



# NAYEF AHMED

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## EXPERIENCE

- **Facebook AI Research** | Software Engineer Intern  
C++, Python, OpenCV, PyTorch | Menlo Park, CA | May 2019 - Present
  - Working on the Applied Research Computer Vision team to create a face detection and tracking pipeline **running on all Facebook videos in real-time**
  - Benchmarked precision and recall of various detection models (Mask R-CNN and Viola Jones) and tracking algorithms on a 600k SOA video dataset
  - Collaborated with leading researchers (Ross Girschick and Du Tran) to anonymize faces in the video dataset using detection and tracking results
- **Microsoft Corporation** | Software Engineer Intern  
C#, Redis, Kusto, Azure | Redmond, WA | Aug - Dec 2018
  - Architected Ownership Enforcer (OE) service within the Azure Infrastructure team to enforce PR code reviews for compliance and security assurance
  - Improved performance of OE service by designing multi-layered Redis Cache pipelines from the ground up, **reducing VSTS API calls by 150%**
  - Redesigned existing cache systems to **optimize lookup time by 90%** through implementing horizontal scaling across multiple shards
- **Microsoft Corporation** | Software Engineer Intern  
C#, C++, Unity, XAML, HoloLens | Vancouver, BC | Jan - Apr 2018
  - Worked on 3D Viewer team to create a cross-platform Windows/HoloLens app for viewing 3D files used by **3 million+ monthly users**
  - Integrated 3D asset conversion/optimization pipeline into the app to support all 3D file formats, **decreasing asset transcoding time by 70%**
- **Watonomous (Self-Driving Car)** | Path Planning Engineer  
C++, ROS, RViz, CMake | Waterloo, ON | Sep 2017 - Present
  - Collaborating on a student-led design team to transform a Chevrolet Bolt EV into a level 4 autonomous vehicle for the SAE AutoDrive Challenge
  - Visualized car's trajectory with waypoints from dynamic window A\* algorithm
- **Unicell Body Company** | Full-Stack Developer  
Java, PHP, MySQL, React Native | Toronto, ON | May - Aug 2017
  - Iterated on internal quoting tools, **utilized by 1000+ employees**, to increase usability and allow for better visualization of company performance
  - **Improved inventory management speed 5x** by automating data processing

## PROJECTS

- **Flappy Goose** | RTOS Game in an Embedded Environment  
C, Keil RTX RTOS, LPC1768 Microcontroller
  - Recreated Flappy Bird game using a Keil MCB1700 board in a real-time OS
  - Used task synchronization and interrupts to **simultaneously update LCD graphics, player score, game physics, and handle peripheral I/O**
- **Study Space** | PennApps XVI (Google Prize Winner)  
Android Things, Java, Firebase
  - Created IoT device and companion app to **display real-time occupancy** of specific locations on campus using 'Android Nearby' communication platform

## EDUCATION

- **University of Waterloo**  
2016 - 2021  
BASc in Honours Mechatronics Engineering Co-op, Option in Artificial Intelligence
- **Relevant Courses**
  - CS231n - Convolutional Neural Networks (Stanford)
  - Machine Learning (Coursera)
  - Real Time Operating Systems
  - Data Structures and Algorithms
  - Microprocessor Systems and Interfacing

## SKILLS

- **Languages**

• Python	• C++
• C#	• C
• Java	• JavaScript
• PHP	• SQL
- **Technologies/Frameworks**

• OpenCV	• ROS
• Pandas	• NumPy
• PyTorch	• LAMP Stack
• MATLAB	• .NET Core
- **Tools**

• Git	• IPython
• Redis	• Linux
• Hadoop	• Azure

## ACCOMPLISHMENTS

- President's Scholarship of Distinction
- Google Prize @ PennApps XVI
- 3rd Place @ IEEE Hardware Hackathon

## HOBBIES/INTERESTS

- Varsity Ultimate
- Road Biking
- Hiking
- Speedcubing
- Robotics
- Snowboarding