Pranav Cheraku

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Education

Western Washington University **Expected Graduation: June 2026**

Bachelor of Science in Computer Science, Minor in Mathematics *Bellingham, Washington*

- Concentrations: Data Science & Machine Learning
- Courses: Data Structures & Algorithms, Machine Learning, Deep Learning, Natural Language Processing, Operating Systems, Computer Systems, Database Systems, Multivariable Calculus, Linear Algebra, Probability & Statistics

Experience

FAST Enterprises LLC **June 2025 – September 2025**

Software Implementation Intern *Harrisburg, Pennsylvania*

- Implemented production changes to a wide range of reports, letters, and jobs in GenTax by using VB.NET and SQL, delivering accurate and reliable system functionality that directly served millions of taxpayers across Pennsylvania
- Queried and analyzed over 110+ jobs, reviewing underlying code and SQL logic to assess functionality and relevance, ultimately retiring those that were no longer needed to improve long-term system performance and maintainability
- Consulted with Subject Matter Experts (SMEs) and project leads to validate requirements and ensure that configuration within GenTax accurately reflected the intended business rules and functionality

Western Washington University's Computational Neuroscience Lab **April 2025 – Present**

Undergraduate Researcher – Endocannabinoid System Modeling *Bellingham, Washington*

- Developing a simulation of the endocannabinoid system to study its role in seizures, focusing on hippocampal network activity
- Implementing and testing a two-cell, one-synapse prototype using the Brian2 neural simulator, with the long-term goal of scaling to a network of 1,000 neurons for analyzing drug interactions and seizure activity
- Collaborating with the Kaplan Neuroscience Lab to perform simulated experiments, providing a theoretical framework for drug-resistant epilepsy treatments that would be ethically or logistically difficult to conduct in animal models

Olympia Hindu Temple & Cultural Center (OHTCC) **May 2025 – July 2025**

Fullstack Developer *Olympia, Washington*

- Designed and launched the official website for the Olympia Hindu Temple & Cultural Center (OHTCC), a nonprofit organization, to streamline event management and community engagement
- Engineered a high-performance, fully responsive user interface using HTML, JavaScript, and Tailwind CSS, ensuring seamless navigation across mobile and desktop devices

Projects

Fake Image Detector **March 2025**

- Developed a high-performance fake image detection system, achieving 99.98% accuracy and perfect precision by designing a Discriminator model with residual attention mechanisms and dual classification heads
- Systematically optimized model performance through comprehensive data augmentation, hyperparameter tuning, and regularization techniques, reducing misclassifications to only 3 out of 15,324 test samples

Relational Database Management System **February 2025**

- Engineered a single-user relational database management system from scratch, implementing both DDL and DML components with hierarchical storage structures (HEAP, HASH, TREE), comprehensive memory management dividing space into NAME SPACE and POINTER SPACE, and efficient tuple manipulation supporting complex relation operations
- Developed a complete relational algebra system featuring PROJECT, JOIN, SELECT operations with complex WHERE qualifiers, implementing a recursive interpreter capable of parsing nested expressions and supporting secondary indices for optimized query processing, enabling efficient execution of multi-table joins and complex data manipulations

Leadership

Western Washington University's Computer Science Tutoring Program | *Tutor* **March 2025 – Present**

- Tutored 50+ Computer Science and Data Science students during scheduled in-person sessions
- Assisted students in grasping course material, leading to improved academic performance and deeper understanding

Western Washington University's Computer Science Mentoring Program | *Mentor* **October 2024 – Present**

- Mentored 10+ Computer Science students, providing guidance and support throughout their academic journey
- Strengthened leadership and communication skills through monthly one-on-one meeting

Technical Skills

Languages: Python, SQL, Java, JavaScript, TypeScript, CSS, HTML, C, C++, VB.NET, LaTeX, Racket

Developer Tools: Git, Excel, Unix/Linux, AWS, Docker, Joblib

Libraries/Frameworks: NumPy, Pandas, Matplotlib, Power BI, Scikit-learn, TensorFlow, SciPy, PyTorch, Keras, React, Next.js