

Kannika Armstrong (Jaikham)

253-282-8828 | akannika80@gmail.com | [LinkedIn](#) | [GitHub](#) | [Portfolio](#) | Puyallup, WA

TECHNICAL SKILLS

Languages: Java, Python, JavaScript, SQL, PostgreSQL, MySQL, HTML, CSS, PHP, R, Rust
Frameworks: TensorFlow, PyTorch, Streamlit, Bootstrap, Node.js, JUnit, WordPress, FastAPI, Rest APIs
Libraries: scikit-learn, Pandas, NumPy, Matplotlib, ReportLab, Plotly, Ollama
Tools: SQL Server, TiDB, Git, GitHub, Jupyter Notebook, GitHub Actions, VS Code, PyCharm, IntelliJ, Excel
Data & Analytics: Data Analysis, Statistical Modeling, Data Visualization, Tableau, Power BI

EDUCATION

University of Washington Tacoma Tacoma, WA
Master of Science in Computer Science and Systems Expected June 2026
• Relevant coursework: Advanced Algorithms, Machine Learning, Applied Distributed Computing, Cryptography, Database Systems Internals, Data Structure
Bachelor of Science in Computer Science and Systems Jan 2021 - Dec 2022
Chiang Mai University Chiang Mai, Thailand
Bachelor of Science in Physics (Minor in Mathematics) May 1999 - Mar 2004

TECHNICAL PROJECTS & RESEARCH

Portfolio Website (for additional information and projects) | a-kannika.github.io/KannikaA/

Machine Learning for Social Media User Profiling | [GitHub](#)

- Improved gender prediction accuracy to 0.76 (vs. 0.59 baseline), achieving a +28.8% in model performance.
- Increased age prediction accuracy to 0.63 (vs. 0.59 baseline) by selecting and tuning an optimal SVM classifier.
- Outperformed the baseline RMSE for 3 of 5 personality traits (Neuroticism, Extraversion, Conscientiousness) by implementing a Gradient Boosting Regressor.
- Trained and benchmarked a suite of models (including SVM, Logistic Regression, GBR, and BERT w/ LSTM) on a dataset of 9,500 user profiles using scikit-learn and Pandas.

Retrieval Augmented Generation (RAG) with TiDB Vector Search | [GitHub](#)

- Orchestrated a RAG pipeline leveraging TiDB's native vector search with cosine similarity for high-accuracy semantic document retrieval.
- Integrated BAAI/bge-m3 transformer (1024-dim) for document embedding and Llama 3.2 via Ollama for context-aware question answering.
- Constructed an end-to-end data pipeline: from embedding generation and TiDB storage to vector similarity search and LLMs response synthesis.

Empirical Analysis of Network Flow Algorithms | [GitHub](#)

- Directed a 4-developer team to implement and analyze the performance of complex network flow algorithms.
- Implemented multiple max-flow algorithms in Java: Ford-Fulkerson, Scaling Ford-Fulkerson, and Preflow-Push.
- Engineered a system to parse graph data from files and dynamically manage residual graphs during execution.
- Benchmarked algorithm runtimes against diverse graph structures to identify and document performance trade-offs.

Master's Thesis | Optimizing Performance and Efficiency of Lattice-Based Post-Quantum Cryptography Algorithms in Resource-Constrained UAV Environments (In Progress)

- Architecting and optimizing a secure UAV protocol (integrating Kyber PQC and Ascon-MAC) for resource-constrained hardware, with formal verification via ProVerif.

PROFESSIONAL EXPERIENCE

Teaching Assistant & Academic Mentor Sep 2024 – Jun 2025 (UW); 2020 – 2024 (Pierce)
University of Washington & Pierce College Tacoma & Puyallup, WA

- Led lab sessions, graded Java programming projects, and mentored students in debugging.
- Mentored 50+ students in Algorithms, OOP (Java/Python), and SQL queries.
- Taught collaborative project workflows using Git, GitHub, and VS Code.

Meteorologist & Secretary to the Deputy Director-General May 2006 – May 2018
Thai Meteorological Department Bangkok, Thailand

- Developed predictive models by processing and analyzing large-scale climate datasets to provide actionable insights for public safety and aviation.
- Coordinated 10+ inter-agency projects, synthesizing technical data reports and advising executive leadership.