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, Database Systems, Big Data Analytics, Data Structures & Algorithms, Statistics for Data Science, Digital Signal Processing

Technical Skills

Languages: Java, Python, SQL, JavaScript, TypeScript, C, C#, MATLAB, HTML/CSS
Frameworks & Libraries: PyTorch, NumPy, Pandas, Matplotlib, Scikit-Learn, React, .NET, Node.js
Tools & Platforms: Git, AWS, Azure, Apache Spark, MongoDB, Neo4j

Experience

Bentley Systems May 2024 – Present
Machine Learning Engineer Intern *Exton, PA*
- Developing an AI-powered assistant that converts natural language prompts into specialized database queries for 3D infrastructure modeling software
- Creating a synthetic dataset for training and validating the machine learning pipeline to enhance query accuracy

Bentley Systems May 2023 – August 2023
Software Engineering 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 after user profile changes
- Revamped user management table and filter box behavior using React and CSS, improving 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 variables such as speed, weight, and point of contact
- 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

NOBO Robotics November 2021 – May 2022
Software and Hardware Engineer *Philadelphia, PA*
- Built a prototypical autonomous robot to control birds and other pests using non-lethal methods
- Designed a printed circuit board as part of an attachable speaker that emits loud sounds to mimic predatory birds

Projects

AutoAvenue | *SQL, React, Node.js* March 2024 - May 2024
- Developed a full-stack car review and search platform, allowing users to compare ratings and prices from a database of 600,000+ cars
- Engineered and optimized complex MySQL queries, reducing backend response times from 30+ seconds to less than one second and enabling seamless user interaction with customizable car rankings

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
- Cleaned, processed, and performed data visualization using pandas, applying feature engineering to convert raw textual data into actionable numerical and categorical values
- Employed both supervised and unsupervised learning techniques including PCA, random forests, and gradient boosting, refining the final predictive model to achieve an R^2 value of 0.83

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