

Pranav Balachander

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EDUCATION

The Pennsylvania State University

Bachelor of Science in Computer Science | Dean's List, Fall 2025

State College, PA

Graduated 2026

EXPERIENCE

The Reasoning Company

Software Engineering Intern

San Francisco, CA

Feb. 2026 – May 2026

- Developed responsive front-end web pages using HTML, CSS, and JavaScript, building user-facing interfaces and interactive components.
- Built a stock price forecasting model in Python, applying time-series techniques to predict market price movements.

Research Assistant

Dept. of Computer Science @ Penn State

Harrisburg, PA

Apr. 2025 – May 2026

- Authored three research papers (submitted, pending publication) as a named author, spanning electricity price forecasting, Arctic mercury modeling, and pesticide-resistance surveillance.
- Developed a hybrid CNN-BiLSTM-Attention model in Python (TensorFlow, Keras) achieving ~25% lower RMSE (12.40 vs 16.49) and higher R^2 (0.87 vs 0.63) than the strongest baseline models on real-world day-ahead electricity price data.
- Built modeling frameworks integrating quantum-chemistry simulations, epidemiological datasets, and genomic resistance markers into spatiotemporal ML pipelines using Pandas, NumPy, and Scikit-learn.

AI/ML Intern

SBS IT Solutions

Dallas, TX

Jun. 2025 – Sep. 2025

- Built a RAG-based AI health chatbot from scratch (front-end and backend) that answered user symptom questions, using LangChain, OpenAI APIs, and a vector database for retrieval-augmented responses.
- Applied LLM concepts — architectures, prompt engineering, embeddings, and vector databases — from an intensive Generative AI program to design and implement the end-to-end system.
- Collaborated with the front-end team on a HIPAA-compliant medical application, contributing to UI development and testing.

Data & Analytics Intern

mResult Corporation

Bangalore, India

Jun. 2023 – Oct. 2023

- Organized and analyzed large datasets using data-warehousing techniques to support analytics workflows.
- Performed data cleaning, manipulation, and exploratory analysis using Pandas and Jupyter Notebook.
- Automated data-processing tasks with Dataiku and built dashboards translating insights for non-technical stakeholders.

PROJECTS

VALS: VR Anatomy Labeling Software | Unity, C#

May 2026

- Led a team of 4 to build a real-time label autocomplete system for a VR anatomy education app on Meta Quest 3, enabling in-headset search and assignment of anatomical labels to 3D structures.
- Co-implemented a Trie-based prefix search in C# supporting full-word and abbreviation matching, and built the surrounding autocomplete UI with TextMeshPro input fields.
- Loaded anatomy label datasets dynamically from CSV at runtime via Unity StreamingAssets, decoupling content from code for easy updates.

Maargdarshak | Streamlit, Python, OpenAI API, HTML/CSS

Nov. 2024

- Designed a Streamlit interface optimized for usability and responsiveness to improve accessibility.
- Integrated Python logic with OpenAI's API for real-time interactivity between frontend and backend.
- Iterated on design through user feedback and testing to refine UX and overall system performance.

Online Restaurant Management System | PHP, MySQL, HTML

Sep. 2023

- Built a dynamic order-management platform to replace manual workflows in restaurants, improving efficiency.
- Designed an interface in HTML and PHP for staff to manage food categories, orders, and customer records.
- Used MySQL for secure data storage and fast retrieval, ensuring reliable operation and data integrity.

PUBLICATIONS

Unified Cross-Regional Time-Series Day-Ahead Electricity Price Dataset (UniElecPrice) | IEEE

Sep. 2025

- Introduced a globally unified dataset of day-ahead electricity prices from 40 markets across 5 continents, enabling standardized forecasting research; developed and validated a hybrid CNN-BiLSTM-Attention model outperforming LSTM and Transformer baselines. *Accepted, IEEE Data Descriptions, 2025.*

TECHNICAL SKILLS

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

Frameworks: React, Node.js, TensorFlow, Keras, PyTorch, Scikit-learn, Streamlit, Flask

Developer Tools: Git, GitHub, VS Code, Visual Studio, PyCharm, Jupyter, LaTeX

Libraries: pandas, NumPy, Matplotlib, SHAP, XGBoost, OpenAI, LangChain, BeautifulSoup

Databases: MySQL, SQLite, PostgreSQL

Cloud & Tools: Netlify, Tableau, PowerBI, Figma, Trello, Adobe Photoshop, Adobe Illustrator