

NIHAR KODKANI

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Education

Purdue University

West Lafayette, IN

B.S in Computer Science, Dual Minor in Mathematics and Statistics GPA: 3.79

May 2026

- **Selected Coursework:** Data Structures and Algorithms, Computer Architecture, Programming in C, Probability, Discrete Mathematics, Linear Algebra, Multi-variable Calculus, Statistical Methods

Experience

Rosen Center for Advanced Computing

West Lafayette, IN

Part-time Software Engineer

August 2024 - Present

- Developing a custom graphical interface for a materials modeling software package, supporting up to 4,000+ users and reducing setup time for simulations by 50% through PyQt5
- Optimizing software for parallel execution across 130,000 CPU cores and 64 GPUs, improving simulation performance and enabling larger-scale simulations
- Coordinating with HPC resources and tailored configurations for high-throughput jobs, supporting projects with up to 10TB of data

Rosen Center for Advanced Computing

West Lafayette, IN

Software Engineer Intern

May 2024 - August 2024

- Integrated GROMACS molecular dynamics library into Purdue Anvil super computing cluster for 4,000+ researchers
- Interacted with SLURM scheduler and OpenMPI to allocate cluster resources and streamline CPU parallelization
- Generated user interface on OpenOnDemand through shell script, embedded Ruby, and Python
- Automated molecular simulation movies through Visual Molecular Dynamics library, ffmpeg and TCL scripting

The Data Mine, Purdue University

West Lafayette, IN

Undergraduate Data Science Researcher collaborating with Caterpillar

August 2023 - May 2024

- Scraped and cleaned datasets using R and Pandas on 7 unique statistical indicators affecting Caterpillar's supply chain.
- Imputed missing and unusable data points for over 100+ data sets with PyCaret
- Ran time-series forecasting models such as ARIMA, K nearest neighbors, and multiple linear regression
- Presented work to Chief Procurement Officer and Caterpillar executives

University of Dayton Motoman Robotics Lab

Dayton, OH

Research Assistant

March 2022 - October 2022

- Worked with PhD student to incorporate computational geometry algorithm for robots in additive manufacturing
- Utilized C, C++, MATLAB and CGAL Computational Geometry library to build algorithm and interact with robots
- Built custom 3D printer with arduino controller, stepper motors, extrusions, and industrial robots

SubZero Robotics Team

Mason, OH

Founder & Lead Software Developer

May 2020 - May 2023

- Implemented PID Control, dead wheel odometry localization, Motion Profiling, OpenCV Pipelines, and Finite State Machines to drive holonomic robot autonomously
- Created autonomous and driver operated programs to compete at FIRST Tech International Challenge
- Effectively delegated tasks, followed Agile method, and utilized Git for version control

Projects

NetCare Dashboard | *React.JS, Express.JS, MongoDB, Node.JS, GPT-4o-mini*

November 2024

- Built dashboard for an NGO as part of J.P. Morgan Chase Hackathon (1 of 150 selected from 29,000)
- Developed an aesthetic front-end UI through React JS and visualized data with Recharts.js
- Created back-end API using Express.JS and stored 4 databases in MongoDB
- Handled natural language queries with LLM (GPT4o-mini) to query MongoDB database and displayed results on front end

BoilerBazaar | *Java, Swing, Network Socketing*

October 2023

- Developed an online marketplace for buying and selling textbooks among students
- Utilized Java Swing for building a responsive UI, and leveraged Java socketing and concurrency for backend

Technologies and Frameworks

Languages: Python, Java, Javascript, C++, C, MATLAB, R, SQL, HTML, CSS, Shell, TCL

Frameworks/Libraries: React.JS, Express.JS, MongoDB, Node.JS, PyTorch, TensorFlow, Pandas, PyCaret, NumPy, Scikit-learn, Qt, OpenCV, CGAL, Swing