Mridu Prashanth

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Education

Purdue University, West Lafayette, Indiana, USA — Aug 2022 – Present
BS in Computer Science (Honors) & Mathematics — Graduation: May 2026
Specialization: Computer Graphics & Machine Learning
GPA: overall 3.83/4.0, CS-only 3.84/4.0

Papers

R. K. Senthilkumaran, **M. Prashanth**, H. Viswanath, S. Kotha, K. Tiwari, and A. Bera. *ARTEMIS: AI-driven Robotic Triage Labeling and Emergency Medical Information System.* Submitted to IEEE-IROS 2024.

H. Viswanath, A. Bhattacharya, P. Jutras-Dubé, P. Gupta, **M. Prashanth**, Y. Khaitan, A. Bera. *AffectEcho: Speaker Independent and Language-Agnostic Emotion and Affect Transfer for Speech Synthesis.* Submitted to AAAI 2024.

On-Going Work

[Honors Thesis] *VECMA-3SV: Virtual Environment on-device Complexity Management Algorithm through Stochastic Single Shot Visibility.* To be submitted as a short paper to Eurographics 2026.

Presentations

VECMA-3SV: Virtual Environment on-device Complexity Management Algorithm through Stochastic Single Shot Visibility. Purdue Summer Undergraduate Research Symposium, 2025.

ARTEMIS: AI-driven Robotic Triage Labeling and Emergency Medical Information System. [Co-presented]. Purdue Spring Undergraduate Research Conference, 2024. Awarded 2nd place.

Posters

UFZs: A Novel Method to Identify Urban Fire Zones for Urban Planning. Purdue Fall Research Expo (2024) and IDiF (Institute for Digital Forestry) Summer Research Symposium (2024).

Research Experience

Purdue CS Extended Reality (XR) Lab with Dr. Voicu Popescu — May 2025 – Present
Working on *VECMA-3SV* as lead researcher and first author.

- Compressed virtual environments (VEs) by 80%: developed a novel aggressive visible set computation algorithm with better field of view during real-time on-device navigation compared to state-of-the-art
- **Indistinguishable from ground truth:** accomplished low errors 0.05%, SSIM scores 0.99, PSNR scores 40 dB (averages)
- Used Visual Studio C++ Graphics Solution & OpenGL, Fast Light Tool Kit (FLTK), Python, Unity, Meta Quest 3

Purdue Institute for Digital Forestry Summer Research Program — Jun 2024 – Oct 2024
Worked on *UFZs* as lead researcher, advised by Dr. Daniel Aliaga & Dr. Aniket Bera.

- Modeled urban layouts using Open Street Maps, U-Tree datasets, simulated fires in 10+ hot spot zones on Blender, evaluating aggravating factors like wind and humidity
- Classified zones using clustering methods (K-Means, Graph clustering, Convex hull in Python), identifying 3 key hot spot zone types in Los Angeles & Indianapolis

IDEAS Lab at Purdue with Dr. Aniket Bera — Jun 2023 – May 2024
Worked on *AffectEcho* and on *ARTEMIS* as the second author.

- **Achieved improved accuracy:** evaluated Support Vector Machine, Multi-Layer Perceptron, Random Forest, and Gaussian Naive Bayes models in PyTorch for patient's acuity classification given vital measurements, classifying acuity level 1 (most critical) with 99% accuracy
- Trained on MIMIC-IV & Yale EMD datasets; synthetically augmented using SMOTE & Google API embeddings
- Demonstrated a 5.4% decrease in the Mel-Cepstral Distortion (MCD) score compared to speech generated by state-of-the-art by building a visualization tool using Jupyter, Matplotlib, t-SNE

Teaching Experience

Department of Computer Science at Purdue Aug 2023 – Present

Undergraduate Teaching Assistant for CS 381: *Analysis of Algorithms*, CS 252/240: *Systems Programming/Programming in C*, CS 193: *Tools*

- **Lead developer** for instructional infrastructure: coordinated a 4-person team, ran daily standups, designed homeworks & solutions.
- Built and maintained C-based testing modules used by ∼720 students.
- Led weekly labs and office hours; created quizzes; supported ∼40 students weekly; graded biweekly.
- Taught pointers, memory allocation, threads, scripting languages, lex/yacc, algorithms, complexity, and graph theory.

Purdue Women in Engineering-Women in Science Program Aug 2023 – Dec 2023

Tutor for Physics, Calculus, Python, and C

- Tutored physics, calculus 1–3, precalc, Python, and C.
- Reached ∼60 students across 1-on-1 and small-group sessions.

Girls Who Code (Purdue College Loop) Jan 2023 – May 2024

Officer & Mentor for High-School Outreach Workshops

- Ran the Oakland Academy Workshop teaching 30+ students HTML/CSS/JS live on Code.org.
- Created C/C++ instructional materials for Jefferson High School.
- Managed and grew the official GWC LinkedIn page.

Awards

Dean's List & Semester Honors	2022 – Present
CS Corporate Partners Scholarship for Continuing Students – $1,500	2025
Purdue Undergraduate Research Conference (PURC) award for 2nd place – $300	2024
Sponsorship for travel to HackMIT hackathon – $200	2023
ICPC AlgoQueen National Collegiate Hackathon, *Finalist*	2022

Relevant Courses

CS 588: Randomized Algorithms [Grad Course] with Dr. Kent Quanrud

CS 334: Fundamentals Of Computer Graphics with Dr. Voicu Popescu

- Built a 3D rendering pipeline from the fundamentals (vectors, matrices, rasterization) in a C++/OpenGL graphics solution. Implemented light reflections, shadows, textures, ray tracing.

Other: Linear Algebra, Artificial Intelligence, Machine Learning, Probability, Analysis of Algorithms, Data Structures, Programming in C, Systems Programming, Operating Systems

Projects

SearchTracker: Chrome extension helping manage research papers and Google Scholar profiles. 2023
Pathways: Purdue CS course-planning tool; built at BoilerMakeX hackathon 2023.
NutritionAI: Volumteric estimation based nutrition calculator given food images; built at HackMIT 2023.
Bad Calculator 3000: Converts infix notation to postfix and evaluates it using a stack; built with JavaScript/HTML/CSS. 2022

Community Involvement

CS Graduate Student Association Mentor/Mentee program, *Mentee*	Aug 2025 – Present
InnovateHer Hackathon, *Volunteer*	2025
Dosa Outreach Student Association (DOSA), *Founder & President*	Oct 2022 – Oct 2025
TEDxPurdueU, *Chair/Member of the Design Committee*	Aug 2022 – Feb 2024
Hello World Hackathon, *Organizer in the Design Committee*	Aug 2022 – Aug 2023

References

Dr. Voicu Popescu
Associate Professor of Computer Science at Purdue University, **Email:** popescu@purdue.edu.

Dr. Jeffrey A. Turkstra
Associate Teaching Professor of Computer Science at Purdue University, **Email:** jeff@cs.purdue.edu.

Dr. Christopher K. May
Assistant Teaching Professor at Purdue University, **Email:** may5@purdue.edu.

Dr. Brandon Rdzak
Assistant Teaching Professor at Purdue University, **Email:** brdzak@purdue.edu.