PAOLO TORRES

3B 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, Terminal, Linux, Jira, ROS, CMake, MSBuild, Command Prompt, Azure DevOps

EXPERIENCE

Clearpath Robotics | Software Developer Intern — Waterloo, ON | Sep - Dec 2019

- Implemented **firmware** with DMX512 and sACN compatibility for control of embedded lighting system
- Interfaced with an **STM32F407**, creating device drivers to support UDP transport and SPI conversion
- Developed and tested features for autonomous ground vehicles in **C++**, utilizing ROS and CMake

Microsoft | Software Engineering Intern — Redmond, WA | Jan - 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

Microsoft | Explore Intern — Redmond, WA | May - 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

FLIR Systems | Robotics Engineering Intern — Waterloo, ON | Sep - Dec 2017

- Generated fixes on **sensors** and MCUs to improve temperature reading and flight performance in C
- Squashed **50+ bugs** in Jira and verified feature requests related to controls, computer vision, and UI
- Tested and validated memory management issues, firmware, connectivity, calibration, and custom APIs

Solink | Software Developer/QA Intern — Ottawa, ON | Jan - 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

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