Grigoriy Dubrovskiy

Philadelphia, PA • [Grigoriy@duck.com](mailto:Grigoriy@duck.com)

[LinkedIn.com/in/GVDubrovskiy](http://www.linkedin.com/in/GVDubrovskiy), webpage: [GDubrovskiy.github.io](http://gdubrovskiy.github.io/), projects: [GDubrovskiy.github.io/Projects.html](http://gdubrovskiy.github.io/Projects.html)

**PROFESSIONAL SUMMARY**

Robotics, Software and Control Systems Engineer with 6+ years of applied experience in autonomous driving, mobile robotics and motion planning in industrial and academic settings.

**EXPERIENCE**

**Motional** (formerly nuTonomy and then Aptiv) **Pittsburgh, PA → Boston, MA → Philadelphia, PA**

*Senior Software Engineer – Motion Planning – Trajectory Scoring and Selection* August 2022 – present

* Led a subteam of 4 people in development of Trajectory Scoring to prioritize Safety and Comfort, among diverse trajectory types
* Implemented Trajectory Scoring for a Safety Subsystem, considering Safety aspects only
* Implemented Trajectory Correction to account for a newer Vehicle Pose, compensating the delay to generate a trajectory
* Improved the Lane Change State Machine for performing Lane Changes efficiently & predictably to other road users
* Oversaw creation of a hybrid design and introduction of ML Scorer into a Rule-based Trajectory Scoring
* Optimized resource utilization (manually and automatically monitoring latencies, and apply fixes; CPU and memory usage, etc)
* As a module owner reviewed performance weekly of the deployed software and created follow-up tickets as needed
* Worked across teams on submodule designs (creating and reviewing; breaking down designs into actionable steps with timelines)
* Created Quarterly Plans and Retros for a team, provided weekly updates on OKRs to other teams and Directors
* Acted as designated Quality Software Reviewer for Planning team, helping to maintain extremely high software standards and mentor team members in best practices
* Conducted 30+ technical interviews and worked on refining job descriptions to identify strong candidates

*Senior Software Engineer – Embedded Software* April 2021 – August 2022

* Implemented sensor readers in C++14 for POSIX systems, reading data over Ethernet and CAN (radars and cameras)
* Worked with ECUs (Aurix TC397, TC399): programming in C99, flashing, debugging
* Served as software/implementation POC for Functional Safety (ASIL) and CyberSecurity compliance

*Software Engineer III* August 2019 – March 2021

* Implemented Safety Subsystem’s components, running on RTOS (QNX)
* Implemented sensor readers, reading data over Ethernet, CAN, proprietary communication protocols (e.g. radar reader)
* Software packaging with Conan (simplifying inter-dependencies between sub-projects, debugging packaging, CI, build process)
* Served as a Release Manager for a Safety Subsystem
* Implemented visualization tools with Qt/QML and OpenSceneGraph for visualizing data captured by AVs

*Autonomous Driving Systems Engineer – Test & Verification* January 2018 – July 2019

* Developed scripts in Python & Bash for connecting to autonomous vehicles and storage units for transmitting and processing data
* Implemented algorithms in C++/Python/Bash for transmitting and saving data on Autonomous Vehicles in different formats
* Significantly improved Software delivery and Conan packaging processes for several C++ subsystems
* Participated in code peer-reviewing in a large team, legacy code maintenance, interviewing and training new engineers

**UNIVERSITY OF NOTRE DAME Notre Dame, IN**

*Graduate Research Assistant* July 2015 – January 2018

* Developed algorithms in C/C++ for drones (Autoquad M4, AQ6) for flying missions and for ground robots (Pioneer 3AT, 3DX)
* Developed algorithms in C++ in Linux environment for Optimized Integrated Task and Motion Planning (used MILP and SMT)
* Implemented autonomous navigation system in C++ with formally proven collision avoidance in a dynamic environment
* Developed primitive actions (e.g. “Pick Up an object”) in C++ for a ground robot, using a web camera for color recognition
* Prototyped algorithms with Sampling-based Motion Planning approaches (e.g. RRT), using Open Motion Planning Library

**CERTIFICATIONS**

* DDS Training from RTI (Data Model, Architecture, QoS, Configuring Transports, Keys, Instances, etc) March 2022
* QNX Training (Architecture, Process & Thread Synchronization, IPC, Boot Image generation, profiling, etc) March 2020
* [MICROSAR Safe](http://gdubrovskiy.github.io/files/AUTOSAR_Safe.pdf) (Functional Safety, Memory Protection, Program Flow Control, Safe E2E, SafeRTE) November 2020
* [MICROSAR CyberSecurity](http:/gdubrovskiy.github.io/files/AUTOSAR_CyberSecurity.pdf) (Basics of Cryptography, AutoSAR Crypto Stack, Secure OnBoard Comms, HSM) December 2020

**EDUCATION**

**UNIVERSITY OF NOTRE DAME** **Notre Dame, IN**

**Master of Science** in Electrical Engineering January 2018

* Research Area: Autonomous Task and Motion Planning for Mobile Robots

**SAINT PETERSBURG ELECTROTECHNICAL UNIVERSITY** **(SPb ETU)** **Saint Petersburg, Russia**

**Master of Science** in Control Systems(Automation and Control of Industrial Complexes and Mobile Objects) July 2015

**TECHNICAL SKILLS**

**Development Skills**: **C++11/C++20** (6y), **C** (7y), **Git** (8y), **Linux/Ubuntu** (8y), **Docker** (6y), **QNX** (0.5y), **CMake** (3y), **Conan** (1.5y), **Python** (3y), **Bash** (6y), **Jenkins** (3y), [**SQL**](http://gdubrovskiy.github.io/files/SqlEssentialTraining.pdf), **MATLAB** (6y), **Qt** (1y), **CPLEX** (1y), **ROS/C++** (3y), **OpenCV**, CAD