Olzhas Adiyatov

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Summary

Software developer with 12+ years of experience in C++, ROS, MATLAB, and JavaScript/TypeScript specializing in real-time systems, numerical computing, image processing, and software optimization, and a strong background in R&D.

Technical Skills

Languages: C++ (including C++17 features), C, MATLAB, JavaScript, TypeScript, WebGL, GLSL, CUDA, Java, Python
Frameworks & Libraries: React, Redux, Node.js (Express, MongoDB), ROS (Gazebo), OpenCV, OMPL, DART, Eigen, Qt
DevOps: Docker, CMake, vcpkg, git, GitHub Actions, npm, Jest, Vitest, webpack
Operating Systems: GNU/Linux (**Ubuntu/Debian**, Gentoo, CentOS, Rocky Linux), Windows
Hardware & Embedded: BeagleBone Black, NVIDIA Jetson, Raspberry Pi
Others: LaTeX, Solidworks, MathCAD

Experience

Software Developer 09/2022 – Present
Christie Digital *Kitchener, ON*

- Led the development of light interaction simulation software, fixing critical bugs, improving the interface, and adding features using JavaScript, React, C++, and CUDA.
- Evaluated project requirements, assessed feasibility, and determined which features could ship in the near and long term.
- Improved development efficiency by unifying build and deployment under CMake and GitHub Actions, eliminating the need to manage two separate build systems.
- Boosted data upload speeds by nearly 4x by optimizing performance in the JavaScript/TypeScript codebase.
- Developed custom image processing algorithms in C++ to improve software reliability in challenging lighting conditions.
- Supervised and guided co-op students in full-stack development and computer graphics projects.

Graduate Researcher (Grad. Research Studentship) 09/2018 – 08/2022
University of Waterloo *Waterloo, ON*

- Developed a ROS-based path planning framework in C++ for navigating uneven terrain, integrating OMPL with other ROS packages.
- Implemented a custom path planning algorithm within OMPL to improve performance on rough terrain.

Research Assistant 11/2015 – 06/2018
ARMS Lab (Nazarbayev University) *Astana, Kazakhstan*

- Researched problems in motion planning and model predictive control, publishing findings in peer-reviewed journals and conferences.
- Trained junior researchers in C, C++, and GNU/Linux, helping them improve their programming skills.

Mechatronics Engineering Intern 06/2016 – 07/2016
Makeblock Co., Ltd *Shenzhen, China*

- Enhanced the control strategy of a self-balancing robot constructed from the Makeblock robot kit, leading to improved stability and performance.

Visiting Researcher 07/2015 – 10/2015
Dynamics and Control Laboratory (SUTD) *Singapore*

- Implemented a real-time Discrete-time Proportional-Derivative (PD) controller in C++ for Raspberry Pi, ensuring precise and responsive system control.
- Developed an EMG acquisition and post-processing utility in MATLAB for Bitalino data, enabling comprehensive analysis for conference paper publication.

Undergraduate Researcher 06/2012 – 07/2015
ARMS Lab (Nazarbayev University) *Astana, Kazakhstan*

- Created a MATLAB Sampling-based path/motion planning toolbox, enabling obstacle-free robot movement, available for download on GitHub.

Education

University of Waterloo Waterloo, ON
Master of Applied Science in Electrical and Computer Engineering *August 2022*
Thesis: *Path Planning Framework for Unmanned Ground Vehicles on Uneven Terrain.*

Nazarbayev University Astana, Kazakhstan
Master of Science in Robotics *June 2018*
Thesis: *Intelligent Control of Variable Stiffness Actuated Robots.*

Nazarbayev University Astana, Kazakhstan
Bachelor of Science in Robotics & Mechatronics *June 2015*
Graduation Project: *SafeSpace project: Motion planning for industrial manipulator in the presence of dynamic(moving) obstacles.*