Architecture", Talk given at:
  - Oak Ridge National Laboratory (2016)
  - North Carolina State University (2016)
  - Chesapeake Bay Large Scale Analytics Conference (2016)
  - Intel (2015, 2016)
  - New England Database Day (2016)
- "Genomics Data, Analytics and the Future of Climate Change", Blog Post for Intel Science and Technology Center for Big Data, August 12, 2016
- Panelist, "Open edX Depolyment Panel", OpenEdX Conference (2016)
- "Graphulo: Graph Analytics in NoSQL databases", Talk given at:
  - Accumulo Summit (2016)

  - Graph Exploitation Symposium (2015)
- "Using D4M for rapid prototyping of analytics for Apache Accumulo", Talk given at Accumulo Summit (2015)
- "Sifter: A Data Corpus Generator", Vijay Gadepally, Sherwin Wu, Jeremy Kepner, Sam Madden, Poster at New England Database Day (2015)
- "Computing on Masked Data", Talk given at:
  - MIT Lincoln Laboratory (2015)
  - Advanced Research and Technology Symposium (2015)
  - Cyber Netcentric Workshop at MIT Lincoln Laboratory (2014)
  - Intel Big Data Retreat (2014)
- "SciDB - Manage and Analyze Terabytes of Array Data", Tutorial at SuperComputing - SC'14 (2014).
- "Novel Methods to Visualize and Interact with Big Data", Andrew Moran, Manuela Caicedo-Santiago, Zachary J. Weber, Matt Hubbell, Vijay Gadepally, Poster at:
  - IEEE High Performance Extreme Computing (2014)
  - Big Data at MIT Media Laboratory Showcase (2015)
- "MIMICViz: Enabling Visualization of Medical Big Data", Sherwin Wu, Vijay Gadepally, Andrew Whitaker, Jeremy Kepner, Bill Howe, Magdalena Balazinska, Sam Madden, Poster at Intel Big Data Retreat, (2014).
- "The future of personal transportation", Invited Talk at STIR Symposium (2011).
- "Policy questions in autonomous vehicle design an analysis of what has been done and what needs to be done", Term project for Public Policy 880.05
- "GRAPE Parallelization", Vijay Gadepally, Siddharth Samsi, John Nehrbass, Ashok Krishnamurthy, Technical Report for Army Research Laboratory (2008)
- "Survey of Parallel Extensions to Octave and Python", Vijay Gadepally, Technical Report for Department of Defense High Performance Computing Modernization Program (2007)

PATENT

- "System and Method of Masking and Computing on Masked Data in a Data Store," Vijay Gadepally, Jeremy Kepner, Peter Michaleas, US Patent Pending 15/239,856.

LEADERSHIP AND SERVICE

Technical

- Organizer/Chair, Poly'18: Polystores and other methods to manage heterogenous data (Workshop), VLDB 2018.
- Technical Program Committee member of IEEE High Performance Extreme Computing (HPEC), 2015-2019.
- Organizer/Chair, Workshop on Methods to Manage Heterogenous Data and Polystore Databases, IEEE Big Data, 2016-2017.
- Technical Program Committee member of IEEE International Conference on Big Data, 2018.
- Technical Program Committee member of IEEE International Conference on Distributed Computing Systems (ICDCS), 2017-2019.
- Technical Program Committee member of Third International Workshop on Data Management and Analytics for Medicine and Healthcare at VLDB, 2017.

- Organizer, SIAM Minisymposium on "Big Data and Scientific Applications", SIAM Annual Meeting, 2016.
- Deputy Lead of grant administered for internal research at MIT Lincoln Laboratory, 2016-Present.
- Reviewer, National Science Foundation, 2016.
- Member of Lincoln Laboratory college recruiting team, 2014-Present.
- Technical Program Committee member of Supercomputing (SC'15) conference, 2015.
- Program Committee ACM Parallel Programming or Analytics Applications (PPAA), 2015-2016.
- Reviewer, IEEE Transaction on Intelligent Transportation Systems, 2014).

National Level

- Director of Employment Concerns (CY 2012), NAGPS: Lead the employment concerns aspect of the National Association of Graduate and Professional Students (NAGPS) the largest national organization of graduate-professional students. Key areas of action: Developing a survey for Universities regarding campus career counseling for graduate/professional students, Bringing employment related concerns to state and national legislators, Providing employment related information to members and advising the President and Board of Directors of NAGPS.
- Midwest Regional Director of Employment Concerns (CY 2011), NAGPS: Assist the national director of Employment Concerns, National Association of Graduate and Professional Students (NAGPS) to improve the post-graduate career prospects of students.

University Level

- Treasurer (2010-2011), Council of Graduate Students (CGS): Responsible for maintaining the CGS budget (nearly $500,000), and keeping an accurate record of all financial transactions. Oversee committee projects. Keep delegate body updated of all project proposals accepted for funding. Ensure that awardees of CGS awards are paid in a prompt manner. Created a new mechanism for payments to vendors.
- Member (2010-2011), Council on Academic Affairs (COAM): Heard and adjudicated on cases related to academic misconduct of graduate and undergraduate students.
- Member (2009-2011), Dean of Engineering Search Committee: Selected to represent graduate students on the committee charged with selecting top candidates for the position of Dean of Engineering at The Ohio State University. This search concluded April 2011 with the appointment of Dean David Williams
- Secretary (2004-2005), Students Placement Office at the Indian Institute of Technology, Kanpur: Responsible for student recruitment at IIT Kanpur. Under my tenure, nearly 100% of students of interested students successfully found employment. Led a staff of 3 full time employees in addition to approximately a 20 student representative contingent.

HONORS AND AWARDS

Selected awards:

- Named to Armed Forces Communication and Electronics Association's (AFCEA) inaugural *40 under 40* list, 2017
- MIT Lincoln Laboratory Early Career Technical Achievement Award (given to two researchers under the age of 35 annually), 2016
- Best Paper Award, IEEE HPEC, 2016
- Best Student Paper Award, IEEE HPEC, 2016
- Selected for SuperComputing (SC) 2015 Early Career Program
- Lincoln Laboratory Team Award, 2014
- Selected to introduce President Barack Obama, 2012
- Selected to serve on NASA Future Forum Panel (2012). The other panelists were Senator John Glenn, and NASA administrator Charles Bolden.

- Finalist (one of two across the United States), Hellman Fellowship in Science and Technology Policy administered by the American Academy of Arts and Sciences, 2012
- Ray Travel Award, The Ohio State University, 2012.
- Outstanding Graduate Student Award, The Ohio State University, 2011.

SELECTED MEDIA, PRESS INTERVIEWS

Selected media and press interviews:

- "Spectre/Meltdown fixes in HPC: Want the bad news or the bad news? It's slower, say boffins", The Register, July 26, 2018.
- "Capitalizing on machine learning – from life sciences to financial services", HPC Wire, December 26, 2016
- "Databases Unlock Big Data", Paradigm4 Use Case, January 9, 2015
- "How 3D Printing is Revolutionizing the Display of Big Data":
  - MIT Technology Review, October 8, 2014
  - The Daily Dot, October 9, 2014
  - Motherboard Magazine, October 1, 2014
  - BigData4Analytics.com, October 2014
- "A Workshop: Unlocking the Power of Medical Big Data", Featured on ISTC for Big Data Blog, 2014.
- "Drive Simulation Lab" television program, Feature in Big10 Television Network Special on The Ohio State University Driving Simulator.
- "President Obama at Ohio State" (among various news articles):
  - The Ohio State University Feature, March 2012
  - Fox 8 Cleveland News, March 2012
  - The Lantern, March 2012
  - The Columbus Dispatch, March 2012
- "Task force formed in response to hate crimes", The Lantern, April 2012
- "Student Government Combats OSU's low ranking in graduate stipends", The Lantern, February 2012.