Everett Key

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TECHNICAL SKILLS

Technical Skills: Python [Pytorch, Numpy, Matplotlib, Pandas] | SQL | Java | C++ | JavaScript | HTML | Matlab | R | AOSP

WORK EXPERIENCE

Meta Reality Labs, Wearable Camera **January 2022 – November 2022**
Software Engineer Burlingame, California

- Designed a camera controller interface managing 6+ image fusion algorithms, providing modularity to the image capture pipeline.
- Reduced image capture time by 300ms during a production event; expended testing tools for efficient future investigation.
- Winning an internal hackathon by inventing a new way of taking panoramas with wearable cameras.

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

- Established a custom railway assessment system that has 95% less cost and overhead as compared to the legacy method.
    - Prototyped a ride quality sensor by integrating commercially available Gyro-Accelerometer, GPS, and Arduino.
    - Developed a sensor control UI/UX that also provides aerial visualization of railtrack health maps.
    - Studied product feasibility by field testing sensor through 55 km of mountain railway from sea level to 7000 feet.

Los Alamos National Laboratory, National Security **July 2014 – September 2018**
Data Researcher & Software Engineer Los Alamos, New Mexico

- Developed and evaluated traffic monitoring algorithms achieving 95% accuracy under strict security and resolution constraints.
- Detonated explosives in the Nevada Test Site to collect high speed photos for verifying hydrodynamic simulation models.

PROJECTS

Meili Technologies Startup **Cornell Startup Studio**

- 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.

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

- 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) **Cornell Machine Learning Engineering**

- 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) **Paccar**

- Utilized Simultaneous Localization and Tracking (SLAM) and Adaptive Monte Carlo Localization (AMCL) to develop Paccar (truck company)'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.

EDUCATION

Cornell Tech | Cornell University **August 2020 - July 2021**
Master of Engineering 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: 3.32 / 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