

# Curriculum Vitae: Mohsen Imani

Department of Computer Science, University of California Irvine

## Information

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**Publications:** Google Scholar Profile

## Summary

I am an Assistant Professor in the Department of Computer Science at UC Irvine and a director of the Bio-Inspired Architecture and Systems Laboratory (BIASLab). My group is working on a wide range of practical problems in the area of brain-inspired computing, machine learning, and embedded systems. Our research goal is to design real-time, robust, and transparent cognitive learning systems that closely mimic brain properties. We also design a secure and scalable learning framework for photonic-based sensors for learning/computing over a swarm of devices in IoT systems.

PI Imani received Ph.D. from the Department of Computer Science and Engineering at UC San Diego in 2020. He has a stellar record of publication with over 140 papers in top IEEE/ACM conferences and journals, 20 US patents, and with 4,100 citation count and an h-index of 38 in Google Scholar. The PI contribution has led to a new direction on brain-inspired hyperdimensional computing that enables ultra-efficient and real-time learning and cognitive support. His research was also the main initiative in opening up multiple industrial and governmental research programs, including SRC and DARPA. The PI Imani research has been recognized with several awards, including the Bernard and Sophia Gordon Engineering Leadership Award and multiple best paper nomination awards at top conferences. The PI has a long history of successful technology transfer to companies and governmental agencies. For example, the PIs' current work on brain-inspired HyperDimensional Computing has been shared with Intel, ARM, IBM, Qualcomm, and CISCO.

The work done by PI on Neurosymbolic AI, funded as a part of SRC/DARPA, was transitioned to Intel, and IBM, and motivated efforts on leveraging brain-inspired reasoning, which was then funded by and transferred to CISCO and Google. The work on processing in-memory that has been funded by SRC/DARPA and other companies, has found a home in product groups of Qualcomm and TI, and Intel. PI's current project on IoT distributed learning is currently being transferred to Air Force and NXP Semiconductor. and has been a key part of close collaboration between the PIs team and Air Force/NXP Semiconductor over the last few years. As a part of DoD funded project, the PI was designed in memory processing hardware for hyperdimensional encoding and classification, including combining HDC with public key encryption, and showed that HDC works well for the classification of Lidar/Radar data. The work is currently under evaluation for inclusion in one of Intels in-storage products.

## Appointment & Education

2020–Present **Assistant Professor**, *University of California Irvine*, Irvine, CA, USA.  
Department of Computer Science

2014–2020 **PhD**, *University of California San Diego*, La Jolla, CA, USA.  
Department of Computer Science and Engineering

## Supervision

PI is mentoring a diverse group with 30+ members, including 13 Ph.D. students with an interdisciplinary background in theory, machine learning, cognitive science, and hardware design. List of current Ph.D. students:

*Yang Ni, Hamza Errahmouni, Hanning Chen, Mariam Issa, Ali Zakeri, Junyao Wang, Zhuowen Zou, Arghavan Rezvani, Amir Ranjbar, Wenjun Huang, Eavn Jeong, Sanggeon Yun, Calvin Yeung*

## Research Activity

2020–Present **Director**, *Bio-Inspired Architecture and Systems Laboratory (BIASLab)*, UC Irvine.  
Department of Computer Science

2020–present **Principal Investigator**, *Artificial Intelligence Hardware (AIHW)*, GRC Program.  
Sponsor: Semiconductor Research Corporation (SRC)

2014–2020 **Researcher**, *System Energy Efficient Labratoary (SEELab)*, UC San Diego.  
Department of Computer Science

2019–2020 **Researcher**, *Hyper-Dimensional Data Enabled Neural Networks (HyDDENN)*, UC San Diego.  
Sponsor: Defense Advanced Research Projects Agency (DARPA)

2018–2020 **Researcher**, *Artificial Intelligence Hardware (AIHW)*, GRC Program, UC San Diego.  
Sponsor: Semiconductor Research Corporation (SRC)

2018–2020 **Researcher**, *Brain-Inspired Hyperdimensional Computing for IoT Applications*, UC San Diego.  
Sponsor: National Science Foundation (NSF)

- 2016–2020 **Researcher**, *Cognitive Hardware and Software Ecosystem Infrastructure*, UC San Diego.  
Sponsor: National Science Foundation (NSF)
- 2015–2019 **Researcher**, *ENACT: Environment-Aware Management of Mobile Systems*, UC San Diego.  
Sponsor: National Science Foundation (NSF)

## Awards and Honors

- 2022 Recognized as a **DARPA Riser** for my contribution in Hyper-Dimensional Computing.
- 2022 **Best paper award**, at Design Automation and Test in Europe Conference (DATE)
- 2021 **Best Paper Candidate**, at International Conference On Computer Aided Design (ICCAD).
- 2020 **Best Paper Candidate**, at Design Automation and Test in Europe Conference (DATE).
- 2020 **Best Paper Candidate**, at Design Automation Conference (DAC).
- 2019 **Bernard and Sophia Gordon Engineering Leadership Award (\$10,000)**, the most prestigious leadership award in the school of engineering, UC San Diego.
- 2019 **Best Paper Candidate**, at Design Automation Conference (DAC), Las Vegas, NV.
- 2019 **Outstanding Jacobs School of Engineering Graduate Research Award**, recognized as an exceptional graduate student contributed to several funded grants and minorities research programs at UC San Diego.
- 2019 **Best Poster/Presentation Award** (Ranked 1st), PhD Forum, Design Automation Conference (DAC), Las Vegas, NV.
- 2019 **Best Presentation Award**, SRC Techcon Conference, Austin, TX.
- 2018 **Best Doctoral Research Award**, Computer Science Department, UC San Diego.
- 2018 **Best Poster Award**, Research Expo, San Diego, CA.
- 2018 **Best paper Candidate**, at International Symposium on Quality Electronic Design (ISQED), CA
- 2014-2017 **Powell-Focht Fellowship**, the prestigious three-years full scholarship at UC San Diego.
- 2016 **Best Paper Candidate**, at International Conference on Computer Design (ICCD), Phoenix, AZ.
- 2016-2019 **NSF Travel Grant Award**, at multiple conferences including ISCA 2019, DAC 2019, BHI 2019, BHI 2018, and GLSLVSI 2016.
- 2015 **Young Richard Newton Student Fellow**, at Design Automation Conference (DAC).

## Teaching Experience

- Fall 2022 **CS 151: Digital Design**, UC Irvine, CS Department.  
(Recommended by 100% of students)
- Winter 2022 **CS 151: Digital Design**, UC Irvine, CS Department.  
(Recommended by 98% of students)
- Spring 2021 **CS 295: Brain-Inspired Learning Systems**, UC Irvine, CS Department.  
(Recommended by 92% of students)
- Spring 2018 **CSE 291: Alternative Computing Paradigm**, UC San Diego, CSE Department.  
Co-teaching with Prof. Tajana Rosing at UC San Diego.
- Summer 2017 **CSE 140\*: Components and Design Techniques for Digital Systems**, UC San Diego, CSE Department.
- Summer 2017 **CSE 140L\*: Digital Systems Laboratory**, UC San Diego, CSE Department..  
\* Recommended by 98.1% of students.

## Diversity

The PI has been involved in multiple underrepresented research programs, including Early Research Scholars Program (ERSP), Women in Information and Computer Sciences (WICS), and Latino student program (ENLACE), where he has mentored over 21 undergraduate and 15 underrepresented students with 39 joint publications. More information at: <http://moimani.weebly.com/diversity.html>

- o **ERSP**: a team-based research experience for undergraduate students early in their engineering career.
- o **ENLANCE**: a bi-national summer research program at tries to encourage the participation of high school and college students in research, while promoting cross-border friendships in the Baja California.
- o **WICS**: a social and professional organization at UC Irvine established to help and encourage women to pursue a college degree and a successful career in the computer science field.
- o **GREAT**: develop bridges and research collaboration with Korean partner universities by expanding the Global Research Experience in Artificial Intelligence (GREAT) Program..

## List of Significant Publications

Google Scholar Summary (as of 01/01/2023): **Citations: 4,100, h-index: 38, i10-index: 96** (Link).

- Z. Zuo, Y. Kim, F. Imani, H. Alimohamadi, R. Cammarato, **M. Imani**, "Edge-based Hyperdimensional Learning System with Brain-Like Neural Adaptation", *Proceedings of the 49th Annual International Symposium on Computer Architecture (ISCA)*, 2021. ([Collaboration with Industry](#)) ([Open Source](#))
- Z. Zou, H. Chen, P. Poduval, Y. Kim, M. Imani, E. Sadredini, R. Cammarota, **M. Imani**, "BioHD: an efficient genome sequence search platform using HyperDimensional memorization", *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis (SC)*, 2021. ([Collaboration with Industry](#))
- P. Poduval, H. Alimohamadi, A. Zakeri, F. Imani, H. Najafi, T. Givargis, **M. Imani**, "GrapHD: Graph-based Hyperdimensional Memorization for Brain-Like Cognitive Learning", *Frontiers in Neuroscience*, 2022 .
- H. Cano, N. Matsumoto, E. Ping, **M. Imani**, "OnlineHD: Robust, Efficient, and Single-Pass Online Learning Using Hyperdimensional System", *IEEE/ACM Design Automation and Test in Europe Conference (DATE)*, 2021 ([Open Source](#)).
- **M. Imani**, Y. Kim, M. S. Riazi, J. Messerly, P. Liu, F. Koushanfar, T. Rosing, A Framework for Collaborative Learning in Secure High-Dimensional Space, *Cloud Computing (CLOUD)*, 2019.
- **M. Imani**, A. Rahimi, D. Kong, T. Rosing, J. M. Rabaey, "Exploring Hyperdimensional Associative Memory", *International Symposium on High-Performance Computer Architecture (HPCA)*, 2017.

## Industrial Collaborator

PI is actively collaborating with multiple industries, including Intel, ARM, NXP Semiconductor, Cisco, Qualcomm, Hynix

## Service

Program committee in multiple venues and **reviewed over 200 papers** in top-tier journals and conferences.

### Panelist

- 2021 National Science Foundation (NSF), CNS.
- 2021 National Science Foundation (NSF), CCSI.
- 2021 Department of Energy (DOE).

### Program Committee Member

- 2022 IEEE International Symposium on Computer Architecture (ISCA).
- 2021 IEEE/ACM International Symposium on Microarchitecture (MICRO)
- 2021 IEEE International Symposium on Computer Architecture (ISCA).
- 2021 IEEE/ACM International Conference on Biomedical and Health Informatics (BHI)
- 2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP).
- 2021 IEEE Asia and South Pacific Design Automation Conference (ASP-DAC).
- 2020 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP).
- 2019 15th IEEE PRIME Conference, IEEE International Conference on Biomedical & Health Informatics (BHI).
- 2018 31th IEEE SoCC Conference, 14th IEEE PRIME Conference
- 2017 30th IEEE SoCC Conference, 13th IEEE PRIME Conference.

### Session Chair

- 2021 Session Chair in the 2021 International Symposium on Low Power Electronics and Design (ISLPED).
- 2020 Session Chair in the 2020 International Symposium on Low Power Electronics and Design (ISLPED).
- 2019 Session Chair in the 2019 International Symposium on Low Power Electronics and Design (ISLPED).

### IEEE Reviewer

Transactions on Very Large Scale Integration Systems (TVLSI), Transactions on Circuits and Systems I (TCAS I), Transactions on Circuits and Systems II (TCAS II), Transactions on Nanotechnology (TNANO), Transactions on Circuits and Systems for Video Technology (TCSVT), Transactions on Emerging Topics in Computing (TETC), Transactions on Computers (TC), IEEE Micro, IEEE Access.

### ACM Reviewer

Journal of Emerging Technologies in Computing Systems (JETC), Transactions on Embedded Computing Systems (TECS), Transactions on Architecture and Code Optimization (TACO), Transactions on Design Automation of Electronic Systems (TODAES).

### Elsevier Reviewer

Microelectronic Journal, Integration, the VLSI Journal, Computer Methods and Programs in Biomedicine Journal, Journal Engineering Science and Technology, Computers in Biology and Medicine, Journal of Parallel and Distributed Computing (JPDC).

### Taylor & Francis and Wiley

International Journal of Electronic, Brain-Computer Interfaces Journal, Software: Practice and Experience Journal.

## Conference External Reviewer

- 2019 IEEE/ACM Design Automation Conference (DAC), Design, Automation and Test in Europe (DATE).  
2018 IEEE/ACM Design Automation Conference (DAC), Design, Automation and Test in Europe (DATE).  
2017 IEEE/ACM Design, Automation and Test in Europe (DATE).

## Publications

### Book Chapter:

- [B1] **M. Imani**, T. Rosing, Approximate CPU and GPU Design Using Emerging Memory Technologies, *Springers book titled Approximate Circuit*, 2019.

### Conferences (Since 2019):

- [C107] Z. Zou, H. Chen, P. Poduval, Y. Kim, M. Imani, E. Sadredini, R. Cammarota, **M. Imani**, "BioHD: An Efficient Genome Sequence Search Platform Using HyperDimensional Memorization", *IEEE International Symposium on Computer Architecture (ISCA)*, 2022
- [C106] Y. Ni, N. Lesica, F.G. Zeng and **M. Imani**, "Neurally-Inspired Hyperdimensional Classification for Efficient and Robust Biosignal Processing", *IEEE/ACM International Conference on Computer Aided Design (ICCAD)*, 2022
- [C105] H. Chen, M. A. Issa, Y. Ni and **M. Imani**, "Distributed Reconfigurable Accelerator for Hyperdimensional Reinforcement Learning", *IEEE/ACM International Conference on Computer Aided Design (ICCAD)*, 2022
- [C104] S. Zhang, **M. Imani**, X. Jiao, "ScaleHD: Robust Brain-Inspired Hyperdimensional Computing via Adaptive Scaling", *IEEE/ACM International Conference on Computer Aided Design (ICCAD)*, 2022
- [C103] S. Zhang, **M. Imani**, X. Jiao, "ScaleHD: Robust Brain-Inspired Hyperdimensional Computing via Adaptive Scaling", *IEEE/ACM International Conference on Computer Aided Design (ICCAD)*, 2022
- [C102] C. Liu, H. Chen, **M. Imani**, K. Ni, A. Kazemi, A. F. Laguna, M. Niemier, X. S. Hu, L. Zhao, C. Zhuo and X. Yin "COSIME: FeFET based Associative Memory for In-Memory Cosine Similarity Search", *IEEE/ACM International Conference on Computer Aided Design (ICCAD)*, 2022
- [C101] Y. Ni, M. Issa, D. Abraham, and **M. Imani**, "HDPG: Hyperdimensional Policy-based Reinforcement Learning for Continuous Control", *IEEE/ACM Design Automation Conference (DAC)*, 2022
- [C100] **M. Imani**, A. Zakeri, H. Chen, T. Kim, H. Lee, Y. Kim, E. Sadredini, F. Imani, "Neural Computation for Robust and Homographic Face Detection", *IEEE/ACM Design Automation Conference (DAC)*, 2022
- [C99] P. Poduval, Y. Ni, Y. Kim, K. Ni, R. Kuma, R. Cammarota, and **M. Imani**, "Adaptive neural recovery for highly robust brain-inspired representation", *IEEE/ACM Design Automation Conference (DAC)*, 2022
- [C98] J. Cai, **M. Imani**, K. Ni, G. Zhang, X. Zhuo, X. Yin, "Energy Efficient Data Search Design and Optimization Based on a Compact Ferroelectric FET Content Addressable Memory", *IEEE/ACM Design Automation Conference (DAC)*, 2022
- [C97] A. Jalilvand, S. Naderi, S. N. Estiri, H. Najafi, **M. Imani**, "A Fast and Low-Cost Comparison-Free Sorting Engine with Unary Computing", *IEEE/ACM Design Automation Conference (DAC)*, 2022
- [C96] A. Jalilvand, S. Naderi, S. N. Estiri, H. Najafi, **M. Imani**, "A Fast and Low-Cost Comparison-Free Sorting Engine with Unary Computing", *IEEE/ACM Design Automation Conference (DAC)*, 2022
- [C94] Y. Ni, Y. Kim, T. Rosing, **M. Imani**, "Algorithm-Hardware Co-Design for Efficient Brain-Inspired Hyperdimensional Learning on Edge", *IEEE/ACM Design Automation and Test in Europe Conference (DATE)*, 2022. ([Best paper award](#))
- [C93] Y. Ni, Y. Kim, T. Rosing, **M. Imani**, "Online Performance and Power Prediction for Edge TPU via Comprehensive Characterization", *IEEE/ACM Design Automation and Test in Europe Conference (DATE)*, 2021.
- [C92] Z. Zuo, Y. Kim, F. Imani, H. Alimohamadi, R. Cammarato, **M. Imani**, "Edge-based Hyperdimensional Learning System with Brain-Like Neural Adaptation", *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis (SC)*, 2021. ([Collaboration with Intel](#))
- [C91] E. Sadredini, R. Rahimi, **M. Imani**, K. Skadron, "Sunder: Enabling Low-Overhead and Scalable Near-Data Pattern Matching Acceleration", *IEEE/ACM Int. Symposium on Microarchitecture (MICRO)*, 2021.
- [C90] Y. Kim, **M. Imani**, M. Zuo, S. Gupta, T. Rosing, "Massively Parallel Big Data Classification on a Programmable Processing In-Memory Architecture", *IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, 2021.
- [C89] S. Asadi, M.H. Najafi, **M. Imani** "CORLD: In-Stream Correlation Manipulation for Low-Discrepancy Stochastic Computing", *IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, 2021.
- [C88] Z. Zuo, Y. Kim, F. Imani, H. Alimohamadi, R. Cammarato, **M. Imani**, "Edge-based Hyperdimensional Learning System with Brain-Like Neural Adaptation", *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis (SC)*, 2021. ([Collaboration with Industry](#)) ([Open Source at GitLab](#))
- [C87] E. Sadredini, R. Rahimi, **M. Imani**, K. Skadron, "Sunder: Enabling Low-Overhead and Scalable Near-Data Pattern Matching Acceleration", *IEEE/ACM Int. Symposium on Microarchitecture (MICRO)*, 2021.
- [C86] P. Poduval, Y. Ni, Y. Kim, K. Ni, R. Kumar, R. Cammarota, and **M. Imani**, "Hyperdimensional Self-Learning Systems Robust to Technology Noise and Bit-Flip Attacks", *IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, 2021. ([Collaboration with Industry](#)) ([Open Source at GitLab](#))
- [C85] Y. Kim, **M. Imani**, M. Zuo, S. Gupta, T. Rosing, "Massively Parallel Big Data Classification on a Programmable Processing In-Memory Architecture", *IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, 2021.
- [C84] S. Asadi, M.H. Najafi, **M. Imani** "CORLD: In-Stream Correlation Manipulation for Low-Discrepancy Stochastic Computing", *IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, 2021.
- [C83] A. Kazemi, M. Sharifi, M. Zou, M. Niemier, X.S. Hu, **M. Imani** "MIMHD: Accurate and Efficient Hyperdimensional Inference using Multi-Bit In-Memory Computing", *IEEE/ACM International Symposium on Low Power Electronics and Design (ISLPED)*, 2021.
- [C82] **M. Imani**, Z. Zuo, S. Bosch, S. Rao, S. Salamat, V. Kumar, Y. Kim, T. Rosing, "Revisiting HyperDimensional Learning for FPGA and Low-Power Architectures", *International Symposium on High-Performance Computer Architecture (HPCA)*, 2021.
- [C81] A. H. Cano, R. Cammarota, **M. Imani**, "PRID: Model Inversion Privacy Attacks in Hyperdimensional Learning Systems", *IEEE/ACM Design Automation Conference (DAC)*, 2021. ([Collaboration with Industry](#)) ([Open Source at GitLab](#))
- [C80] A. H. Cano, Z. Zou, C. Zhou, X. Yin, **M. Imani**, "RegHD: Robust and Efficient Regression in Hyper-Dimensional Learning System", *IEEE/ACM Design Automation Conference (DAC)*, 2021.
- [C79] P. Poduval, Z. Zhou, X. Yin, E. Sadredini, **M. Imani**, "Cognitive Correlative Encoding for Genome Sequence Matching in Hyperdimensional System", *IEEE/ACM Design Automation Conference (DAC)*, 2021.
- [C78] P. Poduval, Z. Zhou, H. Najafi, H. Homayoun, **M. Imani**, "StocHD: Stochastic Hyperdimensional System for Efficient and Robust Learning from Raw", *IEEE/ACM Design Automation Conference (DAC)*, 2021.
- [C77] Y. Kim, J. Kim, **M. Imani**, "CascadeHD: Efficient Many-Class Learning Framework Using Hyperdimensional Computing", *IEEE/ACM Design Automation Conference (DAC)*, 2021.
- [C76] Z. Zou, Y. Kim, M. H. Najafi, **M. Imani**, "ManiHD: Efficient Hyper-Dimensional Learning Using Manifold Trainable Encoder", *IEEE/ACM*

- [C75] A. H. Cano, Y. Kim, **M. Imani**, "A Framework for Efficient and Binary Clustering in High-Dimensional Space", *IEEE/ACM Design Automation and Test in Europe Conference (DATE)*, 2021.
- [C74] A. H. Cano, N. Matsumoto, E. Ping, **M. Imani**, "OnlineHD: Robust, Efficient, and Single-Pass Online Learning Using Hyperdimensional System", *IEEE/ACM Design Automation and Test in Europe Conference (DATE)*, 2021. ([Open Source at GitLab](#))
- [C73] M. Zhou, M. Li, **M. Imani**, T. Rosing, "HyGraph: Accelerating Graph Processing with Hybrid Memory-centric Computing", *IEEE/ACM Design Automation and Test in Europe Conference (DATE)*, 2021.
- [C72] S. Asadi, M. H. Najafi, M. Imani, **M. Imani**, "A Low-Cost FSM-based Bit-Stream Generator for Low-Discrepancy Stochastic Computing", *IEEE/ACM Design Automation and Test in Europe Conference (DATE)*, 2021.
- [C71] Y. Qian, Z. Fan, H. Wang, C. Li, **M. Imani**, K. Ni, G. L. Zhang, B. Li, U. Schlichtmann, C. Zhuo, X. Yin, "Energy-Aware Designs of Ferroelectric Ternary Content Addressable Memory", *IEEE/ACM Design Automation and Test in Europe Conference (DATE)*, 2021.
- [C70] J. Morris, K. Ergun, B. Khaleghi, **M. Imani**, B. Aksanli, T. Rosing, "HyDREA: Towards More Robust and Efficient Machine Learning Systems with Hyperdimensional Computing", *IEEE/ACM Design Automation and Test in Europe Conference (DATE)*, 2021.
- [C69] R. Garcia, F. Asgarinejad, B. Khaleghi, T. Rosing, **M. Imani**, "TruLook: A Framework for Configurable GPU Approximation", *IEEE/ACM Design Automation and Test in Europe Conference (DATE)*, 2021.
- [C68] C. Li, F. Müller, T. Ali, R. Olivo, **M. Imani**, S. Deng, C. Zhuo, T. Kämpfe, X. Yin, and K. Ni, T. Kämpfe, X. Yin, and K. Ni, "Scalable Design of Multi-Bit Ferroelectric Content Addressable Memory for Data-Centric Computing", in the *IEEE International Electron Devices Meeting (IEDM)*, 2020. ([fabricated chip using NVM technology](#))
- [C68] **M. Imani**, S. Pampana, S. Gupta, Y. Kim, M. Zhou, T. Rosing, "DUAL: Acceleration of Clustering Algorithms using Digital-based Processing In-Memory", in the *IEEE/ACM International Symposium on Microarchitecture (MICRO)*, 2020.
- [C67] C. Chen, S. Yang, W. Qian, **M. Imani**, X. Yin, C. Zhou, "Optimally Approximated and Unbiased Floating-Point Multiplier with Runtime Configurability", in the *IEEE/ACM International Conference On Computer Aided Design (ICCAD)*, 2020. ([Best Paper Candidate](#))
- [C66] S. Gupta, J. Morris, **M. Imani**, R. Ramkumar, J. Yu, A. Tiwari, B. Aksanli, T. Rosing, "THRIFT: Training with Hyperdimensional Computing across Flash Hierarchy", in the *IEEE/ACM International Conference On Computer Aided Design (ICCAD)*, 2020.
- [C65] S. Gupta, **M. Imani**, H. Zhao, F. Wu, J. Zhao, T. Rosing, "Implementing Binary Neural Networks in Memory with Approximate Accumulation", in the *IEEE/ACM International Symposium on Low Power Electronics and Design (ISLPED)*, 2020.
- [C64] **M. Imani**, M. Samragh, Y. Kim, S. Gupta, F. Koushanfar, T. Rosing, "Deep Learning Acceleration with Neuron-to-Memory Transformation", *IEEE International Symposium on High-Performance Computer Architecture (HPCA)*, 2020 (acceptance rate 19.3%).
- [C63] H. Nejatollahi, S. Gupta, **M. Imani**, T. Rosing, R. Cammarota, N. Dutt, "CryptoPIM: In-Memory Acceleration for RLWE Lattice-based Cryptography", *IEEE/ACM Design Automation Conference (DAC)*, 2020. ([Best Paper Candidate](#))
- [C62] B. Khaleghi, **M. Imani**, T. Rosing, "Prive-HD: Privacy-Preserved Hyperdimensional Computing", *IEEE/ACM Design Automation Conference (DAC)*, 2020.
- [C61] S. Gupta, **M. Imani**, J. Sim, A. Huang, F. Wu, H. Najafi, T. Rosing, "SCRIMP: A General Stochastic Computing Architecture using ReRAM in-Memory Processing", *IEEE/ACM Design Automation and Test in Europe Conference (DATE)*, 2020.
- [C60] Y. Kim, **M. Imani**, N. Moshiri\*, T. Rosing, "GenieHD: Efficient DNA Pattern Matching Accelerator Using Hyperdimensional Computing", *IEEE/ACM Design Automation and Test in Europe Conference (DATE)*, 2020. ([Best Paper Candidate](#))
- [C59] **M. Imani**, S. Gupta, Y. Kim, T. Rosing, FloatPIM: In-Memory Acceleration of Deep Neural Network Training with High Precision, *IEEE International Symposium on Computer Architecture (ISCA)*, 2019 (acceptance rate 16.9%).
- [C58] **M. Imani**, Y. Kim, M. S. Riaz, J. Messerly, P. Liu, F. Koushanfar, T. Rosing, A Framework for Collaborative Learning in Secure High-Dimensional Space, *IEEE Cloud Computing (CLOUD)*, 2019 (acceptance rate 14.3%).

## Journals:

- [J30] P. Poduval, H. Alimohamadi, A. Zakeri, F. Imani, H. Najafi, T. Givargis, **M. Imani**, "GrapHD: Graph-based Hyperdimensional Memorization for Brain-Like Cognitive Learning", *Frontiers in Neuroscience*, 2022.
- [J29] Z. Zou, H. Alimohamadi, Y. Kim, H. Najafi, N. Srinivasa, **M. Imani**, "EventHD: Robust and Efficient Hyperdimensional Learning with Neuromorphic Sensor", *Frontiers in Neuroscience*, 2022.
- [J28] Z. Zou, H. Alimohamadi, A. Zakeri, F. Imani, Y. Kim, H. Najafi, **M. Imani**, R. Gottumukkala, "Memory-inspired spiking hyperdimensional network for robust online learning", *Nature Scientific reports*, 2022.
- [J27] M. Alam, H. Najafi, N. Taherinejad, **M. Imani**, R. Gottumukkala, "Stochastic Computing in Beyond Von-Neumann Era: Processing Bit-Streams in Memristive Memory", *IEEE Transactions on Circuits and Systems II*, 2022.
- [J26] M. Imani, **M. Imani**, S.F. Ghoreishi "Bayesian Optimization for Expensive Smooth-Varying Functions", *IEEE Intelligent Systems*, 2022.
- [J25] S. Salamat, **M. Imani**, T. Rosing, "Accelerating hyperdimensional computing on fpgas by exploiting computational reuse", *IEEE Transactions on Computers (TC)*, 2021.
- [J24] Q. Huang, D. Reis, C. Li, D. Gao, M. Niemier, X.S. Hu, **M. Imani**, X. Yin, C. Zhuo, "Computing-in-Memory Using Ferroelectrics: From Single-to Multi-Input Logic", *IEEE Design Test*, 2021.
- [J23] Q. Huang, D. Reis, C. Li, D. Gao, M. Niemier, X.S. Hu, **M. Imani**, X. Yin, C. Zhuo, "Computing-in-Memory Using Ferroelectrics: From Single-to Multi-Input Logic", *IEEE Design Test*, 2021.
- [J22] J. Morris, R. Fernando, Y. Hao, **M. Imani**, B. Aksanli, T. Rosing, "Locality-based Encoder and Model Quantization for Efficient Hyper-Dimensional Computing", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 2021.
- [J21] S. Salamat, **M. Imani**, T. Rosing, "HD-Core: Exploiting Computational Reuse for FPGA-based Acceleration of Hyperdimensional Computing", *IEEE Transactions on Computers (TC)*, 2020.
- [J20] **M. Imani**, S. Bosch, S. Datta, S. Ramakrishna, S. Salamat, J. Rabaey, T. Rosing, "QuantHD: A Quantization Framework for Hyperdimensional Computing", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 2019.
- [J19] **M. Imani**, X. Yin, J. Messerly, S. Gupta, M. Niemier, X. S. Hu, T. Rosing, "SearchHD: A Memory-Centric Hyperdimensional Computing with Stochastic Training", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 2019.
- [J18] D. Peroni, **M. Imani**, H. Nejatollahi, N. Dutt, T. Rosing, "Data Reuse for Accelerated Approximate Warps", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 2019.
- [J17] **M. Imani**, A. Morris, H. Shu, S. Li, T. Rosing, "Efficient Associative Low-Power Search in Brain-Inspired Hyperdimensional Computing for Language Recognition", *IEEE Design & Test (D&T)*, 2019.
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