Sagar Patil

US Citizen | @ sagarreddypatil@gmail.com | sagarreddypatil | linkedin.com/in/patilsr | sagarpatil.me

Skills

Languages: C/C++, Python, Java, C#, Dart, HTML/CSS, JavaScript, SQL

Frameworks & Libraries: PyTorch, OpenCV, React, Electron, Express, Flask, .NET, PostgreSQL

Tools: CMake, Make, Arduino, Git, Linux, Vim

Software: Unity3D, Altium Designer, KiCAD, Ansys HFSS, Ansys STK

Education

Purdue University West Lafayette, IN

B.Sc. in Computer Science *Class of 2025*

- Coursework - Discrete Mathematics, Data Structures and Algorithms, Intro to Algorithms, Systems Programming, Computer Architecture, Operating Systems, Intro to AI, Data Mining & Machine Learning

Work Experience

Ansys Government Initiatives (AGI) Exton, PA

SWE Intern *Summer 2023*

- Added support for glTF models and 3D Tiles in STK's Electro-Optical/IR simulation component
- Implemented GPU acceleration for various graphics-based analysis tools, using OpenGL and OpenCL
- Explored uses of improved techniques for volumetrics in STK's multi-frustum rendering system
- Created abstractions for legacy features to improve code maintainability

Ansys Government Initiatives (AGI) Exton, PA

SWE Intern *Summer 2022*

- Implemented new ITU RF propagation standards for STK's Communication and Radar component
- Implemented a framework for easier development of Unit Tests using GTest
- Contributed in weekly standup meetings with the team to discuss progress and new tasks

Bloomberg LP New York, NY

SWE Intern *Summer 2019*

- Worked on an internal web application to label Named Entities in text and manage model training
- Used Bootstrap and CSS to design and revamp various responsive pages and components
- Implemented new features and added functionality on the full stack, using Python, Flask, MySQL, and ReactJS

Extracurriculars

Purdue Space Program Liquids Purdue University

Avionics Lead *Fall 2021 - Present*

- Developing of safe, flight-critical software and embedded device drivers in C/CMake for a bipropellant rocket
- Developing a web-based mission control interface, with high-rate plotting and real-time downsampling
- Designing secure protocols for data acquisition, configuration, and control of flight critical Avionics systems
- Performing systems-level design and reviews of avionics hardware, including part selection and integration

ML@Purdue Purdue University

Officer and Project Lead *Fall 2021 - Present*

- Leading the development of a project group for exploring the sampling of Large Language Models
- Developed a simulation of the 2021 VEX Robotics Game in Unity as an enviornment for an RL agent
- Leveraged machine learning in PPO-based reinforcement learning model to "learn" a pathfinding problem
- Utilized ONNX to optimize and convert PyTorch computer vision models to run on a Jetson Nano co-processor

Projects

NLP Chatbot | *github.com/sagarreddypatil/nlp-chatbot*

- Serving a large language model on an NVIDIA DGX-1 as a chatbot on Purdue's CS Discord server

Marching Cubes | *github.com/sagarreddypatil/Marching-Cubes-Unity*

- Implemented marching cubes(implicit surface reconstruction) in Unity, using both C# and Compute Shaders

Awards & Achievements

Affectiva EMPath Makethon Winner Created an AI-powered therapist that takes into consideration emotions detected by the camera using Affectiva's Human Perception AI