Dimitrios Chamzas

PORTFOLIO: **jimas95.github.io/portfolio**

224-659-3756, U.S. Citizen
chamzas95@gmail.com
1915 Maple Ave, Evanston, IL 60201

EXPERIENCE

Robotics Software Engineer Intern — *Vecna Robotics*

Jun. 2021 - Aug. 2021, Boston MA

- Enhance a warehouse robot simulation system including perception, planning, and URDF modeling for Gazebo
- Calculated the ground truth position using landmark detection and triangulation for comparison of the implemented localization algorithm with an accuracy of +/- 2 cm

Robotics Hardware Engineer Intern — *Athena Research Center*

Aug. 2019 - Oct. 2019, Athens Greece

- Custom multispectral camera system with I2C communication for 8 Raspberry Pi
- Design a 3D printed mounting device for a quadcopter with 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

- Programmed maze solving, localization, sensors linearization, and communication algorithms in C for a high-speed miniature robot for micro mouse competition
- Implemented PID controller, sensor calibration, and designed PCB to integrate electronics for a line following robot
- Wrote a Java simulator from scratch to test the robot in various mazes, localization, mapping, and path planning scenarios

PROJECTS

Mobile Manipulator — *Python*

- Developed an autonomous mobile robot with omni wheels locating and placing a specific object in a drawer or a shelve, using ROS
- Utilized RGBD cameras and a lidar sensor for simultaneous localization, mapping, collision avoidance, and object detection

Baxter Cup Stacking — *Python*

- Managed as project leader a two-arm cup stacking system, up to 4 floors
- Used MoveIt for manipulation planning, with collision avoidance and utilized April Tag for the cup detection
- Supporting Gazebo simulation for rapid development and debug

Custom Software For TurtleBot3 — *C++*

- Implementation of landmark-based EKF-SLAM with unsupervised learning and unknown data association using ROS in C++ from scratch
- Developed C++ libraries for differential drive kinematics, and unit ROS testing

Swarm Robotics Simulation — *Matlab*

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

RELEVANT COURSEWORK

Robotic Manipulation, Advanced Mechatronics, Multi-core Programming, Algorithms, ROS-Sensing-Navigation, Digital Image Processing, Artificial Intelligence (AI)

EDUCATION

Northwestern University

Sep. 2020 - Dec. 2021

MS in Robotics, current GPA 3.95

University of Patras

Oct. 2013 - Oct. 2019

BS/MS Dept. of Electrical and Computer Engineering

SKILLS

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

Robotics: Robot Operating System MoveIt, Gazebo, SLAM, Path Planning, CoppeliaSim, Testing

Operating Systems: Linux, Version Control (Git), Android, Windows

Embedded: Arduino, Raspberry Pi, PIC32, Teensy

Software Development: PyTorch, OpenCV, UNITY, git, cmake, unity testing, Linux, Android, bash, URDF/Xacro

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

LANGUAGES

Greek - Native, English - Fluent

PUBLICATIONS & AWARDS

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

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

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

2nd place, Line Following Robotex 2017, Tallinn Estonia