# Curriculum Vitae – Hao Ji

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## Education

- **Old Dominion University (ODU)**, USA *2011-2016*
  Ph.D., Computer Science
  Advisor: Dr. Yaohang Li
- **Hefei University of Technology (HFUT)**, China *2007-2010*
  M.S., Computer Software and Theory
  Advisor: Dr. Xiaoping Liu
- **Hefei University of Technology**, China *2003-2007*
  B.S., Mathematics and Applied Mathematics

## Research Interests

- Large-scale Numerical Methods
- High-performance Computing
- Machine Learning
- Computer Vision
- Physically-based Modeling and Simulation

## Professional Experience

- **California State Polytechnic University**, Pomona, CA
  *Associate Professor, Department of Computer Science* *2022 - Present*
- **California State Polytechnic University**, Pomona, CA
  *Assistant Professor, Department of Computer Science* *2016 - 2022*
- **Old Dominion University**, Norfolk, VA
  *Research Assistant, Department of Computer Science* *2011 - 2016*
- **Old Dominion University**, Norfolk, VA
  *Teaching Assistant, Department of Computer Science* *2011 - 2012, 2015*

## Peer-Reviewed Publications

- **Journal Papers**

  [1] Scott Oslund, Clayton Washington, Andrew So, Tingting Chen, **Hao Ji**. *Multiview Robust Adversarial Stickers for Arbitrary Objects in the Physical World.* Journal of Computational and Cognitive Engineering (JCCE), 152-158, 2022.

  [2] **Hao Ji**, Michael Mascagni, and Yaohang Li. *Gaussian Variant of Freivalds' Algorithm for Efficient and Reliable Matrix Product Verification.* Monte Carlo Methods and Applications (MCMA), 273-284, 2020.

  [3] Weidong Li, Wei Li, Pai Song, and **Hao Ji**. *A Conservation-Moment-Based Implicit Finite Volume Lattice Boltzmann Method for Steady Nearly Incompressible Flows.* Journal

of Computational Physics (JCP), 398, 2019.

[4] **Hao Ji** and Yaohang Li. *A Breakdown-Free Block Conjugate Gradient Method*. BIT Numerical Mathematics (BIT), 57(2), 379–403, 2017.

[5] **Hao Ji** and Yaohang Li. *Block Conjugate Gradient Algorithms for Least Squares Problems*. Journal of Computational and Applied Mathematics (JCAM), 317: 203-217, 2017.

[6] **Hao Ji**, Yaohang Li, and Seth Weinberg. *Calcium Ion Fluctuations Alter Channel Gating in a Stochastic Luminal Calcium Release Site Model*. IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB), 14(3), 611-619, 2017. (extended version)

[7] Dazhi Chong, Hui Shi, Liuliu Fu, **Hao Ji**, and Gongjun Yan. *The Impact of XBRL on Information Asymmetry: Evidence from Loan Contracting*. Journal of Management Analytics (TJMA), 4(2), 145-158, 2017.

[8] Ashraf Yaseen, **Hao Ji**, and Yaohang Li. *A Load-Balancing Workload Distribution Scheme for Three-Body Interaction Computation on Graphics Processing Units (GPU)*. Journal of Parallel and Distributed Computing (JPDC), 87: 91-101, 2016.

[9] **Hao Ji**, Michael Mascagni, and Yaohang Li. *Convergence Analysis of Markov Chain Monte Carlo Linear Solvers using Ulam-von Neumann Algorithm*. SIAM Journal on Numerical Analysis (SINUM), 51(4): 2107-2122, 2013.

- **Book Chapters**

[1] Bo Ji, Wenlu Zhang, Rongjian Li, and **Hao Ji**. *Deep Learning Models for Biomedical Image Analysis*, Computational Models for Biomedical Reasoning and Problem Solving, IGI Global, ISBN: 978-1-522-57467-5, 2019.

[2] **Hao Ji** and Yaohang Li. *Monte Carlo Methods and their Applications in Big Data Analysis*, Mathematical Problems in Data Science - Theoretical and Practical Methods, Springer, ISBN: 978-3-319-25127-1, 2015.

- **Papers in Conference Proceedings (* Students)**

[1] David Hughes* and **Hao Ji**. *Enhancing Object Detection Using Synthetic Examples*, in the Proceedings of the IEEE 11th Annual Computing and Communication Workshop and Conference, 1398-1402, 2021.

[2] Philip Yao*, Andrew So*, Tingting Chen, and **Hao Ji**. *On Multiview Robustness of 3D Adversarial Attacks*, in the Proceedings of the Practice and Experience in Advanced Research Computing 2020 Conference, 372-378, 2020.

[3] Ibraheem Saleh* and **Hao Ji**. *Network Traffic Images: A Deep Learning Approach to the Challenge of Internet Traffic Classification*, in the Proceedings of the IEEE 10th Annual Computing and Communication Workshop and Conference, 329-334, 2020.

[4] Eitan Rothberg* , Tingting Chen, and **Hao Ji**. *Towards Better Accuracy and Robustness with Localized Adversarial Training*, in the Proceedings of the AAAI Conference on Artificial Intelligence, vol. 33, 10017-10018. 2019.

[5] Liang Zhang*, Ibraheem Saleh*, Sashi Thapaliya*, Jonathan Louie*, Jose Figueroa-Hernandez*, and **Hao Ji**. *An Empirical Evaluation of Machine Learning Approaches for Species Identification Through Bioacoustics*, in the Proceedings of the 2017 International Conference on Computational Science and Computational Intelligence, 489-494, IEEE, 2017.

[6] **Hao Ji**, Seth Weinberg, Min Li, Jianxin Wang, and Yaohang Li. *An Apache Spark Implementation of Block Power Method for Computing Dominant Eigenvalues and Eigenvectors of Large-Scale Matrices*, in the Proceedings of the 2016 IEEE International Con-

ferences on Big Data and Cloud Computing (BDCloud), 554-559, Atlanta, GA, 2016.

[7] **Hao Ji**, Erich O'Saben, Rohit Lambi, and Yaohang Li. *Matrix Completion Based Model V2.0: Predicting the Winning Probabilities of March Madness Matches*, in the Proceedings of the Modeling, Simulation, and Visualization Student Capstone Conference, Suffolk, VA, 2016.

[8] **Hao Ji**, Yaohang Li, and Seth Weinberg. *Calcium Ion Fluctuations Alter Channel Gating in a Stochastic Luminal Calcium Release Site Model*, in the Proceedings of the 7th International Symposium on Bioinformatics Research and Applications (ISBRA2015), Norfolk, Virginia, 2015.

[9] **Hao Ji**, Erich O'Saben, Adam Boudion, and Yaohang Li. *March Madness Prediction: A Matrix Completion Approach*, in the Proceedings of the Modeling, Simulation, and Visualization Student Capstone Conference, Suffolk, VA, 2015. (best paper award)

[10] **Hao Ji**, Masha Sosonkina, and Yaohang Li. *An Implementation of Block Conjugate Gradient Algorithm on CPU-GPU Processors*, in the Proceedings of the 2014 Hardware-Software Co-Design for High Performance Computing, in conjunction with the SC'14 conference. New Orleans, LA, 2014.

[11] **Hao Ji** and Yaohang Li. *GPU Accelerated Randomized Singular Value Decomposition and Its Application in Image Compression*, in the Proceedings of the Modeling, Simulation, and Visualization Student Capstone Conference, Suffolk, VA, 2014. (best paper award)

[12] **Hao Ji** and Yaohang Li. *Reusing Random Walks in Monte Carlo Methods for Linear Systems*, in the Proceedings of the 2012 International Conference on Computational Science, Omaha, 2012.

[13] Xiaoping Liu, Lin Du, **Hao Ji**, and Hui Shi. *The Visualization of Constraints Conflict in Collaborative Design*, in the Proceedings of the 13th International Conference on Computer Supported Cooperative Work in Design, (CSCWD2009), 32-37. IEEE, 2009.

- **Workshop Papers/Abstracts**

[1] Clayton B Washington, Maximum Wilder-Smith, Tingting Chen, and **Hao Ji**. *Robust Localized Physical Attacks on Deep Learning Classifiers for Objects with Arbitrary Surface*, the 3rd Workshop on Adversarial Learning Methods for Machine Learning and Data Mining at the KDD Conference, Virtual, 2021.

[2] Philip Yao, Andrew So, Tingting Chen, **Hao Ji**. *Multiview-Robust 3D Adversarial Examples of Real-world Objects*, the CVPR 2020 Workshop on Adversarial Machine Learning in Computer Vision, Virtual, 2020.

[3] Eitan Rothberg, Tingting Chen, **Hao Ji**, and Roger Luo. *Localized Adversarial Training for Increased Accuracy and Robustness in Image Classification*, the 1st Workshop on Adversarial Learning Methods for Machine Learning and Data Mining at KDD Conference, Anchorage, AK. 2019.

[4] **Hao Ji**, Michael Mascagni, and Yaohang Li. *Comparison of Deterministic and Stochastic Measures of Numerical Reproducibility*, 2nd Numerical Reproducibility at Exas-cale Workshop (NRE2016), in conjunction with the SC'16 conference, Salt Lake, Utah, 2016. (Abstract Version)

## Patents and Software Copyrights

- Patent: A Method for Automatic Model Simplification and Evaluation in Steady-State Thermal Analysis, China. Patent No. 200910185331.6. (Co-Inventor) *May 9, 2012*
- Software: Analysis and Visualization Platform Software for Nonlinear System (NLSAV), China. Registration No. 2010SR034948. (Main Developer) *July 15, 2010*

## Grants

- PI. National Science Foundation (NSF), "AF: Small: RUI: Toward High-Performance Block Krylov Subspace Algorithms for Solving Large-Scale Linear Systems", $600,000 *2023-2026*
- PI. National Science Foundation (NSF), "MRI: Acquisition of a Mass Storage System for Data Intelligence Research", $212,680 *2018-2021*
- Co-PI. National Aeronautics and Space Administration (NASA) Ames Research Center, "High Performance Computing for Flight Control Planning of Multiple UAV Operations for Widespread Applications", $110,000 *2021-2022*
- Senior Personnel. National Science Foundation (NSF) Computer and Network Systems (CNS) Program, "REU Site: Undergraduate Research Experiences in Big Data Security and Privacy", $404,934 *2021-2024*
- PI. California State Polytechnic University, Pomona: Research Scholarship, and Creative Activity (RSCA), "Accelerating Numerical Algorithms Using High-Performance Computing for Data Intelligence Applications", $5000 *2022*
- PI. California State Polytechnic University, Pomona: Summer 2021 Assessment Practice and Discovery Mini Grant, "Closing the Loop: Analyzing the Assessment Data and Preparing an Annual Assessment Report for ABET Evaluation", $1,000. *2022*
- Co-PI. California State Polytechnic University, Pomona: Strategic Interdisciplinary Research Grant (SIRG) Program, "Infrastructure Requirements for Transition of Medium-Heavy Duty Commercial Trucks to Electric Fleet in the State of California", $10,750. *2021-2022*
- PI. California State Polytechnic University, Pomona: Summer 2021 Assessment Practice and Discovery Mini Grant, "Closing the Assessment Loop for the ABET-Accredited Bachelor of Science Program in Computer Science", $1,100. *2021*
- Co-PI. California State Polytechnic University, Pomona: Strategic Interdisciplinary Research Grant (SIRG) Program, "Research Experience for Undergraduates in Big Data Security and Privacy", $15,000. *2020-2021*
- PI. California State Polytechnic University, Pomona: Donor Sponsored Research Projects, "Automated Data Preparation for Custom Object Detection", $9,500 *2019-2020*
- Collaborator. California State Polytechnic University, Pomona: Special Projects for Improving the Classroom Environment (SPICE) Program, "Bring Real-world Data and Projects to Data-focused Courses", $16,833. *2019-2020*
- PI. California State Polytechnic University, Pomona: First in the World Mini-Grant, "Implementing Flipped Classroom Approaches in CS2400". *2019*

- PI. California State Polytechnic University, Pomona: College of Science Discovery Through Research (DTR) Summer Support Program, "Bridging the Gap between Synthetic and Real Data for Semantic Image Segmentation", $8,000 *2019*
- PI. California State Polytechnic University, Pomona: Research Scholarship, and Creative Activity (RSCA), "Towards Solutions to Massive-Scale Matrix Completion Problems", $5000 *2016-2017*
- PI. California State Polytechnic University, Pomona: Faculty Mini-Grant Program, "A Content-Based Recommender System Using Human Face Photos for Personalization", $1000 *2016-2017*

## Awards

- Provost's Teacher-Scholar Award, Cal Poly Pomona *2018-2024*
- STAR Mentor through the Faculty Mentor Research Stars (STARS) program, Cal Poly Pomona *2021*
- College of Science Distinguished Teaching Award Nomination (One of Six Finalists), Cal Poly Pomona *2020*
- Featured Ph.D. Student, Computer Science, ODU *2016*
- Modeling and Simulation Research Fellowship, ODU *2013-2016*
- Gene Newman Award, Best Presentation Award, and Best Paper Award, Modeling, Simulation, and Visualization Student Capstone Conference (MSVESCC) 2015, VA *2015*
- Gene Newman Award and Best Paper Award, MSVESCC 2014, VA *2014*

## Teaching Experience

- **California State Polytechnic University, Pomona**
  *Assistant Professor, Department of Computer Science*
  - CS 1300 - Discrete Structures
  - CS 2400 - Data Structures and Advanced Programming
  - CS 2520 - Python for Programmers
  - CS 2640 - Computer Organization and Assembly Programming
  - CS 3010 - Numerical Methods and Computing
  - CS 4210 - Machine Learning and Its Applications
  - CS 4610 - Senior Project
  - CS 4630 - Undergraduate Seminar
  - CS 5190 - Computer Vision
  - CS 5990 - Special Topics for Graduate Students: Deep Learning
  - CS 6640 - Graduate Seminar
  - CS 6910 - Directed Research
  - CS 6950 - Master's Degree Project
  - CS 6960 - Master's Degree Thesis
    *Semester Conversion in Fall 2018*

  - CS 130 - Discrete Structures
  - CS 241 - Data Structures and Algorithms II
  - CS 264 - Computer Organization and Assembly Programming
  - CS 299 - Special Topics for Lower Division Students: Python for Beginners
  - CS 463 - Undergraduate Seminar
  - CS 519 - Computer Vision
  - CS 599 - Special Topics for Graduate Students: Machine Learning
  - CS 691 - Directed Study
- **Old Dominion University**
  *Teaching Assistant, Department of Computer Science*
  - CS 695/795/895 Monte Carlo Methods and Applications
  - CS 417/517 Computational Methods and Software
  - CS 270 Introduction to Computer Architecture II
  - CS 170 Introduction to Computer Architecture I

## Professional Activities

- National Science Foundation (NSF) Panelist, 2018
- Associate Editor for IEEE Access, 2018 – Present
- Guest Editor for Information Discovery and Delivery on Special Issue on Knowledge Discovery (2019)
- Journal Reviewer: IEEE Transactions on Neural Networks and Learning Systems, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Network Science and Engineering, BMC Bioinformatics, Journal of Computational and Applied Mathematics, Big Data Research, and the SIAM Journal on Scientific Computing
- Program/Technical Committee/Reviewer
  - The 2021 Practice and Experience in Advanced Research Computing Conference, 2021
  - The IEEE 11th Annual Computing and Communication Workshop and Conference, 2020
  - The 13th International Conference on Machine Vision, 2020
  - The IEEE 10th Annual Computing and Communication Workshop and Conference, 2019
  - The 12th International Conference on Machine Vision, 2019
  - The 1st International Workshop on Intelligence and Interaction in Knowledge Engineering, 2018
  - The 10th International conference on Machine Learning and computing, 2017
  - The 10th International conference on Machine Vision, 2017

## Certificates

- Modeling and Simulation Certificate in Computing and Informatics, ODU *May 11, 2013*
- Graduate Teacher Assistant Instructor Institute Certificate, College of Sciences, ODU *Aug. 24, 2012*