Hisham Bhatti

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Education

University of Washington — Seattle, WA
Master of Science, Computer Science — *Sep. 2025 – Dec. 2026*
- **Graduate Coursework**: Quantum Computing, Algorithms, Deep Learning, Distributed Systems

University of Washington — Seattle, WA
Bachelor of Science: Computer Science (Honors), Bachelor of Science: Mathematics — *Sep. 2021 – Jun. 2025*
- **GPA**: **3.97**
- **Coursework**: Data Structures, Algorithms, Systems Programming, Machine Learning, Database Internals

Experience

Software Engineer Intern | *Java, SQL, TypeScript, GQL* — Apr. 2025 – Jun. 2025
Revefi — *Redmond, WA*
- Implemented data quality monitors across four major data sources (Snowflake, Databricks, Redshift, BigQuery), enabling companies to track invalid entries with SQL-based metrics
- Integrated these checks into an AI-powered recommendation system, reducing manual setup time and contributing to a platform-wide **10**× improvement in operational efficiency and **60%** reduction in data spend

Undergraduate Researcher: Knot Theory — Jun. 2024 – Sep. 2024
U.S. National Science Foundation — *Chico, CA*
- Developed an algorithm in SageMath to construct Tait graphs for **27,000+** knots, contributing new functionality to the open-source SageMath library used by **300,000+** researchers

Computational Biology Intern — Jun. 2023 – Feb. 2024
Molecular Information & Systems Lab (MISL) — *Seattle, WA*
- Developed an algorithm using dynamic time warping (DTW) and stochastic noise to simulate the variability in 1-D signal data ("squiggles") representing proteins sequenced through a nanopore
- Classified **20,000+** proteins with **65%** accuracy using various machine learning models (neural networks, random forests, k-nearest neighbors) and parallel processing, facilitating further research in precision medicine

Projects

333gle (mini Google) | *C/C++, POSIX, Multithreading, Web Development* — Jan. 2024 – Mar. 2024
- Built a multithreaded file search engine in C/C++ with a custom doubly-linked list and hash table for document indexing
- Developed a POSIX-compliant web server handling **50+** concurrent users, with HTML rendering and input sanitization for secure file access
- Improved performance with checksum validation and by following Google's C/C++ style guide for maintainability

Deep Learning Meme Generator | *Python, PyTorch, Flask, React, GCP* — May 2025 – Aug. 2025
- Trained a transformer-based model on **60,000+** image-caption pairs, achieving a **30%** boost in semantic similarity
- Implemented a **hybrid loss function** (cross-entropy, CLIP, semantic similarity) to improve generalization and reduce overfitting in humorous image captioning
- Built and deployed a full-stack web app (Flask + PyTorch backend, React + Tailwind frontend) on Google Cloud with CI/CD pipelines, scaling to **hundreds of active users**

Publications

- *On the Structure of Bad Science Matrices.* **Involve**, 2024. Paper
- *A Theoretical Assessment of Nanopore Protein Fingerprinting.* **Biophysical Journal**, 2024. Paper

Technical Skills

Languages: Java, Python, C/C++, SQL (Postgres), JavaScript, HTML/CSS, R, MATLAB, Bash
Frameworks: React/Redux, Node.js, JUnit, Spring Boot, Apache
Developer Tools: Git, GCP, Azure, AWS, Linux/Unix, Visual Studio, Pytorch, TensorFlow, IntelliJ