Georgios Kouros

Robotics Engineer

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Research Interests

- Artificial Intelligence
- Machine Learning
- Computer Vision
- Robot Perception
- Autonomous Navigation
- SLAM

Education

2010-2016 **Diploma (Integrated BSc & MSc) in Electrical and Computer Engineering**, Faculty of Engineering, Aristotle University of Thessaloniki, Greece

- Grade: 7.84/10, ECTS: 311
- Relevant courses: Robotics(10/10), Pattern Recognition(8.5/10), Image Processing(8/10)
- Thesis (10/10): Development of an Autonomous Robotic Ground Vehicle with a 4WS4WD Kinematic Model and Implementation of a System for Autonomous Exploration in Unknown Environments
- Thesis Advisor: Assoc. Prof. Loukas Petrou

Professional Experience

January 2018 - Now **Industry 4.0 Consultant**, *Kapernikov CVBA*, Belgium

Worked on several Industry 4.0 Projects trying to automate or augment manufacturing or monitoring operations for large industrial companies in the logistics, steel, and recycling industries. Focused mostly on Computer Vision solutions for RGB or IR/Thermal cameras and utilized python, C++, ROS, OpenCV, Deep Learning. Also, prepared and presented a company-wide knowledge-sharing tech session about ROS, Visual Odometry and VSLAM.

May 2017 - April 2018 **Research Assistant**, *EU Horizon 2020 Project BADGER*, Information Technologies Institute (ITI), Centre for Research and Technology Hellas (CERTH)

- Researched localization techniques for a subsurface drilling robot
- Invented a novel method to model Ground Penetrating Radars (GPR) for robot simulation
- Developed a 3D Subsurface Utility Mapping algorithm for robot-GPR systems
- Implemented an autonomous coverage and navigation solution for a tractor-trailer robot

Voluntary Experience

Nov 2015 - Sept 2016 **SW-HW Engineer**, *Pandora Robotics Team*, Aristotle University of Thessaloniki

- Installed, calibrated and integrated sensors and actuators to the team's USAR robot
- Developed a teleoperation algorithm for the actuation of the robot and its cameras
- Optimized robot cable management with custom PCBs for sensors and electronics
- Performed robot maintenance, hardware modifications and upgrades
- Participated in the team's mission in Robocup Rescue 2015 in Hefei, China

Publications

- G. Kouros et al., "3D Underground Mapping with a Mobile Robot and a GPR Antenna," 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Madrid, 2018, pp. 3218-3224. doi: 10.1109/IROS.2018.8593848
- G. Kouros, C. Psarras, I. Kostavelis, D. Giakoumis and D. Tzovaras, "Surface/subsurface mapping with an integrated rover-GPR system: A simulation approach," 2018 IEEE International Conference on Simulation, Modeling, and Programming for Autonomous Robots (SIMPAR), Brisbane, Australia, 2018, pp. 15-22. doi: 10.1109/SIMPAR.2018.8376265
- G. Kouros and L. Petrou, "PANDORA Monstertruck: A 4WS4WD car-like robot for autonomous exploration in unknown environments", 2017 12th IEEE Conference on Industrial Electronics and Applications (ICIEA), Siem Reap, 2017, pp. 974-979. doi: 10.1109/ICIEA.2017.8282980

Distinctions and Awards

- *2nd Best in Class Autonomy* Distinction bestowed upon Pandora Robotics Team members by the Robocup Federation for Robocup Rescue 2015 competition in Hefei, China
- Excellence Award bestowed upon Pandora Robotics Team members by the Aristotle University of Thessaloniki for our distinction in the Robocup Rescue 2015 competition

Technical Skills

Programming:	C, C++, Python, MATLAB/Octave
Parallelization:	CUDA, pthreads, MPI, OpenMP
Libraries:	OpenCV, PCL, Fuzzylite, ACADO, OMPL, NumPy, SciPy, Matplotlib
Deep Learn.:	PyTorch, TensorfFlow, Keras
Robotics:	ROS, ROS2, Gazebo, STDR
Progr. Tools:	Git, Vim, CMake, Doxygen, GitlabCI, Docker, Snapcraft
OSs:	Linux, Windows
Embedded:	Arduino, Raspberry Pi, Odroid, Atmel AVR
Design/Editing:	Blender, Camtasia, Inkscape, Paint.net, Eagle CAD
Office Tools:	LaTeX, Microsoft Office Word/PowerPoint/Visio
Misc.:	3D Modelling, Electronics, PCB Manufacturing, Soldering

Languages

Greek	Native Language	
English	Proficient (C2)	*IELTS (8.5) June 2018 | ECPE University of Michigan 2008,*

Professional Development - MOOCs

- Intro to Artificial Intelligence (Udacity)
- Introduction to Computer Vision (Udacity)
- Machine Learning (Coursera)
- CNNs for Visual Recognition (Stanford)

Soft Skills

- Motivated
- Reliable
- Organized
- Teamworking
- Problem Solver
- Inventive
- Industrious
- Independent

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