

# SOROUSH F. SEMERKANT

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## EDUCATION

### Stony Brook University

Aug 2020 - Present

- BS Computer Science, BS Applied Mathematics / Statistics (Expected Dec 2023) | GPA: 3.73
- Relevant Coursework: Intro to Object-Oriented Programming, Data Structures, Programming Abstractions, System Fundamentals I/II, Technical Writing, Linear Algebra, Discrete Mathematics, Combinatorics, Multivariable Calculus

## PROFESSIONAL EXPERIENCE

### Consolidated Edison Company of New York, Inc. ([coned.com](https://www.coned.com))

Jul 2019 - Present

#### Engineering Co-op in Steam Operations - Learning the processes involved in providing a utility to the public

- Leading the efforts to develop an app using Microsoft Power Apps for training operators.
- Developing an automatic notification system using Microsoft Power Automate that notifies station operators when they have required training.
- Worked in a team to centralize all station procedures into a new, "smart procedure" system.
- Updated over 1000 procedures to a new consistent format which was imported into the "smart procedure" system.
- Implemented an inspection database system used to store data for analysis to predict and prevent system failures.
- Presented to upper management the projects I had worked on during the 8-week summer internship and was offered a long-term co-op position.

### Stony Brook University Mobile App Security Research

Sep 2021 - Dec 2021

#### Research Assistant in Mobile App Security

- Collaborated with a team of 4 research assistants and a Professor to find security vulnerabilities in State COVID Exposure Notification Apps on Android with findings to be published at a later date.
- Analyzed approximately 20 apps using tools such as MobSF and Android Studio (Java) to identify vulnerabilities or permission inconsistencies with the privacy policy.
- Found approximately 15 different vulnerabilities or privacy violations with one of which being a major violation used in multiple Exposure Notification Apps.

## PROJECTS

### Dynamic Memory Allocator

Mar 2022

- Developed a custom dynamic memory allocator in C creating my own version of the malloc, free, and realloc functions.
- Created a complex data structure to manage the heap efficiently with minimal fragmentation using segregated free lists, immediate coalescing for large blocks, boundary tags, and header/footer obfuscation to protect against heap corruption.
- Measured current values of internal fragmentation and peak utilization with custom functions to keep track of the heap.

### E-Commerce Site

Dec 2021 - Jan 2022

- Designed and developed a test e-commerce site using HTML/CSS/JS with React.js for selling clothing items.
- Linked the website to a Google Firestore Database to store and authenticate user data securely.
- Implemented the Stripe API to process online payments through the website.

### Smart Thermostat

Oct 2020 - Dec 2020

- Built a Smart Thermostat that is able to connect to an MQTT server, developed on a raspberry pi, to control the hot water heating system and a standalone Air Conditioning Unit using the Internet.
- Programmed an ESP8266 microcontroller with the Arduino IDE to interact with the circuit and the MQTT Server.
- Assembled a circuit using an IR led (used to control the AC unit), a Relay (used to control the AC voltage input for the heating system), an NPN transistor, temperature sensor, and an ESP8266.
- Designed a case to store and mount the unit in Autodesk Inventor and printed it using Ultimaker Cura.

## SKILLS

- Programming Languages: Java, C, C++, Python, HTML/CSS/JS, Node.js, React.js, Git, Arduino IDE, RobotC, LabVIEW
- Office applications: Microsoft Office, Microsoft PowerApps, Microsoft PowerAutomate, Microsoft Sharepoint, Google Suite
- 3D Modeling: Autodesk Inventor, MakerBot, and Ultimaker Cura