NICOLE ROSARIO

Mechatronics Engineering – University of Waterloo

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ENGINEERING EXPERIENCE

Back-End JavaScript Developer (Co-op)

Intrigue Media Solutions Inc.

Jan. 2018 – Apr. 2018 — Guelph, ON

Node.js, PHP (Slim 3.0), JavaScript, AWS EC2, SQL, Apache, Nginx, Redis, HTML/CSS, Git, Visual Studio

- Designed, developed, and tested a CSV importer that adds tasks for team members in bulk in under **2 seconds** on up to 10,000 entries, in order to **secure access** and prevent error values from reaching the SQL database
- Utilized Node.js to optimize the finder tool on a client's website to improve speed by **over 50%** and increase reliability
- Improved **security** on the internal company website by implementing email and 5 digit code verifications for new users, password reset, and when not on the office **IP**
- Developed a web crawler in Node.js to read Angular webpages to create a search functionality for a client's website
- Maintained and contributed to the company's APIs in PHP by adding new functionalities and writing documentation

Software Integration Automation Test Engineer (Co-op)

Ford Motor Company Canada

May 2017 – Aug. 2017 — Waterloo, ON

Python, Git/GitHub, CAN, SQL, Squish (automation testing tool)

- Developed automation test cases for the new version of Ford SYNC3 (Infotainment System)
- Collaborated with coworkers on development approach and on which software to use for the testing

SpaceX Hyperloop Competition (Design Team)

Waterloop

Fall 2016 – Present — Waterloo, ON

Arduino, Node.js, JavaScript, HTML, Qt, SolidWorks, Machining, Soldering

Software Sub-team – Embedded Systems & Controls
Electromagnetic Sub-team – Eddy Current (EC) Braking System & Magnetic Wheels

- Developed, tested, and executed code to test small/full scale hallbach wheels
- Designed and manufactured parts for the EC brakes and hallbach wheels using SolidWorks and machine shop tools
- Utilized Node.js, JavaScript, HTML, Qt, and web sockets to create a prototype dashboard for the pod's controls

GM/SAE Autonomous Car Competition (Design Team)

Watonomous (Software Team – Object Detection)

May – Aug. 2017 — Waterloo, ON

Python

- Researched different aspects of autonomous vehicles, primarily object detection sensors, such as radar and LiDAR

Robotic Claw Machine (Course Project)

Mechatronics Engineering & Digital Computation Courses

Oct. – Dec. 2016 — Waterloo, ON

RobotC, C++, AutoCAD, Laser Cutting, Machining

- Applied engineering design by identifying constraints/criteria and prototyping
- Designed and implemented software for the robotic claw machine in RobotC
- Utilized AutoCAD, laser cutter, and machine tools for design and construction

PROJECTS/HACKATHONS

Autonomous & RC Arduino Robotic Car (Side Project)

May 2018 – Present

Arduino, Soldering, Sensors (Ultrasonic, IR), Remote Transceiver/Receiver, Servo Motors, DC Motors

- Designed and developed code and circuits to control an autonomous/RC Arduino robotic car (switches between autonomous and RC by a button on the remote control)

Drone (Side Project)

May 2017 – Present

Arduino, Soldering, Remote Transceiver/Receiver, DC Drone Motors

- Acquired knowledge of embedded software by developing a wireless remote control
- Applied electrical engineering skills to solder/secure electrical connections

MyFriends (Hackathon – 36 Hour)

DeltaHacks 2018 (Winner for Best IoT Voice Control Hack)

Jan. 2018 — McMaster University

Amazon Alexa, Node.js

- Developed a social media Alexa skill so friends can share events and invite others through Alexa or SMS

SKILLS

Languages

- C++/C
- Node.js
- PHP
- VHDL
- Java
- Python
- JavaScript
- Assembly
- MATLAB
- HTML/CSS

Stacks/Frameworks

- MEAN Stack
- Express (Node.js)
- MongoDB
- Redis
- LAMP Stack
- Slim 3.0 (PHP)
- SQL

Tools

- Arduino
- Alexa
- PLC
- SolidWorks
- 3D Printing
- Android Studio
- Squish
- Machining
- AWS
- Git/GitHub
- Soldering
- AutoCAD
- Laser Cutting
- FPGA
- Unity
- XCode

EDUCATION

Mechatronics Engineering, Co-op

University of Waterloo

Sept. 2016 – May 2021

Candidate for Bachelor of Applied Science (BASc)

- Received President's Award of Distinction (university admission average above 95%)
- 80%+ average first year
- Relevant Courses: Introduction to Computer Structures and Real-Time Systems, Microprocessors and Digital Logic, Data Structures and Algorithms

INTERESTS

- Advanced/New Technologies (Autonomous vehicles, Hyperloop, AI, clean energy vehicles, Robotics)
- Web/App Development
- Rocket Design & Space Exploration
- Women in Engineering Outreach Team
- Engineering Orientation Leader
- Sports: Hockey (playing & reffing), Ultimate Frisbee, Golf