

Vishal Chandra

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EDUCATION

MSE Electrical & Computer Engineering, University of Michigan 2024—2025

BSE Computer Engineering, University of Michigan 2021—2024
Magna Cum Laude, Minor in Mathematics

Relevant Coursework: Algorithms, Logic Design, Computer Vision, Embedded Signal Processing, Parallel Algorithms, Quantum Algorithms, Matrix Methods for Signal Processing, Graph Theory, Generative Models for Graphics, LLMs

Student Activities: Portfolio Optimization at Michigan Investment Group, Project Manager at Atlas Digital Consulting

EXPERIENCE

Michigan Robotics Laboratory for Progress *Ann Arbor, MI*
Undergraduate Research Assistant Nov 2022—Present

- Designing tailored hardware to increase energy efficiency of reinforcement learning models in mobile robotics. Furthering recent research that has demonstrated highly parallel nature and successes with GPU acceleration.
- Mapping DeepRL architectures to existing building blocks in hardware to enable to high-level synthesis of current and future approaches.

MIT Lincoln Laboratory *Lexington, MA*
Research Intern May—Aug 2024

- Conducted literature review on various paradigms for robust unsupervised object re-identification including VLM mining, adversarial methods, causal intervention, and auxiliary learning.
- Developed latent space clustering and community detection algorithms for query-free re-identification tasks.
- Contributed to two novel methods in unsupervised object re-identification and ablations of one existing work with incomplete results. Developing two publications for related venues.

University of Michigan ECE Dept. *Ann Arbor, MI*
Computer Vision Teaching Assistant Sept—Dec 2023

- Led weekly section reviewing lecture topics including frequency analysis, 3D reconstruction, and deep learning.
- Designed problem sets focused on algorithm implementations and hold weekly office hours for student questions.

Cognex Corporation *Natick, MA*
Vision Research Intern May—Aug 2023

- Developed human-in-the-loop image annotation tool to leverage existing vision and image processing models for training dataset generation in new ML applications. Ran vision models in real time in a server-side setting.
- Formulated methods for 2D surface comparison for use in vision model loss function, based on rank correlation and ideas from differential geometry. Compiled work as whitepaper and presented to large R&D audiences.

PUBLICATIONS

Chandra, V. (2024). Explainable DiGCN for Decomposition of Opaque Node Ranking Functions. Submitted in HPEC.

Chandra, V., Martinian, A., & Atlas, P. (2021). Sculptable Kaleidocycles: Visualizing Variable Cell Geometry. In Proceedings of Bridges 2021: Mathematics, Art, Music, Architecture, Culture (pp. 205–210). Tessellations Publishing.

SKILLS

Software Python, C/C++, Java, Matlab
Frameworks PyTorch, CUDA, Scikit, Qiskit
Hardware Verilog, Quartus, Modelsim, HLX

AWARDS & HONORS

Mathematics Dept. Commencement Speaker (2024)
Greylock Techfair Top Student (2022, 2023)
College of Engineering Dean's List (2021–2024)