Katie Ng

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Education

Stevens Institute of Technology Hoboken, NJ
Bachelor of Science in Computer Science, Minor in Quantitative Finance (GPA: 3.53/4.00) Aug 2021 - May 2025

- Relevant Coursework: Data Structures and Algorithms, Discrete Structures, Probability and Statistics
- Activities: Pinnacle Research, Women in Computer Science, Society of Women Engineers (SWE), Alpha Phi
- Honors: Dean's List, Pinnacle Scholar, Presidential Scholar, Edwin A. Stevens Scholar, Martha Bayard Scholar

Stuyvesant High School New York, NY
Specialized High School Regents Diploma with Advanced Designation (GPA: 94/100) Sep 2017 - Jun 2021

Technical Skills

Languages: Python, C++, Java, Racket, NetLogo, Arduino
ML/AI: Pandas
Web Technologies: HTML, CSS, JavaScript
Miscellaneous: Git, Latex, Visual Studio Code

Experience

Mobile AI Cybersecurity Computing (MACC) Laboratory Hoboken, NJ
Undergraduate Researcher May 2022 - Present

- Investigated the effect of resource selection window length on the reliability of cellular vehicle-to-everything.
- Evaluated the feasibility of autonomous resource selection in high-density traffic. Validated its advantage over dedicated short-range communications in regard to latency and Packet Reception Ratio.
- Developed simulations in Eclipse SUMO, manipulated object behavior through the Traffic Control Interface (TraCI) in Python, and applied vehicular communications in ns-3. Visualized data with pandas.

The Stuyvesant Indicator New York, NY
Editor-in-Chief Nov 2019 - June 2021

- Constructed project timelines and monitored workflow for 8 departments of 240 staff members.
- Edited all journalistic elements and graphic design in Adobe InDesign for 320-page publication.
- Led business campaigns to fundraise $14,500. Allocated budget for production costs.

Projects

Digital Home Assistant Aug 2022

- Built a home assistant powered by Raspberry Pi to display upcoming calendar events and real-time news.
- Integrated Canvas and Amazon Alexa modules to display course assignments and to enable voice control.
- Styled user interface with CSS to color-code events and deadlines by category.

Music Recommendation System Apr 2022

- Streamlined workflow for a team of 3 to develop a Python script that suggest new music artists based on users' previously liked artists.
- Outlined sprint goals based on deadline and delegated tasks amongst team members.
- Implemented modular programming to optimize collaborative code. Wrote 6 test cases to ensure code quality.

University Management Interface Dec 2021

- Developed a C++ program allowing users to access, add, and edit student and faculty profiles.
- Applied an authentication feature to restrict editing permissions depending on the user's role.
- Parsed text document to store saved profiles in a vector. Updated document as profiles were added or changed.

Weather Monitoring Station Dec 2021

- Directed a team of 3 through a product development process to design and assemble a self-contained circuit (using a WeMos board, DHT sensor, and photocell) that monitors temperature, humidity, and light intensity.
- Implemented automatic low power mode and data validation in Arduino to optimize battery life and to minimize measurement errors. Uploaded readings through a publisher-subscriber model using MQTT protocols in IoT.
- Designed several hardware prototypes in SolidWorks and assessed their readiness for production based on metrics such as serviceability, print time, functionality, and consumer safety.

HIV Transmission and Prevention Model Jan 2019

- Programmed a NetLogo simulation allowing users to observe dependencies between consistent prevention practices, HIV infections, and the onset of AIDS.
- Researched transmission rates, risk factors, and infection timelines to provide an accurate real-world model.
- Maintained thorough documentation of project versions as bugs were fixed and new features were implemented.