William Qi

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Education

University of Pennsylvania May 2025
B.S.E. in Electrical Engineering | M.S.E. in Data Science | Minor in Computer Science *Philadelphia, PA*
GPA: 3.99/4.00 | **Awards**: Dean's List; Tau Beta Pi & IEEE-Eta Kappa Nu Honor Societies
Relevant Coursework: Machine Learning, Deep Learning, Natural Language Processing, Big Data Analytics, Data Structures & Algorithms, Database Systems, Statistical Inference, Probability

Experience

Bentley Systems May 2024 – August 2024
Machine Learning Engineer Intern *Exton, PA*
- Developed an AI-powered assistant using vector database and NLP techniques to convert user inputs into specialized SQL queries for 3D modeling software.
- Spearheaded the creation of a large-scale synthetic dataset for a team of 10 engineers, utilizing LLMs to automate labeled data generation by comparing model elements against natural language inputs.
- Built an interactive viewer application in React and TypeScript to evaluate the quality of the generated data in real time.

Bentley Systems May 2023 – August 2023
Software Engineer Intern *Exton, PA*
- Maintained and updated the developer portal, providing customers access to APIs for building digital twin applications.
- Implemented backend functionality in C# to ensure real-time database updates following user profile changes.
- Revamped user management table and filter box using custom CSS and React to improve UX for subscription managers.

Fang-Yen Laboratory, University of Pennsylvania June 2022 – September 2022
Undergraduate Researcher *Philadelphia, PA*
- Modified CNC machine to experiment on properties of the violin bow while in motion, collecting 2000+ samples of sound and vibration data across different variables.
- Developed programs to analyze acoustic and vibration data, generating plots and visualizations using MATLAB to present how different bow characteristics influence sound production at the Penn Research Expo.

University of Pennsylvania August 2024 – Present
Teaching Assistant, CIS 5450: Big Data Analytics *Philadelphia, PA*
- Host weekly office hours, lead recitations, and create programming assignments to teach data skills to 300+ students.
- Mentor 18 students through end-to-end ML projects, guiding each stage from data acquisition to model development.

Projects

AutoAvenue | *SQL, React, Node.js* March 2024 - May 2024
- Engineered a full-stack car review and search platform, allowing users to compare ratings and prices from a database of 600,000+ cars.
- Optimized complex SQL queries for a customizable car ranking system, reducing backend response times by over 97%, from 30+ seconds to less than one second.

YouTube Subscriber Prediction | *Python, Pandas, Scikit-learn* April 2024 - May 2024
- Analyzed 1M+ channels to predict subscriber counts using features such as keywords, views, and upload frequency.
- Performed exploratory data analysis, data visualization, and feature engineering using pandas, Matplotlib, and NumPy.
- Employed machine learning techniques such as PCA, ridge regression, random forests, and gradient boosting to achieve a predictive model with an R^2 value of 0.83 on test data.

Bottleneck Transformer | *Python, PyTorch* November 2023 - December 2023
- Implemented the cutting-edge BoTNet architecture as introduced in Srinivas et al.'s research paper "Bottleneck Transformers for Visual Recognition," adapting the model for image classification tasks.
- Fine-tuned hyperparameters such as learning rate, weight decay, and momentum, training the model on the CIFAR-10 dataset and achieving 90% accuracy on test data.

Skills

Programming Languages: Python, Java, SQL, C, C++, JavaScript, TypeScript
Machine Learning & Data Science: PyTorch, Pandas, NumPy, Scikit-Learn, Spark
Other: React, AWS, Azure, NoSQL (MongoDB, Neo4j), Node.js, HTML, CSS, Git, Agile Development