Dimitrios Chamzas

Robotics Engineer **(U.S. Citizen)**

Robotic Projects Portfolio: jimas95.github.io/portfolio

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EDUCATION

Northwestern University

Sep. 2020 - Dec. 2021

MS in Robotics, GPA 3.95/4.0

University of Patras

Oct. 2013 - Oct. 2019

Diploma (MS eq.) in Electrical and Computer Engineering

SKILLS

Programming Languages: Python, C++, C, Matlab, Bash, Java

Robotics Software: ROS, MoveIt, Gazebo, CoppeliaSim, URDF/Xacro

Robotics: SLAM, Testing, Path Planning, Vision, 3D Printing

Operating Systems: Linux, Android, Windows

Embedded: Arduino, Raspberry Pi, PIC32, Teensy

Software Development: PyTorch, OpenCV, UNITY, Git, cmake, unit testing, Linux, Android

Interests: Water-Polo, Sailing, First Aid responder, Volunteer Firefighter

PUBLICATIONS & AWARDS

3D Augmented Reality Tangible User Interface using Commodity Hardware, D. Chamzas, K. Moustakas, *GRAPP*, 2020,

cMinMax: A Fast Algorithm to Find the Corners of an N-dimensional Convex Polytope, D. Chamzas, C. Chamzas, K. Moustakas, *GRAPP*, 2021

1st place, Line Following Enhanced Robotex 2018, Tallinn Estonia

2nd place, Line Following Robotex 2017, Tallinn Estonia

OTHER

Professional Engineer License, Greece, 2020

LANGUAGES

Greek - Native, English - Fluent

EXPERIENCE

Robotics Software Engineer Intern — *Vecna Robotics*

Jun. 2021 - Aug. 2021, Boston MA

- Integrated a new warehouse robot in gazebo simulation.
- Implemented perception and planning capabilities through URDF modeling
- Calculated the ground truth position using landmark detection and triangulation

Robotics Hardware Engineer Intern — *Athena Research Center*

Aug. 2019 - Oct. 2019 and Aug. 2015 - Oct. 2015, Xanthi, Greece

- Designed multispectral camera system with I2C communication for 8 Raspberry Pi
- Designed a 3D printed mounting device for a quadcopter for vibration reduction

Computer Vision Software Engineer Intern — *Irida Labs Center*

Jun. 2017 - Sep. 2017, Patra Greece

- Worked on a monocular visual SLAM algorithm for navigation with OpenCV, C++

Robotics Software Engineer Member — Robotics Club *UPatras*

Sep. 2016 - Jun 2019, Patra Greece

- Implemented maze solving, localization, sensors linearization, and communication algorithms in C for a high-speed miniature robot in a micro mouse competition
- Implemented a PID controller, sensor calibration for a line following robot
- Wrote a Java simulator for emulating different mazes, sensors, and planning
- Developed visualization tools for online diagnostics and debugging.

PROJECTS

Mobile 3D Printer Construction Robot— *Python*

- Designed a heating bed for disposable materials suited for 3D printing constructions
- Achieved robustness and repeatability of navigation for accurate printing
- Developed an automatic refueling procedure with a 4-DOF robotic arm

Mobile Manipulator (Sawyer & Ridgeback) — *Python/C++*

- Deployed a mobile robot with omni wheels that navigated between locations
- Opened drawer and performed a pick and place task with MoveIt
- Utilized RGBD cameras and lidar sensors for SLAM, collision, and object detection

Navigation Stack For TurtleBot3 — *C++*

- Implemented a landmark-based EKF-SLAM with unsupervised learning in ROS.
- Developed C++ libraries for differential drive kinematics, and unit ROS testing

Baxter Cup Stacking — *Python*

- Led a team of 4 engineers to program a bimanual robot cup stacking system
- Achieved successful stacking of up to 10 cups in 5 floors
- Combined MoveIt and April tags for collision-free manipulation and detection.
- Created a supporting Gazebo simulation for rapid development and debugging

Swarm Robotics Simulation — *Matlab*

- Coded an optimal reciprocal collision avoidance algorithm
- Simulated over 50 robots in real-time utilizing parallel processing