# Everett Key

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## EDUCATION

**Cornell Tech | Cornell University** **August 2020 - July 2021**
*Master of Computer Science* New York City

- **GPA: 3.8 / 4.0 | Notable Coursework:** Machine Learning Engineering | Intelligent Autonomous System | Computer Vision | Interactive Device Design | Bio-Inspired Multi-Agent Systems
- **Awards:** Cornell Tech ECE Merit Scholarship

**University of Washington** **September 2016 - June 2019**
*B.S. in Mechanical Engineering* Seattle

- **GPA: 3.4 / 4.0 | Notable Coursework:** Computer Programming| Data Structures and Algorithms| Artificial Intelligence
- **Awards:** Dean's List 2018, 2019| J. Robert Oppenheimer Scholarship| UW Purple and Gold Scholarship| LANL Scholarship

## WORK EXPERIENCE

**FullRing Technology, Trackwork Construction & Design** **September 2019 – August 2020**
*Software Engineer* Taichung City, Taiwan

- Established a new railway assessment system which decreased overhead costs by 95% and reduced setup time by 99% by creating custom-built sensors and data processing software.
    - Developed a sensor prototype by integrating mpu6050 Gyro-Accelerometer with a GPS receptor.
    - Designed a data visualization and interaction GUI using PyQt, NumPy, Matplotlib, and Google Earth.
    - Verified results by generating verification data through surveying 55 km of mountain railway from sea level to 7000 feet.
- Designed, manufactured, and installed lifting brackets to support historic locomotives weighing over 28 tons.

**Los Alamos National Laboratory, National Security** **Summer 2017**
*Data Researcher & Software Engineer* Los Alamos, New Mexico

- Developed a customized traffic monitoring algorithm with 95% accuracy under significant security and resolution constraints.
- Designed GUIs for analyzing the robustness of financial models using PySide.

## PROJECTS

**QQ Browser Textbook RSA attack & fix, Password-Based Authenticated Encryption** **Summer 2021**

- Exploited QQ browser's hybrid encryption with CCA2, proposed a better scheme using OAEP padding and sender verification.
- Investigated insecure code on StackOverflow, demonstrated its vulnerability to brute-force and padding oracle attack.
- Improved SO answer's security by incorporating message authentication code and PBKDF to the encryption scheme.

**Minitorch, (Python, CUDA)** **Fall 2020**

- Developed a tensor class for training both feedforward and convolutional neural networks on CPU and GPU backends.
- Implemented the training workflows to include backpropagation featuring GPU acceleration using Numba and Cuda.

**Autonomous Truck Mapping and Tracking, (Python, Linux, ROS)**

- Developed a localization pipeline for a truck company, Paccar, to assist in their autonomous truck research.
- Utilized Simultaneous Localization and Tracking (SLAM) and Adaptive Monte Carlo Localization (AMCL) to develop Paccar's first spatial localization and mapping pipeline using the Robot Operating System (ROS) on Linux.
- Overcame scarce landmarking to generate Paccar's initial test track map using LIDAR imaging.

## ACTIVITIES

**Meili Technologies Startup** **Fall 2020 – Present**

- Prototyped in-cabin health monitoring solution for autonomous vehicles. Interviewed 100+ drivers and riders concerning AV.
- Winner of 2021 Cornell Tech startup award of $100,000 prize out of 50 teams. Currently working part-time as hardware engineer.

## TECHNICAL SKILLS & INTERESTS

**Technical Skills:** Python [Pytorch, Numpy, Matplotlib, Pandas] | SQL | Java | C++ | JavaScript | HTML | Matlab | R
**Accomplishments:** Certified SolidWorks Professional | Certified Starbucks Barista | Seattle-Portland 200 miles bike ride |
**Interests:** Biking | Running | Piano | Tango | Harmonica | Guitar | Hamilton | 1 Gallon Blood Donation | Tent City Night's Watch |