Celina Tang

Computer Science | 4A

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Skills

Languages	C / C++, Java, JavaScript, Python, Groovy, Scala, HTML / CSS
Frameworks & Tools	ROS, React, Flask, Spring, Maven, Selenium, OpenCV, Git, Bash

Experience

Arup
Software Developer - Pedestrian Simulation | C++
Toronto, ON
May 2019 - Aug 2019

- Implemented and combined multiple **pedestrian simulation models** to evaluate the effectiveness of various approaches to construct **realistic social group interactions**
- Optimized **automatic focus algorithm** to allow dynamic view readjustments to best-fit 3D meshes to screen
- Increased SDK coverage on core functionalities by 75% for **efficient data retrieval and extensive model customization**

Avidbots Corp
Software Developer - Path Planning | C++
Waterloo, ON
Sep 2018 - Dec 2018

- Integrated and optimized **Dubins curve path planner** to determine the optimal shortest path between calculated search poses with path-smoothing algorithm, **improving performance by 30%**
- Extended **dynamics control over motion primitives** to account for obstacles avoidance and zone-specific settings
- Implemented event-triggered updates to minimize occupancy grid refresh frequency and **reduce CPU usage by 120%**
- Created custom visualization plugins to display deflection grid of viable areas during path searches

Veeva Systems
Software Engineer | Java & Groovy
Toronto, ON
Jan 2018 - Apr 2018

- Performed **optical character recognition** and table extraction methods to obtain 75,000+ records from scanned PDFs
- Sanitized raw data with an ETL pipeline and utilized **fuzzy matching** techniques to achieve a **90% match rate** with internal databases
- Automated data collection of over 50 sites with Selenium scripts
- Trained OpenCV HAAR cascade classifiers for **facial detection** of 100,000+ image datasets
- Created interactive Selenium UI and integration tests for Spring web application

Accedo
Multi-Platform Developer | BrightScript
Toronto, ON
May 2017 - Sep 2017

- Developed UI for playlist playback with skipping, replay, and fast-forward functionalities
- Enhanced user login system to incorporate personalized features such as curated playlists
- Refactored API structure to **reduce redundant calls** and provide extended access to premium user accounts

Quanser Consultant Inc.
Software Developer | C++ & LabView
Markham, ON
Jul 2015 – Aug 2015

- Incorporated dead reckoning with positional information from SPI encoders and gyroscope calculations for tracking robot movement
- Developed an **object tracking system** by analyzing RGB data obtained from the Xbox360 Kinect
- Constructed dynamic depth map of robot's immediate surroundings through analysis of **infrared ray casts**

FIRST Robotics Team 4001
Team Captain & Lead Programmer | LabView
Thornhill, ON
Sep 2012 – Jun 2016

- Led a team of 85 members to win FRC Toronto Regional and **placed top 10 in the World Championship**
- **Improved robot performance by over 40%** through an automated control with Proportional Integral Derivative control
- Received Engineering Inspiration, Creativity, and Industrial Design Awards for innovative robot design

Education

University of Waterloo
Bachelor of Computer Science
Waterloo, ON
2016 - 2021