Aaryan Gaur

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EDUCATION

Bachelor of Science in Computer Science, Minoring in Data Science
Graduating May 2026
Arizona State University- Tempe 4.0 GPA (Dean's List)

SKILLS

Programming Languages: C++, Java, Python, SQL, HTML, C, MIPS and x86 Assembly, Prolog, C, R, Javascript, React JS, CSS
Tools and Framework: Git, GitHub, TensorFlow, Scikit-learn, Pandas, Matplotlib, Tableau, JIRA, Linux, IDA64, GDB, Git, Docker, AWS (Lambda, SageMaker, Bedrock)
Relevant Coursework: Data Structures and Algorithms, Intro to Software Engineering, Object Oriented Programming, Introduction to Cryptography, Intro Applied Statistics
Development & Methodologies: Agile, Scrum, Test-Driven Development (TDD), Continuous Integration

EXPERIENCES

FURI Project: Reducing Urban Carbon Emissions with Reinforcement Learning — Jan 2025 - Present

- **Developing reinforcement learning models** to optimize **eco-driving behaviors**, targeting a **20% reduction in carbon emissions** in urban environments.
- Leveraging **GitHub for version control, collaboration, and documentation of experimental results.**
- Building and training **deep neural networks** using **ASU's supercomputer Sol** to efficiently process large-scale traffic simulation data and expedite model training.

Data Analysis Intern at NoBroker — Jun 2023 - Aug 2023

- Designed and executed **data pipelines** for efficient **data sorting** and preprocessing.
- Applied **statistical methods** and developed **predictive models** to forecast housing prices, improving decision-making processes.

Public Health Corps — Fall 2024

- Utilized **Tableau and Matplotlib** to create creative visualizations on large death datasets.
- Led data-driven visualizations and collaborated with cross-functional teams to inform public health policies, impacting decisions on community health initiatives.

University of Washington Data Science in Oceanography Research Program — Fall 2024

- Developed and trained residual neural networks to classify over 100,000 phytoplankton images with **98.2% accuracy**, supporting biodiversity analysis for oceanographic research.
- **Collaborated with a multidisciplinary team** to develop and test innovative network architectures**.**

Student Facilitator for Principled Innovation Academy at ASU — Dec 2023 - Present

- Developed key **professional skills** including **team collaboration**, **leadership**, **problem-solving**, and **facilitation**, enhancing group dynamics and communication.
- Led the **planning, coordination, and execution** of multiple **hackathons**, fostering innovation and teamwork among over 300 total participants.

Teaching Assistant (EEE-120: Digital Design Fundamentals) (Completed) — Jan 2024 - May 2024

- Assisted students in major homework assignments, labs, exam preparation and software troubleshooting
- Engaged with students on a one-on-one basis and provided customized support

SOFTWARE DEVELOPMENT PROJECTS AT ASU

Data Structures Implementation Projects

- Designed and implemented **Min-Heaps, Max-Heaps**, and **Hash Tables with custom hash functions** to improve data retrieval, storage, and priority queue management.
- Engineered **Red-Black Trees** for efficient binary search tree operations, achieving O(log n) time complexity.

Path Finding Algorithms Implementation

- Implemented **Dijkstra's Algorithm** and **Prim's Algorithm** for efficient shortest path determination in **weighted graphs** and construction of **minimum spanning trees**.
- Applied these algorithms to **real-world scenarios** like **airplane navigation** and **route optimization.**
- Developed **Breadth-First Search** and **Depth-First Search** algorithms for traversing graph structures.

INDEPENDENT LEARNING

- **Intel Project - Data Analysis for Sustainability:** Conducted **a comprehensive analysis** on energy data using SQL to identify locations for building a new data center with respect to higher renewable energy generation.
- **The GRAMMY'S Project - Audience Analysis:** Utilized python libraries such as **numpy, pandas and matplotlib** for data manipulation, analysis and visualization.
- **Chatbot -** Built a **neural network class** from scratch in python including **back propagation, gradient descent**, etc. Created a simple chatbot using **neural networks** and **text classification algorithms.**
- **Kaggle-** Completed both Beginner and Intermediate courses in Machine Learning and Neural Networks. Took part in competitions to apply **data manipulation and regression skills** to real-world datasets.