FREDERICK MORLOCK

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EDUCATION

New York University Shanghai   **Sept 2016 - Dec 2020**
Bachelor of Science in Computer Science and Mathematics | GPA: 3.61   Shanghai, China

PROFESSIONAL EXPERIENCE

Simeon Cloud LLC   **Mar 2021 – Dec 2021**
Full Stack Software Engineer   San Jose, CA

- Built out a bi-directional sync engine for configuration as code in .NET C# for the Microsoft 365 platform – running completely on serverless architecture. Was also responsible for building out a user interface for the product on the web in Vue, Typescript, and SASS.

NYU Shanghai   **Dec 2019 – Dec 2020**
Machine Learning Research Assistant   Shanghai, China

- Researching the mathematical aspects of theoretical machine learning under Professor Shuyang Ling of NYU Shanghai. Currently focusing on graph embedding, sparsification, and coarsening, the goal of which is to allow large-scale graph networks to be computed on with a greatly reduced computational footprint and minimal deviations from computations on the original.
- Conducted research under Professor Ling for a senior thesis in specifying the limits of popular dimensional reduction techniques and visualization techniques, such as t-SNE, all of which were implemented in PyTorch and Numpy.

NYU Shanghai   **Aug 2019 – Dec 2019**
Cryptography Research Assistant   Shanghai, China

- Researched emerging post-quantum, lattice-based cryptography schemes under the guidance of Professor Siyao Guo of NYU Shanghai, as well as delved into the inner workings of quantum computing theory. The goal of the research was to investigate some of the many open questions in post-quantum cryptography and work towards answering them.
- Gained experience in writing proofs for proving the security of cryptographic protocols, which are critical in ensuring the security of existing and emerging schemes.

Altran Technologies   **Jun 2015 – Aug 2015**
Software Engineering Intern   Burlington, MA

- Developed advanced gantry systems, experimental wireless communication technologies, power monitoring systems, and vehicle bus communications systems with extensive use of C++. Specifics of projects are under non-disclosure agreements.

LEADERSHIP EXPERIENCE AND PROJECTS

iNDS Team   **May 2018 – Mar 2021**
Founder & Lead Developer   Online

- Lead developer and maintainer for the open-source iNDS project, the only widely available Nintendo DS emulator for iOS – built with C and Objective-C. With over 10K views on GitHub per week, it is one of the most popular emulators on iOS.

Dean's Undergraduate Research Fund – NYU Shanghai   **May 2020 - Sep 2020**
Funding Recipient & Researcher   Shanghai, China

- Researched extending t-SNE for use in graph embedding and visualization. This method was compared against existing graph embedding algorithms in terms of embedding and visualization quality with substantial improvements over existing techniques in certain settings. Further research into optimizing graph visualization methods is currently being conducted.

SPLICE – NYU Shanghai   **May 2019 - May 2020**
Director of Education   Shanghai, China

- Devised and taught an Intro to Python workshop curriculum, as well as an Intro to Computer Security workshop curriculum for the NYU Shanghai SPLICE club – the Computer Science club at NYU Shanghai.
- Lead the organization of NYU Shanghai's first Computer Security CTF (Capture the Flag) competition, allowing students to apply offensive security knowledge learned in the Intro to Computer Security workshops and compete against peers.

SKILLS

Languages: English (native speaker) and Mandarin Chinese (conversational).
Programming languages: extensive use of Python (including PyTorch & NumPy), C/C++, Objective-C & Swift, Full-Stack Web Technologies, and Kotlin/Java
Additional areas of experience: Machine Learning, Cryptography, Full-Stack Web Development, iOS & macOS Development, and Computer Networking