

Avi Aggarwal

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EDUCATION

Purdue University

B.S. in Computer Science, GPA: 4.0

Lafayette, IN

Expected May 2027

EXPERIENCE

Promega

2025 Summer Internship

Madison, WI

May 2025 – August 2025

- Designed a machine learning and statistical anomaly detection system integrating environmental sensor data to identify conditions linked to low-quality experimental results and improve instrument reliability.
- Processed uni-variate and multivariate data in Python (pandas, NumPy) with cyclical time encoding, performed correlation analysis, and trained ML based: Holt-Winters, K-means Clustering, Isolation Forest models.
- Integrated an SHT45 sensor into Discover LLC boards with firmware (C/C++) and hardware modifications as well as updated host software to create a pipeline that can log and process environmental readings in real time.

Data Mine Research (Corporate Partnership with Knudsen Institute)

Purdue University

Lafayette, IN

August 2024 – May 2025

- Fine-Tuned Named Entity Recognition (NER) models on manufacturing language to improve Natural Language Processing (NLP) systems that interpret manufacturing-related communication. Additionally, integrated an active-learning pipeline that allows further refining of the model, particularly in its weakest areas.
- This results in an application that accurately interpret and respond to manufacturing-related text, particularly in surge environments where assessing manufacturing capabilities is critical.
- Tools such as BeautifulSoup and Selenium were used to extract unstructured data in HTML and XML files from manufacturing websites, while PyTorch and HuggingFace were utilized for model development and architecture.

PERSONAL PROJECTS

Folyo

folyo.org

- Developed a Personal Website Generator with an end-to-end pipeline enabling users to create, customize, and host websites seamlessly. Eliminates the need for coding, hosting, domain management, or recurring payments.
- Built a backend integrating Gemini, Unsplash, Stripe, and Vercel APIs with a Next.js frontend for seamless website generation, customization, and hosting, enabling one-click website deployment at scale.

ScholarSeek

scholar-seek.vercel.app

- Built a tool that analyzes research papers, finds related papers via keyword analysis, and displays them with title, summary, and download link to help users discover and build on related scholarly works.

LEADERSHIP & ACCOMPLISHMENTS

Purdue Science Student Council – Network and Career Outreach Officer

- Coordinate with employers and manage logistics for the NCO Career Fair, supporting hundreds of students in connecting with professionals. Host professor chats and networking events to support interdisciplinary relationships

ASA Datafest Purdue Champions

- Built a dynamic web app for interacting with and visualizing complex real-world lease data.
- Collaborated with a team to leverage a targeted perspective and present actionable insights based on the dataset.

Business Professionals of America (BPA) – 2nd in State (TX) and 10th in Nationals for Java Programming

USA Computing Olympiad (USACO) – Silver Medalist in national algorithmic coding competition

TECHNICAL SKILLS

Publications: Promega-Connections

Languages: Python, Java, C, C++

Frameworks/Libraries: PyTorch, Hugging Face, Scikit-learn, Pandas, React, Node, Next.js, Tailwind CSS

Developer Tools: Git, Supabase, BeautifulSoup, NoSQL

Concepts: Data Structures, Algorithms, Software Design Patterns, System Design, Competitive Programming