Siddh Patani

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EDUCATION

Purdue University — **West Lafayette, Indiana**
B.S. in Computer Science + B.S. in Data Science — *Expected Graduation, May 2026*

- **Concentrations:** Software Engineering and Machine Intelligence
- **Related Coursework:** Data Structures & Algorithms, Data Mining and Machine Learning, Systems Programming, Analysis of Algorithms, Information Systems, Computer Architecture, Programming in C, Discrete Math, Problem Solving and Object-Oriented Programming, Python Programming, Intro to Data Science, Statistics for Data Science, Probability, Complete 2024 Web Development Bootcamp (Udemy)

SKILLS

Programming Languages: Python, Java, C, C++, JavaScript, HTML/CSS, SQL (PostgreSQL, MySQL, SQLite), X86-64 Assembly, R, Kotlin
Data Science / Machine Learning: Pandas, Numpy, Scikit-Learn, Keras, Tensorflow, PyTorch, OpenCV, Flair, spaCy, LangChain (GPT 3.5) / RAG
Other Tools and Frameworks: React.js, Node.js, Express.js, MongoDB, Firebase, Flask, GitHub, Debuggers (GDB), Docker, Flutter, Google Cloud Platform

EXPERIENCE

GrowthArc — **Newark, California**
Machine Learning Intern — *June 2024 – September 2024*

- Developing a flexible data ingestion framework for ADI's (Analog Devices Inc.) Edge AI team using **Azure cloud services**.
- Designing data processing paths (Hot, Warm, Cold) based on latency and volume needs using Azure IoT Hub, Stream Analytics, and Data Explorer
- Integrating **Azure IoT Edge** for local processing on edge devices enabling real-time data processing capabilities
- Utilizing Azure Digital Twins for virtual modeling of real-world systems for advanced simulation and predictive analytics

Cisco — **West Lafayette, Indiana**
Undergraduate Data Science Researcher — *January 2024 – May 2024*

- Enhanced stream selection and ensemble algorithms for demand forecasting of Cisco's diverse product suite.
- Developed a forecast calibration approach to ensure the selected streams align with historical performance, improving accuracy and consistency.
- Implemented statistical models including Isolation Forest, Gaussian Mixture Model, and Support Vector Machine to detect outliers and refine forecasting.
- Collaborated with team to leverage maximum likelihood estimation for stream prediction, used Bayesian posterior data to compare decision tree outcomes.
- Improved the computational efficiency and robustness of forecasting models, achieving a **3% increase in mean accuracy** for Isolation Forest on sample data.

Viasat — **West Lafayette, Indiana**
Undergraduate Data Science Researcher — *August 2023 – December 2023*

- Collaborated with Viasat to implement **NLP** use cases, including code generation, analyzing/summarizing government proposals, generating marketing emails, and developing specialized chatbots using **RAG** (Retrieval Augmented Generation)
- Utilized techniques such as sentiment analysis, and utilized tools like **Flair**, **SpaCy** for **NER** (Named Entity Recognition).

Numtra Inc — **Seattle, Washington**
ML and Data Analytics Intern — *June 2021 – August 2021*

- Utilized Python and Numtra AI to develop predictive models, focusing on time series and regression analyses.
- Built machine learning pipelines, performed feature engineering, and cleaned data for analysis.
- Identified optimal models such as linear regression and time series, utilizing XGBoost to assess feature importance.
- Integrated APIs like Shopify with Google Analytics into Numtra AI, enhancing platform functionality.

Robohome — **Fremont, California**
Co-Executive Director, Software Team, CAD Team — *August 2020 – March 2021*

- Designed and built an autonomous delivery robot, for use in elderly homes, hospitals, etc., for touchless delivery.
- Managed software, using **Raspberry Pi 3** with **ROS** to control robot and dead-wheel odometry utilizing the Roadrunner library for localization.
- Developed custom **PIDF control loop** to ensure consistent velocity of various mechanical systems regardless of battery voltage
- Advanced design to use **LIDAR** for better surroundings awareness and more accurate routes and networked to test prototypes in hospitals
- Developed team website using **HTML**, **CSS**, and **JavaScript** for the frontend, with **Bootstrap** to ensure responsiveness and modern design.

PROJECTS

Hostr (Best Use Of Google Cloud Winner @ Boilermake X - Purdue Hackathon)

- Developed app that allows users to post parties and events on campus, and create playlists that cater to everyone's music tastes.
- Created frontend using **Flutter**, enabling user login, party creation, invite sending, and tracking acceptance.
- Built backend with **Flask** handling user authorization and requests to the Spotify Web API for playlist generation and stored data on **Google Cloud**

E-Commerce Store

- Designed and implemented a full-stack e-commerce platform using **React.js**, **Express.js**, **Node.js** and **PostgreSQL**. Developed UI with React.js, React Router, Redux; created **RESTful APIs** with **Express.js** for CRUD operations and JWT authentication.
- Used PostgreSQL for managing user info, product details, and orders. Implemented features such as user authentication, product management, shopping cart, and integrated payment gateways.

Contextual Chatbot

- Developed a Contextual Chatbot integrating **LangChain** and **OpenAI API**, deployed via Streamlit for interactive functionality.
- Utilized vector embeddings and advanced natural language processing techniques within Retrieval Augmented Generation (RAG) framework to provide adaptive responses based on personalized datasets.

Classbooster (3rd Place Winner @ Cisco BATM Hacks Hackathon)

- Developed an Android app that generates optimized classroom seating charts based on student characteristics like eyesight.
- Built algorithm to create layouts based on room configurations, using Java for backend and Firebase for authentication and credential management.