FILOTHEOU, Alexandros

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github.com/li9i · google.scholar · Portfolio · References

I am an organised and meticulous person that is driven by curiosity and obedience, in particular in the robotics domain. The things I am good at I am good at because I love working with them; their common denominator is that they are either problems or solutions to problems—and I love solving problems: either through engineering, programming, mathematics, or otherwise. I am efficient, trustworthy, and dependable.

Skills

English	Native / Fluent (IELTS 8.5 - C2 Proficiency)
Languages	`C/C++`, `Python`, `shell`, `MATLAB/Octave`
Robotics/OS	`Linux`, `ROS/ROS 2`
Tools/Frameworks	`git`, `Docker`, `Eigen`, Behavior Trees, Gazebo, `CI/CD`, `Qt/Tkinter`, `OpenCV`
Control Techniques	MPC, PID, LQR

integration · ROS 2 · state estimation · localisation · autonomous navigation (1) (2) · control · computer vision

Some achievements so far

- Deployed €10M robotics construction project RoBétArmé after 2 years of continuous integration between 12 partners at EDF's Hermillon hydroelectric powerplant in cooperation with Bouygues Construction
- Engaging 2,000+ visitors annually since 2023 at the AMTh museum by deploying human-robot applications
- Engineered 50% boost in localisation accuracy for fleet of RFID-inventorying robots, achieving `cm` accuracy
- Identified bottlenecks and reduced deployment time >10x across fleet of additive manufacturing robots
- Reliable and robust ROS-ROS 2 interoperability and communication across multiple machines using `Zenoh`
- One of only eighteen authors of single-authored papers presented at IEEE IROS'24 (1,587 total)

Representative work

Software packages · Localisation · Odometry · Estimation · `ros2-utils` · `lama-odom`
Demos/Videos · Localisation · Odometry · Estimation · Robust Path-tracking · RELIEF · CultureId
Publications · [Localisation] · [Odometry] · [Estimation/Control] · Navigation: [Multi-agent] [Survey]

Experience

Robotics Software Engineer · ITI-CERTH, Thessaloniki GR — Sep 2023 – Present

- Owner of S/W integration, DevOps, deployment, and git repository maintainer of R&D project RoBétArmé
- Engineered development and deployment principles for 12 S/W teams and >50 Dockerised ROS packages
- Orchestrated fleet of concrete- and metal-additive manufacturing robots with Behaviour Trees
- Ensured code quality via googletest and cpplint, continuous integration/deployment via CI/CD pipelines

Robotics & Control Engineer · ECE Dept., Aristotle University of Thessaloniki GR — Sep 2018 – Mar 2023

- Owner of everything robotics in large-scale R&D projects RELIEF and CultureId
- Developed and deployed autonomous ground and aerial platforms in libraries, museums, and outdoors
- Delivered 2D/3D SLAM and collision-avoiding navigation pipelines with intuitive user GUIs using `Qt`, `teb_local_planner`, `rtabmap`, `karto`, and `amcl`
- Developed and integrated modular codebases for 18+ publications in top-tier IEEE journals/conferences

Volunteering

Open-source contributions to ROS 2

- `hitch_estimation_apriltag_array` · Estimation of angle between vehicle and hitched trailer
- `pointcloud_to_ply` · Transformation of pointcloud into mesh and storage in `.ply` or `.obj` format

Computer Vision Engineer · PANDORA Robotics, Thessaloniki GR — Oct 2013 – Jul 2014

- Increased survivor rescue probability and gained 2nd place in the 2015 International RoboCup Rescue competition by developing a C++ wall-hole detection system using a Microsoft Kinect RGB-D camera

Education

Doctorate · Electrical & Computer Engineering · Aristotle University of Thessaloniki — Sep 2018 – Jun 2023
Master of Science · Systems, Control, and Robotics · KTH Royal Inst. of Technology — Sep 2015 – Jun 2017
Diploma · Electrical & Computer Engineering · Aristotle University of Thessaloniki — Sep 2005 – Jul 2013