



NAYEF AHMED

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EXPERIENCE

- **Facebook AI Research** | Software Engineer Intern
C++, Python, PyTorch, TorchScript | New York, NY (Remote) | May - Sep 2020
 - Collaborating with the AI Platform team to design and implement **high-performance NLP building blocks** (Tokenizer, Vector, Vocab) for PyTorch
 - Profiling CPU performance of text preprocessors on several datasets using Flame Graphs and applying concurrency to **decrease load times by over 10x**
 - Supporting upcoming PyTorch releases to facilitate NLP research and demonstrate feasibility of new features for internal adoption
- **Lyft Level 5** | Software Engineer Intern - Autonomous Driving
C++, Python, TensorFlow, OpenCV | Palo Alto, CA | Jan - Apr 2020
 - Trained new classifier with the Perception team capable of detecting traffic light bulb shapes with **90%+ accuracy** on an extremely unbalanced dataset
 - Designed a regression test suite capable of providing a **binary decision** to engineers about whether a new model is ready to be released to the vehicle
- **Facebook AI Research** | Software Engineer Intern
C++, Python, OpenCV, PyTorch, Presto | Menlo Park, CA | May - Aug 2019
 - Implemented a detection and tracking pipeline capable of **running on all Facebook videos in real-time** as part of the Computer Vision team
 - Benchmarked precision and recall of various detection models (**Mask R-CNN**, **DFSD**, **Viola-Jones**) and tracking algorithms on a 600k SOA video dataset
 - Collaborated with leading researchers (Ross Girschick and Yufei Wang) to anonymize faces in the video dataset using detection and tracking results
- **Microsoft** | Software Engineer Intern
C#, Redis, Kusto, Azure | Redmond, WA | Aug - Dec 2018
 - Architected Ownership Enforcer (OE) service on the Azure Infrastructure team to enforce PR code reviews for compliance and security assurance
 - Improved performance of OE service by designing a multi-layered Redis caching pipeline from the ground up, **reducing all API calls by 150%**
- **Microsoft** | Software Engineer Intern
C#, C++, Unity, XAML, HoloLens | Vancouver, BC | Jan - Apr 2018
 - Created a cross-platform Windows/HoloLens app for viewing 3D files used by **3 million+ monthly users** as part of the 3D Viewer team
- **Watonomous** | Path Planning Engineer - Autonomous Driving
C++, ROS, RViz, CMake | Waterloo, ON | Sep 2017 - Apr 2019
 - Designed costmap generation algorithms using a **2-layered occupancy grid** to help transform a Chevrolet Bolt EV into a Level 4 autonomous vehicle

PROJECTS

- **Study Space** | PennApps XVI (Google Prize Winner)
 - Created IoT device and companion app to **display real-time occupancy** of specific locations on campus using 'Android Nearby' communication platform
- **Flappy Goose** | Game in an Embedded RTOS Environment
 - Recreated Flappy Bird game using a Keil MCB1700 board in a **real-time OS**

SKILLS

- **Languages**
 - Python
 - C++
 - C#
 - Java
 - SQL
 - JavaScript
- **Technologies/Frameworks**
 - PyTorch
 - OpenCV
 - Pandas
 - NumPy
 - ROS
 - TensorFlow
- **Tools**
 - Git
 - Jupyter
 - AWS
 - Linux
 - BigQuery
 - Redis

EDUCATION

- **University of Waterloo**
Sep 2016 - Jun 2021
BAsC in Honours Mechatronics Engineering, Co-op
Option in Artificial Intelligence
- **Charles III University of Madrid**
Sep - Dec 2019
International Exchange Semester
- **Relevant Courses**
 - CS231n - Convolutional Neural Networks (Stanford)
 - Practical Deep Learning for Coders (fast.ai)
 - Machine Learning (Coursera)

ACCOMPLISHMENTS

- Recipient of \$70,000+ in scholarships
- Int'l Experience Award
- Google Prize @ PennApps XVI
- 3rd Place @ IEEE Hardware Hackathon

HOBBIES/INTERESTS

- Varsity Ultimate
- Running
- Road Cycling
- Mentorship
- Robotics