Mridu Prashanth

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EDUCATION

Purdue University — West Lafayette, IN

Bachelor's in Computer Science & Math. Master's in Computer Science. | 3.81/4.0 GPA — *Aug. 2022 – May 2027*

- **Grad Courses**: Randomized Algorithms, Computer Vision with Deep Learning, Numerical Analysis
- **Other Courses**: Graphics, Systems, ML, AI, Linear Algebra, Abstract Algebra, Complex Analysis, Real Analysis
- **Teaching Assistant**: Algorithms (Spring 25, Spring 26), Systems (Fall 24), C (Spring 24), Tools (Fall 23)

EXPERIENCE

Undergraduate Research Assistant (under Prof. Voicu Popescu) — May 2025 – Present

Purdue CS XR Lab (Project: VECMA-3SV) — *West Lafayette, IN*

- Built a fast algorithm to compress virtual reality scenes by 80% while beating state-of-the-art field of view.
- Prototyped the single-shot ray-tracing algorithm on a custom CPU rendering pipeline, ported it to GPU shaders.
- Preserved visual fidelity (0.05% error, 0.99 Structural Similarity Index Measure, 40 dB Peak Signal to Noise Ratio).
- **Utilized**: Windows, C++, Unity, HLSL, Python, FLTK GUI toolkit.

Course Developer — June 2024 – Sept. 2025

Purdue Computer Science (CS 240: C, CS 252: Systems) — *West Lafayette, IN*

- Designed 12 programming assignments with feature specifications woven around creative stories and themes.
- Programmed auto-grader test cases in a Git production system. Used by ~720 students for automated feedback.
- **Utilized**: C, C++, Git, Unix, Bash, internal C tooling, soft skills in leading daily standups to meet deliverables.

Undergraduate Researcher — June 2024 – Aug. 2024

Purdue IDiF Summer Research Program (Project: UFZ) — *West Lafayette, IN*

- Identified 3 key urban fire hot spot types in Los Angeles and Indianapolis, led to successful NSF FIRE proposal.
- Simulated fires in 10+ hot spots to evaluate the impact of wind, humidity, and urban layout on fire spread.
- Classified zones using K-Means, graph and hierarchical clustering, and convex hull analysis.
- **Utilized**: OpenStreetMap & U-Tree dataset, Fire Dynamics Simulator, Blender, Python, Bash, Unix, Linux.

Undergraduate Research Assistant — June 2023 – May 2024

Purdue IDEAS Lab (Projects: ARTEMIS, AffectEcho) — *West Lafayette, IN*

- Predicted severity of patient's condition with 74% accuracy by training supervised learning models (SVMs, neural nets, random forest, Bayes classifier) on the Yale EMD medical dataset. Handled class imbalance using SMOTE.
- Built a visualization tool to illustrate the emotive quality of the augmented speech outputs produced by AffectEcho, as captured by a 5.4% decrease in the Mel-Cepstral Distortion score compared to state-of-the-art.
- **Utilized**: Python, PyTorch, Scikit-learn, Google API, Jupyter, Matplotlib, t-SNE for dimensionality reduction.

VOLUNTEERING

Curriculum Officer & Mentor — Jan. 2023 – May 2024

Purdue Girls Who Code — *West Lafayette, IN*

- Instructed 30+ high-school girls in web development through building a custom calculator app on Code.org.
- Curated C/C++ instructional materials for workshops at local high schools.

Event Organizer — Aug. 2022 – Aug. 2025

Hello World Hackathon, TEDxPurdueU (Design Chair), Dosa Outreach Student Assn. (President) — *West Lafayette, IN*

SKILLS

Languages: C, C++, C#, HLSL, Python, Bash, x86-64 Assembly, OpenGL

Tools, Software, Platforms: GDB, Git, Unity, Blender, Unix, Linux, Windows, Procreate, Adobe Illustrator

AWARDS

CS Corporate Partners Scholarship for Continuing Students — 2025

PURC 2nd **place award** for research talk in Purdue College of Science (for ARTEMIS) — 2024