Kevin Xiao

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Education

University of Washington (Class of 2027)
Majoring in Computer Science at the Paul G. Allen School

Bellevue High School (BHS) (Class of 2023)
GPA: 4.0/4.0 (unweighted)
SAT: 1560 (Math: 800 | English: 760)

Awards and Accomplishments

AIME (American Invitational Mathematics Examination) Qualifier 2021 & 2022
AMC 10/12 (American Mathematics Competition) Distinction 2021
USACO (USA Computing Olympiad) Gold Division 2022 - 2023
AP Scholar with Distinction 2022
National Merit Commended Student 2023
Julie Kerr Memorial Math Prize (Top 2 AMC scores in BHS) 2022
Wolverine Guard (100+ Volunteer Hours in 1 year at BHS) 2022 & 2023

Work Experience and Volunteering

International Children Education Association
(https://intlcea.org/)
Full-Stack Software Engineer June 2023-Present

- Designed web application architecture and built a database that stores events, games, and player profiles from past chess tournaments for ICEA chess players to query games and learn tactics efficiently
- Worked with technologies like MongoDB, Mongoose, Express for RESTful API, HTTP server, HTML, CSS, JavaScript

Pathway Foundation Mayoral Internship
(Youth Organization for Civic Engagement)
Digital Platform Project Lead + Tutoring Project Lead 2019 - 2023

- Led a team of 6 other high school interns in the design, development, and maintenance of two public websites (www.pathwayus.org and www.tutoring.pathwayus.org) for the foundation
- Managed a free tutoring summer camp to fight educational inequality in summer 2022. Built a qualified tutoring team of 16 high schoolers, designed curricula, and helped 30+ underserved students in the Greater Seattle Area

Hui Lau Shan
(Hong-Kong dessert store chain)
Dessert Artist / Barista February 2023-September 2023

- Responsible for daily store operations; served up to 300 customers per day
- Effective communication with customers and coworkers; working efficiently under pressure and time constraints

Software Skills: Python, Java, C++, JavaScript, HTML/CSS

Computer Science Projects

ClinicChatBot July 2023-Present

- Researched and transformed ideas into solutions for an AI web chatbot based on a large language model that specializes in helping clinic website visitors
- Prototyped a backend system to generate answers for customers based on a clinic's reviews and site-specific content without hallucination
- Designed frontend, deployed a testing version to a local acupuncture clinic, and provided accurate responses that could support the clinic with automation and minimized costs.
- Technologies used: OpenAI API, ChromaDB, Abseil, Haystack framework

CipherBot 2022

- Project description: https://xckev.github.io/CipherBot
- Github Repository: https://github.com/xckev/CipherBot
- Self-guided research project on digital voting
- Developed open-source Discord bot in Python that utilizes cryptographic algorithms such as Diffie-Hellman key exchange and public-key encryption
- Emulation of mix-networks and homomorphic encryption for secure voting, motivated by improving modern election integrity
- Technologies used: Discord API, CoinMarketCap API, Microsoft SEAL

SeamCarver 2021

- A content-aware image resizing technique to keep the most important visual information preserved while adjusting image dimensions
- Usage of Dijkstra's shortest path algorithm to delete the least important horizontal/vertical seam of an image, calculated by assigning each pixel an importance value called "energy" that takes into account differences in RGB values

WordNet 2021

- A semantic lexicon for the English language that groups words into sets of synonyms, returning words that are most related to each other
- Usage of rooted directed acyclic graphs and graph algorithms such as DFS and BFS to group words based on synonym and hyponym relationships

Extracurricular Courses

Machine Learning 2023

Coursera Course by Andrew Ng, Stanford University

- In-depth lectures, quizzes, and programming assignments on gradient descent, linear/logistic regression, regularization, neural network forward/back propagation, and more

Cryptography and Cryptocurrencies 2022

Stanford Pre-Collegiate Summer Institutes

- Learned and implemented cryptography fundamentals like symmetric/asymmetric encryption, hash functions, cyclic groups, digital signatures, etc.
- Learned cryptocurrency basics like UTXO model, proof-of-work, blockchain, etc.

Cryptography I 2022

Coursera Course by Dan Boneh, Stanford University

- In-depth lectures and quizzes on stream ciphers, block ciphers, MACs, hashing, Diffie-Hellman key exchange, RSA, CCA security, underlying mathematical algorithms