

# Sagar Patil

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## Education

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**Purdue University** / *B.S. in Computer Science / Expected May 2025 / West Lafayette, IN*

Tracks: Systems, Machine Intelligence

Relevant Coursework: Compilers, Analysis of Algorithms, Operating Systems, Data Mining and Machine Learning, Artificial Intelligence

## Work Experience

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**Asylon Robotics** / *Software Engineer (Intern) / Summer 2024, in progress / Philadelphia, PA*

- Writing Linux image build scripts in Yocto (BitBake) to run on multiple embedded devices sharing code
- Implementing trusted boot in microcontroller firmware; modifying the firmware build process to support it

**IDEAS Lab @ Purdue** / *Undergraduate Researcher / Since Spring 2024 / West Lafayette, IN*

- Exploring techniques to generate meshes of photorealistic faces from text descriptions and reference imagery
- Testing techniques such as GAN inversion on existing methods like EG3D (3D StyleGAN by NVIDIA)

**Purdue University** / *CS 252 (Systems) TA / Since Spring 2024 / West Lafayette, IN*

- Assisting a lab section of ~30 students with projects like a shell interpreter and a web server
- Holding office hours to help students with lab assignments and other course material
- Grading lab assignments, providing feedback to students, and participating in weekly meetings

**Ansys Government Initiatives** / *Software Engineer (Intern) / Summer 2023 / Exton, PA*

- Added support for glTF models and 3D Tiles in STK's Electro-Optical/IR simulation
- Refactored legacy C++ to modern idioms (smart pointers, RAII, etc.), improving maintainability
- Implemented GPU acceleration to graphics-based analysis tools using OpenCL, offering ~50x speedups
- Explored techniques for atmosphere rendering in STK's massive world rendering engine

**Ansys Government Initiatives** / *Software Engineer (Intern) / Summer 2022 / Exton, PA*

- Gained experience working in a large C++ codebase, using MFC and the Component Object Model (COM)
- Implemented new ITU-RF radio propagation standards for STK's Communication and Radar component
- Implemented an architecture for unit testing, using Google Test

**Bloomberg LP** / *Software Engineer (Intern) / Summer 2019 / New York, NY*

- Worked on an internal web application to label data and manage LSTM training for NER tasks
- Implemented features on all layers of the stack, including MySQL, Flask, and React

## Clubs / Projects

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**Purdue Space Program Liquids** / *Avionics Software Lead / Since Fall 2021*

- Developing flight-critical software, peripheral drivers in C on FreeRTOS for a bipropellant rocket
- Developing a custom mission control interface, with high-rate plotting and real-time downsampling
- Designing a UDP telemetry protocol for sensor data, and a secure RPC protocol for telecommand
- Contributing to hardware design, including part selection, schematic capture, and PCB tracing

**ML@Purdue** / *Project Manager & Operations Officer / Since Fall 2021*

- Trained a PPO-based model in a simulation to learn a pathfinding policy for a VEX robotics game
- Worked on running YOLOv5 on a Jetson, and matching the simulation's input distribution to real world data

**Personal Projects** / *See more at [sagarpatil.me](https://sagarpatil.me)*

- Statically-typed functional programming language implemented in Rust
- Marching cubes algorithm in C# (and compute shaders) to meshify 3D scalar field
- Discord chatbot that uses a locally running Llama2 (13B) model to generate responses
- Scraped Purdue's course catalog to monitor class availability and send notifications

## Recommendations

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**Adam Himes** / *R&D Sr. Manager / Ansys Government Initiatives / [adam.himes@ansys.com](mailto:adam.himes@ansys.com)*

"He was an extremely driven self-starter with a passion for learning ... The knowledge Sagar demonstrated during his short internship with us impressed everyone, including our CTO"

**Kevin Pietsch** / *Software Engineer / Bloomberg LP / Reference available upon request*

"...I expect he will be an asset to any teams he becomes a part of in the future"