Vishnu **Boddeti**

Associate Professor · Computer Science and Engineering

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Summary

My research develops AI systems with provable guarantees of fairness, privacy, and accuracy. I work across three interconnected areas: (1) auditing and mitigating bias in foundation models through optimal fairness-utility trade-offs and adversarial red-teaming, (2) cryptographically secure AI via homomorphic encryption, designing FHE-native architectures that scale to real-world deployment, and (3) physics-informed AI for scientific discovery, integrating physical laws to reduce data requirements and improve generalization. This work demonstrates that properly designed constraints (cryptographic, statistical, or physical) enable capabilities rather than limit them, providing the theoretical foundations and practical systems needed for trustworthy AI deployment in high-stakes domains.

Academic Experience

Associate Professor — *East Lansing, USA*
Michigan State University, Computer Science and Engineering — *July 2023 - Present*

Assistant Professor — *East Lansing, USA*
Michigan State University, Computer Science and Engineering — *August 2016 - June 2023*

Research Staff — *Pittsburgh, USA*
Carnegie Mellon University, CyLab — *February 2015 - July 2016*

Postdoctoral Fellow — *Pittsburgh, USA*
Carnegie Mellon University, Robotics Institute — *February 2013 - January 2015*

Supervisor: Prof. Takeo Kanade

Education

Ph.D. in Electrical and Computer Engineering — *Pittsburgh, USA*
Carnegie Mellon University — *August 2007 - December 2012*

Thesis: Advances in Correlation Filters: Vector Features, Structured Prediction and Shape Alignment
Advisor: Prof. Vijayakumar Bhagavatula, Carnegie Mellon University, USA

M.S in Electrical and Computer Engineering — *Pittsburgh, USA*
Carnegie Mellon University — *August 2007 - May 2009*

Advisor: Prof. Vijayakumar Bhagavatula

B.Tech. in Electrical Engineering — *Chennai, India*
Indian Institute of Technology Madras — *August 2003 - July 2007*

Advisor: Prof. A N Rajagopalan

Honors & Awards

Paper Awards

Best Paper Award, IEEE-CCF Cloud Computing — *2024*
Editor Highlight, Nature Communications — *October 2024*
Featured on Cover, Nature — *July 2023*
Best Paper Award Finalist, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) — *2023*
Outstanding Certification Finalist, Transactions on Machine Learning Research (TMLR) — *2023*
Best Student Paper Award, IEEE Biometrics Council Transactions on Biometric Behavior and Identity Science — *2023*
Best Student Paper Award, IEEE International Joint Conference on Biometrics (IJCB) — *2022*
Student Best Paper Award, ASME Conf. on Smart Materials, Adaptive Structures and Intelligent Systems — *2022*

Best Paper Award (EML Track), Genetic and Evolutionary Computation Conference (GECCO) *2019*
Best Student Paper Award, Asian Conference on Computer Vision (ACCV) *2018*
Best Paper Award, IEEE Conference on Biometrics: Theory, Applications, and Systems (BTAS) *2013*

Scholarships

Doctoral Consortium Fellowship, IEEE Conference on Biometrics: Theory, Applications, and Systems *2011*
Dean's Fellowship, Carnegie Mellon University *2007-2012*
Merit Scholarship, Indian Institute of Technology Madras *2003-2007*

Other Awards

Faculty Research Award, Facebook *2021*
Top Reviewer Certificate, International Conference on Machine Learning (ICML) *2020*
Outstanding Reviewer, European Conference on Computer Vision (ECCV) *2020*

Funded Research Projects

Prof. Vishnu Boddeti's research so far has been supported by 23 grants (19 external, 4 internal Michigan State University grants). The following listing provides details. The external research grants (18) are divided between NSF/NIST, government defense agencies, and industry. Total amount of external grant money raised by Prof. Boddeti at Michigan State University was $6,401,736.00 USD, with Boddeti's share of funds totaling $3,182,034.31 USD (sum of total funds × responsible percentages). Moreover, Boddeti has one pending grant proposal with NSF, as of 30th November, 2025.

Extramural

Google Cloud Research Credits *Sole PI*
Google *08/15/2025 - 12/31/2026*

Total Amount of Award: $5,000
Percentage of Funding Responsible: 100%

Tinker Research Grant *Sole PI*
Thinking Machines *10/15/2025 - Present*

Total Amount of Award: $5,000
Percentage of Funding Responsible: 100%

SCH: Fundamental Limits of Fair and Privacy-Preserving Healthcare Models *Lead PI*
National Science Foundation *08/15/2025 - 07/31/2029*

Total Amount of Award: $1,000,000
Percentage of Funding Responsible: 85%

Investigating Private-Information Leakage from Face Templates *Lead PI*
NSF CITeR *05/16/2025 - 05/15/2026*

Total Amount of Award: $50,000 (Direct Cost Only)
Percentage of Funding Responsible: 50%

On the Capacity and Uniqueness of Synthetic Face Images *Lead PI*
NSF CITeR *05/16/2024 - 05/15/2025*

Total Amount of Award: $50,000 (Direct Cost Only)
Percentage of Funding Responsible: 50%

Privacy-Preserving Biometric Matching over Homomorphically Encrypted Features *Lead PI*
NSF CITeR *05/16/2024 - 05/15/2025*

Total Amount of Award: $25,000 (Direct Cost Only)
Percentage of Funding Responsible: 50%

Neuro-Symbolic Compositional Generalization for Language and Vision Comprehension and Grounding *Co-PI*
Office of Naval Research *08/16/2023 - 08/15/2026*

Total Amount of Award: $1,799,719
Percentage of Funding Responsible: 18.75%

Fully Homomorphic Encryption in Biometrics: Phase 2 *Lead PI*

NSF CITeR *01/01/2023 - 01/31/2025*

Total Amount of Award: $70,000 (Direct Cost Only)
Percentage of Funding Responsible: 50%

FAI: Fair Representation Learning: Fundamental Trade-Offs and Algorithms *Sole PI*

National Science Foundation *08/16/2022 - 08/15/2025*

Total Amount of Award: $530,717 ($331,698 from NSF and $199,019 from Amazon)
Percentage of Funding Responsible: 100%

Fully Homomorphic Encryption in Biometrics *Lead PI*

NSF CITeR *08/16/2021 - 12/31/2022*

Total Amount of Award: $60,000 (Direct Cost Only)
Percentage of Funding Responsible: 50%

Explainable Mechanisms for Deep Neural Networks: A Biometrics Perspective *Co-PI*

NSF CITeR *08/16/2021 - 12/31/2022*

Total Amount of Award: $34,000 (Direct Cost Only)
Percentage of Funding Responsible: 33%

MSU0169 (2021) *Sole PI*

Ford Motor Company *07/01/2021 - 06/30/2023*

Total Amount of Award: $200,000
Percentage of Funding Responsible: 100%

Development of ultrafast cameras for quantum heat assisted detection and ranging (Q-HADAR) *Co-PI*

DARPA *04/01/2021 - 09/30/2022*

Total Amount of Award: $1.1M
Percentage of Funding Responsible: 12%

MoCA: Multi-Objective Co-Evolutionary Learning Agents *Co-PI*

Facebook Research Award *01/01/2021 - 12/31/2021*

Total Amount of Award: $50,000 (Direct Cost Only)
Percentage of Funding Responsible: 50%

MSU0169 (2020) *Sole PI*

Ford Motor Company *04/01/2020 - 03/31/2021*

Total Amount of Award: $100,000
Percentage of Funding Responsible: 100%

CHS:Small:A data-driven computational model of dyadic rapport: Learning and transforming nonverbal behavior in shared virtual environments *Co-PI*

National Science Foundation *10/01/2019 - 12/31/2022*

Total Amount of Award: $300,000
Percentage of Funding Responsible: 22%

Information Theoretic Measures of Data Representations *Sole PI*

National Institute of Standards and Technology *01/01/2019 - 12/31/2021*

Total Amount of Award: $300,000
Percentage of Funding Responsible: 100%

Large Scale Distributed Learning of Convolutional Neural Networks *Sole PI*

Ford Motor Company *05/16/2018 - 05/15/2020*

Total Amount of Award: $200,000
Percentage of Funding Responsible: 100%

Autonomy in the AF in 2030 *Co-PI*

Air Force Office of Scientific Research *05/01/2018 - 12/31/2018*

Total Amount of Award: $60,300
Percentage of Funding Responsible: 50%

Privacy-Preserving Matching of Face Representations *Sole PI*

EyeVerify Inc. *08/16/2017 - 08/15/2018*

Total Amount of Award: $162,000
Percentage of Funding Responsible: 100%

On the Capacity and Uniqueness of a Face Template *Co-PI*

Federal Bureau Of Investigation *05/16/2017 - 12/31/2018*

Total Amount of Award: $300,000
Percentage of Funding Responsible: 33%

Intramural Prof. Vishnu Boddeti received three internal Michigan State University grants (one from MSU Foundation and two from the BEACON center) to support students. Total amount of internal grant money raised was $579,917.00 USD, with Boddeti's share of funds totaling $225,958.50 USD.

Empowering Generative Video Models with Dynamic Visual Reasoning *Lead PI*

MSU Discretionary Funding Initiative *05/16/2025 - 12/31/2026*

Total Amount of Award: $49,917
Percentage of Funding Responsible: 50%

Coevolutionary Methods for Generative Adversarial Network (GAN) Design *Lead PI*

MSU BEACON *01/01/2021 - 12/31/2021*

Total Amount of Award: $65,000
Percentage of Funding Responsible: 50%

Evolutionary Neural Architecture Search for Network Compression *Lead PI*

MSU BEACON *01/01/2019 - 12/31/2019*

Total Amount of Award: $65,000
Percentage of Funding Responsible: 50%

Towards Situationally Aware Connected-and-Autonomous Mobility *Co-PI*

Michigan State University Strategic Partnership Grant *01/01/2019 - 12/31/2021*

Total Amount of Award: $400,000
Percentage of Funding Responsible: 34%

Publications

Book Chapters

[5] *Vishnu Naresh Boddeti*. "Homomorphic Encryption for Biometric Template Protection" 2026. Ed. by Vedrana Krivokuća Hahn, Marta Gomez-Barrero, Arun Ross, and Sébastien Marcel, pp. 133–170.

[4] Jonathon M. Smereka, *Vishnu Naresh Boddeti*, B. V. K. Vijaya Kumar. "Stacked Correlation Filters" 2018. Ed. by Mayank Vatsa, Richa Singh, and Angshul Majumdar, pp. 175–195.

[3] BVK Vijaya Kumar, Jason Thornton, Marios Savvides, *Vishnu Naresh Boddeti*, Jonathon M Smereka. "Application of correlation filters for iris recognition" 2016. Ed. by Kevin Bowyer and Mark Burge, pp. 211–228.

[2] BVK Vijaya Kumar, *Vishnu Naresh Boddeti*, Jonathon M Smereka, Jason Thornton, Marios Savvides. "Application of Bayesian Graphical Models to Iris Recognition" 2013. Ed. by C.R. Rao and Venu Govindaraju, pp. 381–398.

[1] Raghavender Jillela, Arun A Ross, *Vishnu Naresh Boddeti*, BVK Vijaya Kumar, Xiaofei Hu, Robert Plemmons, Paúl Pauca. "Iris segmentation for challenging periocular images" 2013. Ed. by Kevin Bowyer and Mark Burge, pp. 281–308.

Peer-Reviewed Journal Articles

[24] Gautam Sreekumar, *Vishnu Naresh Boddeti*. "InPhyRe Discovers: Large Multimodal Models Struggle in Inductive Physical Reasoning". *Transactions on Machine Learning*, 2026.

[23] Ehsan Naghavi, Haifeng Wang, Vahid Ziaei Rad, Julius Guccione, Ghassan Kassab, *Vishnu Naresh Boddeti*, Seungik Baek, Lik-Chuan Lee. "Rapid prediction of cardiac activation in the left ventricle with geometric deep learning: a step towards cardiac resynchronization therapy planning". *npj Digital Medicine*, 2026. (Impact Factor: 15.1).

[22] Doga Dikbayir, Abdel Alsnayyan, *Vishnu Naresh Boddeti*, Shanker Balasubramaniam, Hasan Metin Aktulga. "A data-driven framework for fast three dimensional shape reconstruction from phaseless acoustic scattering data". *Inverse Problems* 42(4): p. 045016, Apr. 2026. (Impact Factor: 2.1).

[21] Gautam Sreekumar, *Vishnu Naresh Boddeti*. "Incorporating Interventional Independence Improves Robustness against Interventional Distribution Shift". *Transactions on Machine Learning*, 2025.

[20] Ramin Akbari, Luke Sperling, Nalini Ratha, Arun Ross, *Vishnu Naresh Boddeti*. "Homomorphically Encrypted Biometric Template Fusion and Matching". *IEEE Transactions on Biometrics, Behavior, and Identity Sciences*, 2025. (Impact Factor: 5).

[19] Xuyang Li, Hamed Bolandi, Mahdi Masmoudi, Talal Salem, Ankush Jha, Nizar Lajnef, *Vishnu Naresh Boddeti*. "Mechanics-informed autoencoder enables automated detection and localization of unforeseen structural damage". *Nature Communications* 15(1): p. 9229, 2024. (Impact Factor: 14.7). (Editor's Highlight).

[18] Saeed Memari, Mantha S Phanikumar, *Vishnu Naresh Boddeti*, Narendra Das. "Turbidity assessment in coastal regions combining machine learning, numerical modeling, and remote sensing". *Journal of Hydroinformatics*, 2024. (Impact Factor: 2.2).

[17] Chuntao Ding, Zhichao Lu, Felix Juefei-Xu, *Vishnu Naresh Boddeti*, Yidong Li, Jiannong Cao. "Towards transmission-friendly and robust cnn models over cloud and device". *IEEE Transactions on Mobile Computing* 22(10): pp. 6176–6189, 2023. (Impact Factor: 7.9). (IEEE-CCF Cloud Computing Best Paper Award 2024).

[16] Fanglin Bao, Xueji Wang, Shree Hari Sureshbabu, Gautam Sreekumar, Liping Yang, Vaneet Aggarwal, *Vishnu Naresh Boddeti*, Zubin Jacob. "Heat-Assisted Detection and Ranging". *Nature* 619(7971): pp. 743–748, 2023. (Cover of Nature).

[15] Hamed Bolandi, Gautam Sreekumar, Xuyang Li, Nizar Lajnef, *Vishnu Naresh Boddeti*. "Physics Informed Neural Network for Dynamic Stress Prediction". *Applied Intelligence*, 2023. (Impact Factor: 5.3).

[14] Zhichao Lu, Chuntao Ding, Felix Juefei-Xu, *Vishnu Naresh Boddeti*, Shangguang Wang, Yun Yang. "TFormer: A Transmission-Friendly ViT Model for IoT Devices". *IEEE Transactions on Parallel and Distributed System* 34(2): pp. 598–610, 2023. (Impact Factor: 5.3).

[13] Bashir Sadeghi, Sepehr Dehdashtian, *Vishnu Naresh Boddeti*. "On Characterizing the Trade-off in Invariant Representation Learning". *Transactions on Machine Learning*, 2022. (Impact Factor: N/A). (Featured Certification, Outstanding Certification Finalist).

[12] Hamed Bolandi, Xuyang Li, Talal Salem, *Vishnu Naresh Boddeti*, Nizar Lajnef. "Deep learning paradigm for prediction of stress distribution in damaged structural components with stress concentrations". *Advances in Engineering Software* 173: p. 103240, 2022. (Impact Factor: 4.8).

[11] Hamed Bolandi, Xuyang Li, Talal Salem, *Vishnu Naresh Boddeti*, Nizar Lajnef. "Bridging Finite Element and Deep Learning: High-Resolution Stress Distribution Prediction in Structural Components". *Frontiers of Structural and Civil Engineering*, 2022. (Impact Factor: 3.252).

[10] Joshua J Engelsma, Anil K Jain, *Vishnu Naresh Boddeti*. "HERS: Homomorphically encrypted representation search". *IEEE Transactions on Biometrics, Behavior, and Identity Science* 4(3): pp. 349–360, 2022. (Impact Factor: 5). (TBIOM Best Student Paper Award 2023, Trustworthy Biometrics Special Issue).

[9] Zhichao Lu, Gautam Sreekumar, Erik Goodman, Wolfgang Banzhaf, Kalyanmoy Deb, *Vishnu Naresh Boddeti*. "Neural Architecture Transfer". *IEEE Transactions on Pattern Analysis and Machine Intelligence* 43(9): pp. 2971–2989, 2021. (Impact Factor: 24.314). (AutoML Special Issue).

[8] Zhichao Lu, Ian Whalen, Yashesh Dhebar, Kalyanmoy Deb, Erik Goodman, Wolfgang Banzhaf, *Vishnu Naresh Boddeti*. "Multi-Criterion Evolutionary Design of Deep Convolutional Neural Networks". *IEEE Transactions on Evolutionary Computation* 25(2): pp. 277–291, 2020. (Impact Factor: 16.497).

[7] Bashir Sadeghi, Runyi Yu, *Vishnu Naresh Boddeti*. "Constrained Sampling: Optimum Reconstruction in Subspace with Minimax Regret Constraint". *IEEE Transactions on Signal Processing* 67(16): pp. 4218–4230, 2019. (Impact Factor: 4.875).

[6] Hironori Hattori, Namhoon Lee, *Vishnu Naresh Boddeti*, Fares Beainy, Kris M Kitani, Takeo Kanade. "Synthesizing a Scene-Specific Pedestrian Detector and Pose Estimator for Static Video Surveillance". *International Journal of Computer Vision (IJCV)* 126(9): pp. 1027–1044, 2018. (Impact Factor: 13.369).

[5] Jonathon M Smereka, *Vishnu Naresh Boddeti*, BVK Vijaya Kumar. "Probabilistic deformation models for challenging periocular image verification". *IEEE Transactions on Information Forensics and Security (TIFS)* 10(9): pp. 1875–1890, 2015. (Impact Factor: 7.231).

[4] Joseph A Fernandez, *Vishnu Naresh Boddeti*, Andres Rodriguez, BVK Vijaya Kumar. "Zero-aliasing correlation filters for object recognition". *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)* 37(8): pp. 1702–1715, 2015. (Impact Factor: 24.314).

[3] *Vishnu Naresh Boddeti*, BVK Vijaya Kumar. "A framework for binding and retrieving class-specific information to and from image patterns using correlation filters". *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)* 35(9): pp. 2064–2077, 2013. (Impact Factor: 24.314).

[2] Andres Rodriguez, *Vishnu Naresh Boddeti*, BVK Vijaya Kumar, Abhijit Mahalanobis. "Maximum margin correlation filter: A new approach for localization and classification". *IEEE Transactions on Image Processing (TIP)* 22(2): pp. 631–643, 2013. (Impact Factor: 11.041).

[1] *Vishnu Naresh Boddeti*, BVK Vijaya Kumar. "Extended-depth-of-field iris recognition using unrestored wavefront-coded imagery". *IEEE Transactions on Systems, Man, and Cybernetics-Part A: Systems and Humans (SMC-A)* 40(3): pp. 495–508, 2010. (Impact Factor: 11.471).

Peer-Reviewed Conference Proceedings

[62] Mashrur Morshed, *Vishnu Naresh Boddeti*. "Compositional Generative Modeling from Decentralized Data". *International Conference on Machine Learning (ICML)*, 2026. (Acceptance Rate: 26.6%)

[61] Sepehr Dehdashtian, Jacob Seidman, *Vishnu Naresh Boddeti*, Gaurav Bharaj. "FoeGlass: When Simple In-Context Learning Is Enough for Red Teaming Audio Deepfake Detectors". *International Conference on Machine Learning (ICML)*, 2026. (Acceptance Rate: 26.6%)

[60] Sepehr Dehdashtian, Mashrur M. Morshed, Jacob H Seidman, Gaurav Bharaj, *Vishnu Naresh Boddeti*. "PolyJuice Makes It Real: Black-Box, Universal Red-Teaming for Synthetic Image Detectors". *Advances in Neural Information Processing Systems (NeurIPS)*, 2025. (Acceptance Rate: 24.52%)

[59] Ramin Akbari*, Milad Afshari*, *Vishnu Naresh Boddeti*. "Obliviator Reveals the Cost of Nonlinear Guardedness in Concept Erasure". *Advances in Neural Information Processing Systems (NeurIPS)*, 2025. (Acceptance Rate: 24.52%)

[58] Arjun Ramesh Kaushik, Bharat Chandra Yalavarthi, Arun Ross, *Vishnu Naresh Boddeti*, Nalini Ratha. "Shielding Latent Face Representations From Privacy Attacks". *IEEE International Conference on Automatic Face and Gesture Recognition (FG)*, 2025

[57] Wei Ao, *Vishnu Naresh Boddeti*. "CryptoFace: End-to-End Encrypted Face Recognition". *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2025. (Acceptance Rate: 22.1%)

[56] Lan Wang, Wei Ao, *Vishnu Naresh Boddeti*, Ser-Nam Lim. "Generative Zero-Shot Composed Image Retrieval". *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2025. (Acceptance Rate: 22.1%)

[55] Mashrur M. Morshed, *Vishnu Naresh Boddeti*. "DiverseFlow: Sample-Efficient Diverse Mode Coverage in Flows". *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2025. (Acceptance Rate: 22.1%)

[54] Lan Wang, Yujia Chen, Du Tran, *Vishnu Naresh Boddeti*, Wen-Sheng Chu. "SEAL: Semantic Attention Learning for Long Video Representation". *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2025 (Oral). (Acceptance Rate: 0.74% for Oral)

[53] Sachit Gaudi, Gautam Sreekumar, *Vishnu Naresh Boddeti*. "CoInD: Enabling Logical Compositions in Diffusion Models". *International Conference on Learning Representations (ICLR)*, 2025. (Acceptance Rate: 32.08%)

[52] Sepehr Dehdashtian, Gautam Sreekumar, *Vishnu Naresh Boddeti*. "OASIS Uncovers: High-Quality T2I Models, Same Old Stereotypes". *International Conference on Learning Representations (ICLR)*, 2025 (Spotlight). (Acceptance Rate: 5.1% for Spotlight)

[51] Bharat Chandra Yalavarthi, Arjun Ramesh Kaushik, Arun Ross, *Vishnu Naresh Boddeti*, Nalini K. Ratha. "Enhancing Privacy in Face Analytics Using Fully Homomorphic Encryption". *IEEE International Conference on Automatic Face and Gesture Recognition (FG)*, 2024

[50] Abeba Birhane*, Sepehr Dehdashtian*, Vinay Prabhu, *Vishnu Naresh Boddeti*. "The Dark Side of Dataset Scaling: Evaluating Racial Classification in Multimodal Models". *ACM Conference on Fairness, Accountability, and Transparency (FAccT)*, 2024

[49] Sepehr Dehdashtian, Bashir Sadeghi, *Vishnu Naresh Boddeti*. "Utility-Fairness Trade-Offs and How to Find Them". *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024. (Acceptance Rate: 23.6%)

[48] Sepehr Dehdashtian*, Lan Wang*, *Vishnu Naresh Boddeti*. "FairerCLIP: Debiasing Zero-Shot Predictions of CLIP in RKHSs". *International Conference on Learning Representations (ICLR)*, 2024. (Acceptance Rate: 30.8%)

[47] Wei Ao, *Vishnu Naresh Boddeti*. "AutoFHE: Automated Adaption of CNNs for Efficient Evaluation over FHE". *USENIX Security Symposium*, 2024. (Acceptance Rate: 18.32%)

[46] Tilak Sharma, Mahika Wason, *Vishnu Naresh Boddeti*, Arun Ross, Nalini Ratha. "Fully Homomorphic Encryption Operators for Score and Decision Fusion in Biometric Identification". *IEEE International Workshop on Information Forensics and Safety (WIFS)*, 2023. (Acceptance Rate: N/A)

[45] Abeba Birhane, Vinay Prabhu, Sanghyun Han, *Vishnu Naresh Boddeti*, Sasha Luccioni. "Into the LAION's Den: Investigating hate in multimodal datasets". *Advances in Neural Information Processing Systems*, 2023. (Acceptance Rate: 26.46%).

[44] Stephen Kelly, Daniel Park, Xingyou Song, Mitchell McIntire, Pranav Nashikkar, Ritam Guha, Wolfgang Banzhaf, Kalyanmoy Deb, *Vishnu Naresh Boddeti*, Jie Tan, Esteban Real. "Discovering Adaptable Symbolic Algorithms from Scratch". *International Conference on Intelligent Robots and Systems (IROS)*, 2023 (Oral, Best Paper Award Finalist). (Acceptance Rate: 12/2,760 (0.43%) for Best Paper Award Finalist)

[43] *Vishnu Naresh Boddeti*, Gautam Sreekumar, Arun Ross. "On the Biometric Capacity of Generative Face Models". *International Joint Conference on Biometrics (IJCB)*, 2023. (Acceptance Rate: 36.2%)

[42] Ritam Guha, Wei Ao, Stephen Kelly, *Vishnu Naresh Boddeti*, Erik Goodman, Wolfgang Banzhaf, Kalyanmoy Deb. "MOAZ: A Multi-Objective AutoML-Zero Framework". *Genetic and Evolutionary Computation Conference (GECCO)*, 2023. (Acceptance Rate: 34.7%)

[41] Zhichao Lu, Chuntao Ding, Shangguang Wang, Felix Juefei-Xu, *Vishnu Naresh Boddeti*. "Seed Feature Maps-based CNN Models for LEO Satellite Remote Sensing Services". *IEEE International Conference on Web Services (ICWS)*, 2023. (Acceptance Rate: N/A)

[40] Chuntao Ding, Zhichao Lu, Shangguang Wang, Ran Cheng, *Vishnu Naresh Boddeti*. "Mitigating Task Interference in Multi-Task Learning via Explicit Task Routing with Non-Learnable Primitives". *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023. (Acceptance Rate: 25.8%)

[39] **Lan Wang, Gaurav Mittal, Sandra Sajeev, Ye Yu, Matthew Hall, *Vishnu Naresh Boddeti*, Mei Chen**. "ProTéGé: Untrimmed Pretraining for Video Temporal Grounding by Video Temporal Grounding". *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023. (Acceptance Rate: 25.8%)

[38] **Shihua Huang, Zhichao Lu, Kalyanmoy Deb, *Vishnu Naresh Boddeti***. "Revisiting Residual Networks for Adversarial Robustness". *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023. (Acceptance Rate: 25.8%)

[37] **Luke Sperling, Nalini Ratha, Arun Ross, *Vishnu Naresh Boddeti***. "HEFT: Homomorphically Encrypted Fusion of Biometric Templates". *International Joint Conference on Biometrics*, 2022 (Oral, Best Student Paper Award). (Acceptance Rate: 15% for Oral)

[36] **Xuyang Li, Talal Salem, Hamed Bolandi, *Vishnu Naresh Boddeti*, Nizar Lajnef**. "Methods For The Rapid Detection Of Boundary Condition Variations in Structural Systems". *Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, 2022 (Oral, Student Best Paper Award). (Acceptance Rate: N/A)

[35] **Lan Wang, *Vishnu Naresh Boddeti***. "Do learned representations respect causal relationships?" *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 264–274, 2022. (Acceptance Rate: 25%)

[34] **Rahul Dey, *Vishnu Naresh Boddeti***. "Generating Diverse 3D Reconstructions from a Single Occluded Face Image". *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 1547–1557, 2022. (Acceptance Rate: 25%)

[33] **Rahul Dey, *Vishnu Naresh Boddeti***. "3DFaceFill: An Analysis-By-Synthesis Approach to Face Completion". *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, pp. 1586–1595, 2022. (Acceptance Rate: 35%)

[32] **Kuldeep Purohit, Maitreya Suin, AN Rajagopalan, *Vishnu Naresh Boddeti***. "Spatially-adaptive image restoration using distortion-guided networks". *IEEE/CVF International Conference on Computer Vision (ICCV)*, pp. 2309–2319, 2021. (Acceptance Rate: 26%)

[31] **Bashir Sadeghi, Lan Wang, *Vishnu Naresh Boddeti***. "Adversarial Representation Learning With Closed-Form Solvers". *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD)*, pp. 731–748, 2021. (Acceptance Rate: 21%)

[30] **Anirudh Suresh, Jaturong Kongmanee, Kalyanmoy Deb, *Vishnu Naresh Boddeti***. "Multi-objective Coevolution and Decision-making for Cooperative and Competitive Environments". *IEEE Congress on Evolutionary Computation*, pp. 1601–1608, 2021. (Acceptance Rate: 60%)

[29] **Anirudh Suresh, Kalyanmoy Deb, *Vishnu Naresh Boddeti***. "Towards Multi-objective Co-evolutionary Problem Solving". *Evolutionary Multi- Criterion Optimization*, pp. 139–151, 2021. (Acceptance Rate: 51%)

[28] **Zhichao Lu, Kalyanmoy Deb, Erik Goodman, Wolfgang Banzhaf, *Vishnu Naresh Boddeti***. "NSGANetV2:Evolutionary Multi-Objective Surrogate-Assisted Neural Architecture Search". *European Conference on Computer Vision (ECCV)*, pp. 35–51, 2020 (Oral). (Acceptance Rate: 2% for oral)

[27] **Zhichao Lu, Kalyanmoy Deb, *Vishnu Naresh Boddeti***. "MUXConv: Information Multiplexing in Convolutional Neural Networks". *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 12044–12053, 2020. (Acceptance Rate: 22.1%)

[26] **Bashir Sadeghi, Runyi Yu, *Vishnu Naresh Boddeti***. "On the Global Optima of Kernelized Adversarial Representation Learning". *IEEE Conference on Computer Vision (ICCV)*, pp. 7971–7979, 2019. (Acceptance Rate: 25%)

[25] **Zhichao Lu, Ian Whalen, *Vishnu Naresh Boddeti*, Yashesh Dhebar, Kalyanmoy Deb, Erik Goodman, Wolfgang Banzhaf**. "NSGA-NET: A Multi-Objective Genetic Algorithm for Neural Architecture Search". *Genetic and Evolutionary Computation Conference (GECCO)*, pp. 419–427, 2019 (Oral, EML Best Paper Award). (Acceptance Rate: 35%)

[24] **Sixue Gong, *Vishnu Naresh Boddeti*, Anil K Jain**. "On the Intrinsic Dimensionality of Image Representations". *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 3987–3996, 2019. (Acceptance Rate: 25%)

[23] **Proteek Chandan Roy, *Vishnu Naresh Boddeti***. "Mitigating Information Leakage in Image Representations: A Maximum Entropy Approach". *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 2586–2594, 2019 (Oral). (Acceptance Rate: 5.58% for oral)

[22] **Rahul Dey, Felix Juefei-Xu, *Vishnu Naresh Boddeti*, Marios Savvides**. "RankGAN: A Maximum Margin Ranking GAN for Generating Faces". *Asian Conference on Computer Vision (ACCV)*, pp. 3–18, 2018 (Oral, Best Student Paper Award). (Acceptance Rate: 25%)

[21] ***Vishnu Naresh Boddeti***. "Secure Face Matching Using Fully Homomorphic Encryption". *IEEE International Conference on Biometrics: Theory, Applications, and Systems (BTAS)*, pp. 1–10, 2018 (Oral). (Acceptance Rate: 36%)

[20] **Felix Juefei-Xu, *Vishnu Naresh Boddeti*, Marios Savvides**. "Perturbative Neural Networks". *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 3310–3318, 2018. (Acceptance Rate: 29.1%)

[19] **Donghyun Yoo, Haoqi Fan, *Vishnu Naresh Boddeti*, Kris M Kitani**. "Efficient K-Shot Learning with Regularized Deep Networks". *AAAI Conference on Artificial Intelligence (AAAI)*, pp. 4382–4389, 2018. (Acceptance Rate: 24.6%)

[18] **Ryohei Funakoshi, *Vishnu Naresh Boddeti*, Kris Kitani, Hideki Koike**. "Video segmentation and stabilization for BallCam". *Augmented Human International Conference*, pp. 1–2, 2017. (Acceptance Rate: 54%)

[17] **Ryo Yonetani, *Vishnu Naresh Boddeti*, Kris M Kitani, Yoichi Sato**. "Privacy-preserving visual learning using doubly permuted homomorphic encryption". *IEEE International Conference on Computer Vision (ICCV)*, pp. 2040–2050, 2017. (Acceptance Rate: 28.9%)

[16] **Felix Juefei-Xu, *Vishnu Naresh Boddeti*, Marios Savvides**. "Local Binary Convolutional Neural Networks". *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 19–28, 2017 (Spotlight Oral). (Acceptance Rate: 5.3% for spotlight oral)

[15] Ryohei Funakoshi, *Vishnu Naresh Boddeti*, Kris Kitani, Hideki Koike. "Activity-Aware Video Stabilization for BallCam". *Annual Symposium on User Interface Software and Technology (UIST)*, pp. 197–198, 2016. (Acceptance Rate: 20.6%)

[14] Jonathon M Smereka, *Vishnu Naresh Boddeti*, BVK Vijaya Kumar, Andres Rodriguez. "Stacked correlation filters for biometric verification". *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 2104–2108, 2016. (Acceptance Rate: 47%)

[13] Hironori Hattori, Vishnu Naresh Boddeti, Kris M Kitani, Takeo Kanade. "Learning scene-specific pedestrian detectors without real data". *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 3819–3827, 2015. (Acceptance Rate: 28.4%)

[12] Andy Zeng, *Vishnu Naresh Boddeti*, Kris M Kitani, Takeo Kanade. "Face Alignment Refinement". *IEEE Winter Conference on Applications of Computer Vision (WACV)*, pp. 162–169, 2015. (Acceptance Rate: 36.7%)

[11] BVK Vijaya Kumar, Joseph A Fernandez, Andres Rodriguez, *Vishnu Naresh Boddeti*. "Recent advances in correlation filter theory and application". *Optical Pattern Recognition XXV*, 2014. (Acceptance Rate: N/A)

[10] Yair Movshovitz-Attias, *Vishnu Naresh Boddeti*, Zijun Wei, Yaser Sheikh. "3D Pose-by-Detection of Vehicles via Discriminatively Reduced Ensembles of Correlation Filters." *British Machine Vision Conference (BMVC)*, 2014. (Acceptance Rate: 30%)

[9] Stephen Siena, *Vishnu Naresh Boddeti*, BVK Vijaya Kumar. "Maximum-margin coupled mappings for cross-domain matching". *IEEE International Conference on Biometrics: Theory, Applications and Systems (BTAS)*, 2013 (Oral, Best Paper Award). (Acceptance Rate: exact number unknown, usually around 30%)

[8] *Vishnu Naresh Boddeti*, Takeo Kanade, BVK Vijaya Kumar. "Correlation filters for object alignment". *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 2291–2298, 2013. (Acceptance Rate: 26.2%)

[7] Md Maruf Monwar, BVK Vijayakumar, *Vishnu Naresh Boddeti*, Jonathon M Smereka. "Rank information fusion for challenging ocular image recognition". *IEEE International Conference on Cognitive Informatics & Cognitive Computing (ICCI*CC)*, pp. 175–181, 2013. (Acceptance Rate: N/A)

[6] Ilari Shafer, Kai Ren, *Vishnu Naresh Boddeti*, Yoshihisa Abe, Gregory R Ganger, Christos Faloutsos. "Rainmon: an integrated approach to mining bursty timeseries monitoring data". *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*, pp. 1158–1166, 2012 (Oral). (Acceptance Rate: 17.6%)

[5] Arun Ross, Raghavender Jillela, Jonathon M Smereka, *Vishnu Naresh Boddeti*, BVK Vijaya Kumar, Ryan Barnard, Xiaofei Hu, Paul Pauca, Robert Plemmons. "Matching highly non-ideal ocular images: An information fusion approach". *International Conference on Biometrics (ICB)*, pp. 446–453, 2012 (Oral). (Acceptance Rate: 15% for oral)

[4] *Vishnu Naresh Boddeti*, BVK Vijaya Kumar, Krishnan Ramkumar. "Improved iris segmentation based on local texture statistics." *Asilomar Conference on Signals, Systems and Computers (ACSSC)*, pp. 2147–2151, 2011. (Acceptance Rate: N/A)

[3] *Vishnu Naresh Boddeti*, Jonathon M Smereka, BVK Vijaya Kumar. "A comparative evaluation of iris and ocular recognition methods on challenging ocular images". *International Joint Conference on Biometrics (IJCB)*, 2011 (Oral). (Acceptance Rate: 10% for oral)

[2] *Vishnu Naresh Boddeti*, Fei Su, B. V. K. Vijaya Kumar. "A biometric key-binding and template protection framework using correlation filters". *International Conference on Biometrics (ICB)*, pp. 919–929, 2009. (Acceptance Rate: exact number unknown, usually around 30%)

[1] *Vishnu Naresh Boddeti*, B. V. K. Vijaya Kumar. "Extended depth of field iris recognition with correlation filters". *IEEE International Conference on Biometrics: Theory, Applications and Systems (BTAS)*, 2008 (Oral). (Acceptance Rate: exact number unknown, usually around 10% for oral)

Invited Papers

[1] Zhichao Lu, Ian Whalen, Yashesh Dhebar, Kalyanmoy Deb, Erik Goodman, Wolfgang Banzhaf, *Vishnu Naresh Boddeti*. "NSGA-Net: Neural Architecture Search using Multi-Objective Genetic Algorithm (Extended Abstract)". *International Joint Conference on Artificial Intelligence (IJCAI)*, pp. 4750–4754, 2020

Peer-Reviewed Workshop Papers

[14] Mahdi Masmoudi, Xuyang Li, Rami Gharbi, Nizar Lajnef, *Vishnu Naresh Boddeti*. "UNED: One-shot Uncertainty-aware Neural Experimental Design for Transient PDEs". *Workshop on AI & PDE at ICLR*, 2026

[13] Xuyang Li, Mahdi Masmoudi, Rami Gharbi, Nizar Lajnef, *Vishnu Naresh Boddeti*, John Harlim, Romit Maulik. "Neural-VSI: Variational System Identification of Structural Parameter Fields in High-Order PDEs". *Workshop on AI & PDE at ICLR*, 2026

[12] Amina Bassit, *Vishnu Naresh Boddeti*. "SecureRAG: End-to-End Secure Retrieval-Augmented Generation". *Workshop on GenAI for Health Potential, Trust, and Policy Compliance at NeurIPS*, 2025

[11] Sachit Gaudi, Gautam Sreekumar, *Vishnu Naresh Boddeti*. "Spurious Correlations in Diffusion Models and How to Fix Them". *Workshop on Spurious Correlation and Shortcut Learning at ICLR*, 2025

[10] Sachit Gaudi, Gautam Sreekumar, *Vishnu Naresh Boddeti*. "Diffusion Models Do Not Implicitly Learn Conditional Independence". *Workshop on Deep Generative Model in Machine Learning: Theory, Principle and Efficacy at ICLR*, 2025

[9] Sachit Gaudi, Gautam Sreekumar, *Vishnu Naresh Boddeti*. "Compositional World Knowledge leads to High Utility Synthetic data". *Workshop on Synthetic Data at ICLR*, 2025

[8] Mahdi Masmoudi, Xuyang Li, Nizar Lajnef, ***Vishnu Naresh Boddeti***. "ParaFIND: Parameter Field Inference on Non-uniform Domains using Neural Network". *NeurIPS 2024 Workshop on Data-driven and Differentiable Simulations, Surrogates, and Solvers*

[7] Rahul Dey, Tim Marks, Bernhard Egger, Ye Wang, ***Vishnu Naresh Boddeti***. "CoLa-SDF: Controllable Latent StyleSDF for Disentangled 3D Face Generation". *Neural Rendering Intelligence Workshop at CVPR*, 2024

[6] Xuyang Li, Mahdi Masmoudi, Nizar Lajnef, ***Vishnu Naresh Boddeti***. "Estimating field parameters in multiphysics governing equations from scarce observations". *Workshop on AI4DifferentialEquations in Science at ICLR*, 2024

[5] Gautam Sreekumar, ***Vishnu Naresh Boddeti***. "Spurious Correlations and Where to Find Them". *The Second Workshop on Spurious Correlations, Invariance and Stability at ICML*, 2023

[4] Xuyang Li, Hamed Bolandi, Talal Salem, Nizar Lajnef, ***Vishnu Naresh Boddeti***. "NeuralSI: Structural Parameter Identification in Nonlinear Dynamical Systems". *European Conference on Computer Vision Workshops*, 2022. (Acceptance Rate: N/A)

[3] Bashir Sadeghi, ***Vishnu Naresh Boddeti***. "Imparting fairness to pre-trained biased representations". *IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, pp. 16–17, 2020. (Acceptance Rate: N/A)

[2] Bashir Sadeghi, Lan Wang, ***Vishnu Naresh Boddeti***. "Adversarial Representation Learning With Closed-Form Solvers". *IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, 2020. (Acceptance Rate: N/A)

[1] Stephen Siena, ***Vishnu Naresh Boddeti***, BVK Vijaya Kumar. "Coupled marginal fisher analysis for low-resolution face recognition". *European Conference on Computer Vision Workshop (ECCVW)*, pp. 240–249, 2012. (Acceptance Rate: N/A)

Technical Reports

[10] Sepehr Dehdashtian, Ruozhen He, Yi Li, Guha Balakrishnan, Nuno Vasconcelos, Vicente Ordonez, ***Vishnu Naresh Boddeti***. *Fairness and Bias Mitigation in Computer Vision: A Survey*. *arXiv:2408.02464* 2024.

[9] Lan Wang, ***Vishnu Naresh Boddeti***, Sernam Lim. "Action Reimagined: Text-to-Pose Video Editing for Dynamic Human Actions". *arXiv:2403.07198*, 2024.

[8] Abeba Birhane, Vinay Prabhu, Sang Han, ***Vishnu Naresh Boddeti***. "On Hate Scaling Laws For Data-Swamps". *arXiv:2306.13141*, 2023.

[7] Hamed Bolandi, Gautam Sreekumar, Xuyang Li, Nizar Lajnef, ***Vishnu Naresh Boddeti***. "Neuro-DynaStress: Predicting Dynamic Stress Distributions in Structural Components". *arXiv:2301.02580*, 2023.

[6] Sixue Gong, ***Vishnu Naresh Boddeti***, Anil K Jain. "On the Capacity of Face Representation". *arXiv:1709.10433*, 2017.

[5] ***Vishnu Naresh Boddeti***, Myung-Cheol Roh, Jongju Shin, Takaharu Oguri, Takeo Kanade. "Face alignment robust to pose, expressions and occlusions". *arXiv:1707.05938*, 2017.

[4] Dipan K Pal, ***Vishnu Naresh Boddeti***, Marios Savvides. "Emergence of Selective Invariance in Hierarchical Feed Forward Networks". *arXiv:1701.08837*, 2017.

[3] Yubo Zhang, ***Vishnu Naresh Boddeti***, Kris M Kitani. "Gesture-based Bootstrapping for Egocentric Hand Segmentation". *arXiv:1612.02889*, 2016.

[2] Jonathan Shen, Noranart Vesdapunt, ***Vishnu Naresh Boddeti***, Kris M Kitani. "In Teacher We Trust: Learning Compressed Models for Pedestrian Detection". *arXiv:1612.00478*, 2016.

[1] ***Vishnu Naresh Boddeti***, BVK Kumar. "Maximum margin vector correlation filter". *arXiv:1404.6031*, 2014.

Patents

[8] Robert Parenti, Adil Siddiqui, Mahmoud Yousef Ghannam, ***Vishnu Naresh Boddeti***. *Enhanced sensor operation* Aug. 2022. US Patent App. 17/171,352.

[7] Beau Robertson Parry, ***Vishnu Naresh Boddeti***. *Method and apparatus for authentication of a user to a server using relative movement* June 2022. US Patent App. 17/571,358.

[6] Beau Robertson Parry, ***Vishnu Naresh Boddeti***. *Method and apparatus for authentication of a user to a server using relative movement* Feb. 2022. US Patent 11,245,693.

[5] Beau Robertson Parry, ***Vishnu Naresh Boddeti***. *Method and apparatus for authentication of a user to a server using relative movement* Feb. 2020. US Patent 10,565,362.

[4] Beau Robertson Parry, ***Vishnu Naresh Boddeti***. *Method and apparatus for authentication of a user to a server using relative movement* Aug. 2018. US Patent 10,049,203.

[3] Beau Robertson Parry, ***Vishnu Naresh Boddeti***. *Authentication method using liveness verification* Mar. 2017. US Patent 9,600,649.

[2] Beau Robertson Parry, ***Vishnu Naresh Boddeti***, Srikanth Parupati. *Systems, methods and apparatus for multivariate authentication* Feb. 2015. US Patent 8,949,619.

[1] Beau Robertson Parry, ***Vishnu Naresh Boddeti***. *Systems, methods and apparatus for multivariate authentication* Sept. 2015. US Patent 9,137,246.

Invited Talks

The Art of Unseeing Ghosts in our Data — *Riverside, CA*
UC Riverside RAISE Seminar Series — *January 2026*

Encrypted Biometric Systems — *Online*
JP Morgan Chase — *July 2025*

Measuring and Mitigating Bias in AI — *Online*
Ethical AI and High-Performance Computing Seminar — *June 2025*

A Roadmap for Next Generation Biometric Template Protection — *Martigny, Switzerland*
Martigny Biometrics Workshop — *May 2025*

Let's Talk ChatGPT — *East Lansing, MI*
CE271 Guest Lecture — *April 2025*

Rethinking AI Architectures for Data and Circuit Privacy — *Seattle, WA*
AMS Special Session on AI meets Cryptography — *January 2025*

Co-Designing AI and Homomorphic Architectures for Secure AI — *Online*
Google Pixel Biometrics Seminar — *December 2024*

Homomorphic Encryption for Secure Biometrics — *Online*
Biometrics Interagency Working Group: Research and Prototyping — *November 2024*

Biometric Privacy and Security — *Buffalo, NY*
Biometric Privacy and Security Tutorial at IJCB — *September 2024*

Measuring and Mitigating Bias in AI — *Online*
International Workshop on Deep Learning and Artificial Intelligence (DLAI8) — *July 2024*

Designing CNNs for Secure Inference — *Online*
Multi-Objective Machine Learning Tutorial at WCCI — *July 2024*

On the Capacity and Uniqueness of Synthetic Face Images — *Online*
CITeR Webinar Series — *April 2024*

Let's Talk ChatGPT — *DeWitt, MI*
DeWitt District Library — *January 2024*

The Utility-Fairness Trade-Offs in Learning Fair Representations — *Detroit, MI*
Wayne State University (CSE Graduate Seminar) — *October 2023*

Designing CNNs for Secure Inference — *Vancourver, BC*
TrustML Workshop at University of British Columbia — *June 2023*

Designing CNNs for Secure Inference — *Vancourver, BC*
Multi-Objective Optimization for Deep Learning CVPR Tutorial — *June 2023*

Homomorphically Encrypted Biometric Template Fusion — *Online*
Norwegian Biometrics Laboratory Workshop — *March 2023*

Homomorphic Encryption for Biometric Security: Challenges, Progress and Opportunities — *Online*
Department of Homeland Security — *March 2023*

HERS: Homomorphically Encrypted Representation Search — *Abu Dhabi, UAE*
International Journal Conference on Biometrics — *Oct. 2022*

Fairness, Privacy and Efficiency in AI — *East Lansing, USA*
CSE Faculty Retreat — *Sep. 2022*

Bias in AI: Fundamental Trade-Offs and Algorithms — *East Lansing, USA*
Meeting with Provost — *May 2022*

Privacy-Preserving Computer Vision with Homomorphic Encryption — *Online*
StanleyBlack and Decker AIDA — *June 2021*

Towards Learning Semantically Controllable Representations — *Online*
Deep Learning and Artificial Intelligence Summer School 2021 — *May 2021*

Fairness and Privacy in Artificial Intelligence — *Online*
MSU RAISE — *March 2021*

Multi-Objective Neural Architecture Search — *Online*
3M Seminar — *October 2020*

Towards Fairness in Biometric Systems: Fundamental Trade-Offs and Algorithms — *Online*
German Biometrics Working Group Meeting — *Sep. 2020*

Adversarial Representation Learning With Closed-Form Solvers — *Online*
CVPR 2020 Deep Declarative Networks Workshop — *June 2020*

Towards Semantically Controllable and Secure Data Representations — *West Lafayette, USA*
Purdue University — *Jan 2020*

Towards Semantically Controllable and Secure Data Representations — *East Lansing, USA*
CMSE Brown Bag Seminar — *Jan 2020*

Advances in Deep Learning: Present and Future — *Online*
Workshop on Applied Deep Learning, IIT Mandi — *July 2019*

Mitigating Information Leakage in Image Representations: A Maximum Entropy Approach — *Long Beach, USA*
IEEE Conference on Computer Vision and Pattern Recognition — *June 2019*

On the Capacity and Intrinsic Dimensionality of Face Representations — *East Lansing, USA*
MSU Machine Learning Seminar — *Nov 2018*

Machine Learning for Connected and Autonomous Navigation — *Dearborn, USA*
Ford Global Software Symposium — *Sep 2018*

On the Capacity and Intrinsic Dimensionality of Face Representations — *Hyderabad, India*
International Institute of Information Technology — *Aug 2018*

On the Capacity and Intrinsic Dimensionality of Face Representations — *Chennai, India*
Indian Institute of Technology Madras — *Aug 2018*

On the Capacity and Intrinsic Dimensionality of Face Representations — *Ann Arbor, USA*
Midwest Vision Workshop — *March 2018*

Privacy-Preserving Distributed Visual Learning — *Chicago, USA*
Midwest Vision Workshop — *May 2017*

A Framework for Robust Fitting of High-Resolution Object Representation Models — *Cupertino, USA*
NEC Labs — *Aug 2014*

Correlation Filters: Theory and Applications — *Pittsburgh, USA*
VASC Seminar Series, Carnegie Mellon University — *Jan 2014*

Correlation Filters for Biometric Applications — *South Bend, USA*
CSE Seminar Series, University of Notre Dame — *Feb 2013*

Correlation Filters: Theory and Applications — *New Delhi, India*
IBM Research — *April 2012*

A comparative evaluation of iris and ocular recognition methods on challenging ocular images — *Washington D.C, USA*
International Joint Conference on Biometrics — *Oct 2011*

Improved Iris Segmentation Based on Local Texture Statistics — *Pacific Grove, USA*
Asilomar Conference on Signals, Systems and Computers — *Nov 2011*

Extended Depth of Field Iris Recognition with Correlation Filters — *Washington D.C, USA*
IEEE Conference on Biometrics: Theory, Applications and Systems — *Oct 2008*

Teaching Experience

Instructor - Computational Foundations of Artificial Intelligence, Michigan State University — *Fall 2023-Present*
Instructor - High School Engineering Institute, Michigan State University — *Summer 2017 - Present*
Instructor - Introduction to Artificial Intelligence, Michigan State University — *Spring 2019 - Present*
Instructor - Deep Learning, Michigan State University — *Fall 2016 - Spring 2024*
Instructor - Introduction to Computer Vision, Michigan State University — *Spring 2018*
Teaching Assistant - Digital Signal Processing, Carnegie Mellon University — *Spring 2009*
Teaching Assistant - Signals and Systems, Carnegie Mellon University — *Fall 2009*

Advising and Mentoring

PhD Supervision

Mahdi Masmoudi	PhD (Joint CSE & CEE PhD Program, co-advised)	Aug 2023 - Present
Mashrur Morshed	PhD	Jan 2023 - Present
Ramin Akbari	PhD	Jan 2023 - Present
Sepehr Dehdastian	PhD	May 2022 - Present
Wei Ao	PhD	Aug 2021 - Present
Gautam Sreekumar	PhD	Jan 2020 - Present
Lan Wang	PhD	Fall 2019 - June 2025
Anirudh Suresh	PhD (co-advised)	Jan 2022 - July 2024
Xuyang Li	PhD (Joint CSE & CEE PhD Program, co-advised)	Jan 2021 - August 2024
Shihua Huang	PhD (co-advised)	May 2022 - Spring 2023
Hamed Bolandi	PhD (Joint CSE & CEE PhD Program, co-advised)	Aug 2020 - March 2023
Bashir Sadeghi	PhD	Aug 2017 - Dec 2022
Rahul Dey	PhD	Aug 2017 - May 2023

PostDoc Supervision

Amina Bassit	PostDoc	May 2024 - December 2025
Kuldeep Purohit	PostDoc	June 2020 - September 2021

Masters and Undergraduate

Sachit Gaudi	Masters Thesis	Jan 2023 - May 2025
Yashashvini Rachamallu	Masters Student	Jan 2023 - August 2024
Erika Zheng	Masters Student	Oct 2023 - July 2024
Zhiqiang Ni	Bachelors Student	Oct 2023 - December 2023
Thinh Ly	Bachelors Student	Jan 2023 - December 2023
Xiaoxue Wang	Masters Thesis	Aug 2019 - May 2022
Joseph Baby Pallidapan	Bachelors Student	Aug 2019 - Dec 2021
James Andrew Smith	Bachelors Student	Aug 2019 - May 2020
Michael Ronayne	Bachelors Student	Jan 2018 - Dec 2018

Visitors

Guip Seo	Visitor	Nov 2025 - Feb. 2026
Chuntao Ding	Visitor	Nov 2020 - Oct. 2021
Adarsh Subramanian	Visitor	May 2023 - Aug. 2023

Academic Activities

Professional Activities

Senior Area Editor	IEEE Transactions on Information Forensics and Security	2025 - Present
Tutorial Organizer	Computer Vision over Homomorphically Encrypted Data at CVPR 2025	Feb 2025 - June 2025
Tutorial Organizer	Biometric Privacy and Security at IJCB 2024	July 2024 - September 2024
Tutorial Organizer	Multi-Objective Machine Learning at WCCI 2024	Feb 2024 - July 2024
Workshop Organizer	Federated Learning for Distributed Data Mining at KDD 2023	Mar 2023 - Aug 2023
Tutorial Organizer	Multi-Objective Optimization for Deep Learning at CVPR 2023	Feb 2023 - June 2023
Member	Michigan Artificial Intelligence Advisory Board	Jan 2019 - Dec 2019
Web Co-Chair	IEEE Conference on Face and Gesture (FG 2023)	June 2022 - Feb 2023
Tutorial Co-Chair	International Joint Conference on Biometrics (IJCB 2020)	2020
Area Chair	Conference on Neural Information Processing Systems (NeurIPS)	May 2025 - Present
Area Chair	IEEE Conference on Automated Machine Learning (AutoML-Conf)	2022 - Present
Area Chair	International Joint Conference on Biometrics (IJCB)	2022, 2025
Area Chair	IEEE Conference on Biometrics: Theory, Applications, and Systems (BTAS)	2018
Reviewer	Neural Information Processing Systems (NeurIPS)	2016 - Present
Reviewer	International Conference on Machine Learning (ICML)	2018 - Present
Reviewer	International Conference on Learning Representations (ICLR)	2020 - Present
Reviewer	IEEE Conference on Computer Vision and Pattern Recognition (CVPR)	2013 - Present
Reviewer	IEEE International Conference on Computer Vision (ICCV)	2013 - 2022
Reviewer	European Conference on Computer Vision (ECCV)	2013 - 2022
Reviewer	IEEE Conference on Biometrics: Theory, Applications, and Systems (BTAS)	2013 - 2016
Reviewer	IEEE Conference on Biometrics (ICB)	2010 - 2012
Reviewer	Transactions on Machine Learning Research	
Reviewer	International Journal of Computer Vision	
Reviewer	IEEE Transactions on Pattern Analysis and Machine Intelligence	
Reviewer	IEEE Transactions on Information Forensics and Security	

University Services

Safety Advisory Committee	College of Engineering	August 2024 - Present
Faculty Search Committee	Technology Engineering	Oct 2023 - April 2024
Curriculum Committee	Computer Science and Engineering	Aug 2020 - Dec 2020, Aug 2021 - May 2023
Faculty Search Committee	CSE and CMSE	Sep 2017 - May 2021
Graduate Recruiting Committee	Computer Science and Engineering	Sep 2016 - Aug 2017
Faculty Advisor	MSU RAISE (Registered Student Organization)	Jan 2021 - 2023

Professional Development

Course Design and Student Engagement	National Effective Teaching Institute, Purdue University	August 2022