Paolo Torres

3A Mechatronics Engineering, University of Waterloo

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Skills

Languages/Tech: C++, C, C#, XAML, .NET, JavaScript, Node.js, JSON, Python, Arduino, HTML, CSS
Libraries/APIs: C++ STL, libc++, Clang, LLVM, C Run-Time, WPF, jQuery, OpenCV, scikit-learn, Tkinter
Tools: Visual Studio, Git, Azure DevOps, Command Prompt, MSBuild, Terminal, PowerShell, Linux, Jira

Experience

Software Engineering Intern - Microsoft — Jan 2019 - Apr 2019

- Developed **C++20** library conformance features based on the C++ STL that ships with Visual Studio
- **Libraries:** algorithms, numeric, cmath, containers, type traits, strings, functional, memory, and new
- Optimized function's move constructor to **reduce object file size** by 30% for x86 and 45% for x64
- Committed official changes to the **C++ Standard** through performance and wording improvements

Explore Intern - Microsoft — May 2018 - Aug 2018

- Developed Visual Studio IDE and IntelliSense features in C++ and C#, shipped to over **5 million users**
- Added **telemetry analytics** and full test coverage to track success metrics and increase robustness
- Utilized **Git** and Azure DevOps to track work, participated in sprint meetings, and carried out demos
- Created query scripts to extract user metrics and formed Power BI dashboards for data visualization

Robotics Engineering Intern - Aeryon Labs — Sep 2017 - Dec 2017

- Generated fixes on **sensors** and MCUs to improve temperature reading and flight performance in C
- Fixed **memory management** issues in C++ and CUDA on Nvidia Jetson to reduce payload crashes
- Squashed 50+ bugs in Jira and tested feature requests related to controls, computer vision, and UI

Software Developer/QA Intern - Solink — Jan 2017 - Apr 2017

- Implemented central **data source connector** in JavaScript for 10,000+ POS device transactions a day
- Wrote camera-based and data extraction **automation scripts** via REST saving hours of work a week
- Created software tools, patched numerous bugs, and tested the product via Scrum/Agile methodology

Embedded Developer - Waterloo Aerial Robotics Group — Sep 2016 - Dec 2016

- Designed a **debugging system** in C for the GPS to prevent coordinates from incorrectly locking values
- Utilized integer-based commands to control decision-making for the aircraft's probe drop mechanism
- Employed pulse width modulation code on mounted camera to manage payload imaging for competition

Projects

Vehicle Tracker - (C++, OpenCV)

- Created an application enabling users to upload traffic video and count passing cars at 92% accuracy
- Employed **computer vision** and image processing techniques to separate static from dynamic instances

Sign Language Translator - CUHacking (Python)

- Built a sign language recognition system via Leap Motion hardware with an incorporated video chat
- Won Indico's Challenge for **best use of machine learning** through SVMs and the scikit-learn library

Pathfinding Simulator - (C++)

- Implemented **A* search algorithm** to simulate closest path robotic navigation with obstacle avoidance
- Allowed users to create the environment and visualize movement and heuristics via binary representation