

Ka Long Ngai

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Education

SUNY Stony Brook University

Bachelor of Science in Computer Science

Awards: Outstanding Academic Awards (3x recipients), Dean List (3x recipient)

Relevant Coursework: Systems Fundamentals I/II, Fundamentals of Software Development, Data Structures & Algorithms

Expected Graduation May 2026

GPA: 4.0

Experiences

Cohesive Robotics

Brooklyn, NY

Software Engineer Intern

June 2024 - August 2024

- Implemented significant enhancements to the Human-Machine Interface (HMI) for a smart finishing robotics workcell using the Qt framework in C++. This involved a comprehensive overhaul of the existing UI, focusing on logical design to reduce the number of clicks, to improve readability, and to enhance ease of use. This resulted in a 30% improvement in user experience
- Conducted regression and system integration testing for an automated workstation that includes a 6-axis robotic arm implemented with the ROS2 framework. This effort reduced failure risk by 10% through bug fixes and added unit tests
- Maintained a C++ and Python codebase containing 50k lines of code, which included migrating to a newer long-term support (LTS) framework, rewriting illogical code, and simplifying implementation using advanced data structures and algorithms
- Investigated and implemented tools such as linters and formatters, including clang-tidy, cpp-format, and cpp-linter, resulting in a 20% improvement in code safety, performance, and readability

Residence Hall Association

Stony Brook, NY

RHA Senator

September 2022 - May 2024

- Participated in two weekly meetings which provided engaging activities for the hall's residents with over 100 attendees
- Facilitated effective communication between Residence Hall Association and Hall Council to ensure seamless and smooth events
- Voted for more than 10 candidates for executive positions through active discussion and debate using Robert's Rules, resulting in the selection of the most qualified candidates

Projects

[Fake Stack Overflow](#)

November 2023 - December 2023

- Created a web app replicating 15 Stack Overflow features, including account registration/login, asking new questions, upvoting/downvoting questions, and commenting, all integrated with a secure RESTful API. User accounts were protected using bcrypt and express sessions, ensuring confidentiality and integrity for 90% of API requests
- Used React.js for Front End Framework; Node.js, Express.js for Backend Framework; MongoDB for Database

[Spotify Shuffle Algorithm](#)

January 2023 - March 2023

- Developed an effective shuffle algorithm for Spotify playlists by analyzing music listening habits and understanding the ideal randomness for song shuffling. The algorithm was also optimized for efficiency by measuring program runtime and evaluating the listening experience as an audience, resulting in a 30% improvement in overall listening experience
- Used Java as the primary language, Node.js and Bash to retrieve and update data using Spotify API

[Weather Report Bot](#)

October 2022 - November 2022

- Produced a Bot that generates weather reports based on user-specified locations using their text input in the 3rd party software Discord, therefore increasing the accessibility of weather reports for users by 30%
- Used JavaScript as the primary language, Node.js framework, using Discord API to obtain user input

Technical Skills

Languages: Java (advance), C/C++ (advance), Python (intermediate), JavaScript (intermediate), Bash (novice), OCaml (novice)

Web Technologies: HTML5, CSS3, React.js, Node.js, Express.js, RESTful APIs, JSON

Databases: MySQL, MongoDB, SQLite

Tools & Platforms: Git, Github/Gitlab, Docker, Linux

Methodology: Design Pattern, Agile Methodology, Waterfall Methodology, Scrum