# FILOTHEOU, Alexandros

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

Robotics Software Engineer specialising in the full product lifecycle of ROS/ROS2 systems: from conception, design, coding, and simulation to continuous system integration, field testing, troubleshooting on real hardware, documentation, and delivery. Proven ability to work independently and materialise concepts and research into real-world results, bridging the two worlds to deliver cutting-edge systems with repeatable behaviours.

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

## 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 |

## 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 Savoy, Auvergne-Rhône-Alpes, France
- 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 software integration, DevOps, and git repository maintainer of R&D project RoBétArmé
- Engineered development and deployment principles for ≈10 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` planner, `rtabmap`, `karto`, and `amcl`
- Developed and integrated modular codebases for 18+ publications in top-tier IEEE journals/conferences, enabling multi-team experiments, translating novel robotics and RFID research to real-world opportunities

**Teaching Assistant** · KTH Royal Institute of Technology, Stockholm SE — Sep 2016 – Nov 2016

- *DD2380 - Artificial Intelligence* under Prof. Patric Jensfelt

## Volunteering

**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