

# Mridu Prashanth

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## EDUCATION

### Purdue University

West Lafayette, IN

*BS in Computer Science Honors and Mathematics, MS in Computer Science; GPA: 3.83*

*Aug 2022 – May 2027*

- **Relevant Courses:** Computer Graphics, Linear Algebra, Artificial Intelligence, Machine Learning, Probability, Analysis of Algorithms, Data Structures, Programming in C, Systems Programming, Operating Systems, Randomized Algorithms
- Research/Teaching Assistant, President (DOSA Club), TEDxPurdueU Design Chair, HelloWorld Hackathon Organizer, CS Corporate Partners Scholarship awardee, Dean's List & Semester Honors

## RESEARCH

### VECMA-3SV: VE Complexity Management via Stochastic Single Shot Visibility

West Lafayette, IN

*Advisor: Prof. Voicu Popescu, CS XR Lab, Computer Graphics & Visualization Lab, Purdue University*

*May 2025 - Present*

- **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
- Delivered a research talk at the Purdue Summer Research Symposium (2025)

### UFZs: A Novel Method to Identify Urban Fire Zones for Urban Planning

West Lafayette, IN

*Advisors: Prof. Daniel Aliaga & Prof. Aniket Bera, Purdue University*

*Jun 2024 - Oct 2024*

- 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
- Presented at the Purdue Fall Research Expo (2024), IDiF Summer Undergraduate Research Symposium (2024)

### AI-driven Robotic Triage Labeling & Emergency Medical Information System

West Lafayette, IN

*Advisor: Prof. Aniket Bera, IDEAS Lab, Purdue University*

*Jan 2024 - May 2024*

- **Achieved improved accuracy:** Evaluated SVM, Multi-Layer Perceptron, Random Forest, Gaussian Naive Bayes 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
- **Purdue Spring Research Conference Research Talk:** placed 2nd in College of Science, showcased at the Robotics Expo

### AffectEcho: Emotion & Affect Transfer for Speech Synthesis

West Lafayette, IN

*Advisor: Prof. Aniket Bera, IDEAS Lab, Purdue University*

*Jun 2023 - Dec 2023*

- **AAAI 2024 Submission:** 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

### Undergraduate Teaching Assistant (Department of Computer Science, Purdue)

Aug 2023 - Present

**Courses:** Analysis of Algorithms (CS 381), Systems Programming/Programming in C (CS 252/240), Tools (CS 193)

- **Lead developer:** Coordinated team of 4, held daily standups to motivate members, designed homeworks & solutions, developed and tested test modules within a custom file generation framework in C through git, used by ~720 students
- Led weekly labs/recitations & multiple office hours, answered public discussion posts, created and coordinated in-class quizzes, impacted ~40 students per week, graded assignments biweekly
- Explained pointers, memory allocation, scripting languages, threads, grammar & parsing (lex & yacc), data structures and designing algorithms, complexity theory (P vs NP), graph algorithms & techniques (greedy, dynamic programming, divide & conquer, etc) to students using pseudocode and visual aids

### Tutor (WIE-WISP Program, College of Science, Purdue)

Aug 2023 - Dec 2023

- Tutored physics, calc 1, 2, 3, precalc, intro to python & C for science & engineering, reached ~60 students

### Officer & Mentor (Girls Who Code, Purdue College Loop)

Jan 2023 - May 2024

- **Oakland Academy Workshop:** Taught 30+ high school girls HTML/CSS/JS live on Code.org, troubleshooting as needed.
- **Jefferson High School Workshop:** Developed C/C++ material. Created & handled GWC LinkedIn page.

## SKILLS

**Languages:** C, C++, Python, Java, Assembly, R, Bash    **Technologies:** Linux, Git, Windows, Unity

## PROJECTS

- **Bad Calculator 3000:** Converts infix expression to postfix and evaluates it using a stack, used JavaScript/HTML/CSS
- **SearchTracker:** Chrome extension (deployed) to save papers and google scholar profiles, aiding paper review process
- **NutritionAI:** Calculates nutritional breakdown of food in picture uploaded by user using volume estimation machine learning model, for HackMIT hackathon
- **Pathways:** Computer Science course planner, for BoilerMakeX hackathon
- **Finalist at ICPC AlgoQueen National Collegiate Hackathon (2022):** Used C++ to solve ~30 programming tasks