

Ioannis Karagiannis

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CAREER OBJECTIVE

Motivated Research Engineer with strong background in Robotics, Control Theory and Signal Processing, and hands-on experience in Positioning Systems (SLAM), Computer Vision, Object Detection, Object Tracking, Augmented Reality, Artificial Intelligence and Deep Learning, seeking a Research Engineer position to develop cutting edge software solutions and applications.

WORK EXPERIENCE

I-SenseGroup/ICCS

Athens, Greece, Mar 2024 – Present

AI/ML Robotics Engineer

- Develop advanced computer vision service that estimates stockpile volumes and extraction rates in opencast mining for the Integrated Earth Observation Platform (EU Horizon project [TERRAVISION](#)).
- Develop advanced computer vision service that estimates volumes of Construction and Demolition Waste for the Integrated Circular Wood Upcycling Platform (EU Horizon project [Wood2Wood](#)).
- Develop advanced computer vision service for an ergonomics assessment project utilizing state-of-the-art lightweight pose estimators such as Google's MediaPipe.

Intracom Defense SA

Athens, Greece, Jul 2021 – Feb 2024

Senior Artificial Intelligence Engineer

Aug 2023 – Feb 2024

- Led and mentored a team of three in developing automatic target recognition and tracking (ATR&T) systems, focusing on target detection and target tracking algorithms.
- Deployed the ATR&T system on resource-constrained devices (e.g., NVIDIA Jetson {Nano, Xavier AGX, Orin NX}).
- Contributed to the development and preparation of EU Horizon and EDF proposals (e.g., [PROTEAS](#), [TICHE](#)) by strengthening and aligning them with cutting-edge AI methodologies and technologies.

Staff Artificial Intelligence Engineer

Jul 2021 – Jul 2023

- Developed Automatic Target Recognition and Tracking (ATR&T) systems for various UAV projects. A variant of such a system is to be deployed on the mothership airborne platform (MAP) and the foldable-wing drone airborne platforms (DAPs) of the EU-funded [LOTUS](#) project.
- Supported the development of a framework that utilizes secure collaborative learning in image recognition for ISR missions involving classified data by blending disruptive technologies such as Federated Learning (FL) or Private Aggregator of Teachers Ensemble (PATE) methods with Fully Homomorphic Encryption (FHE), Multi-Party Computation (MPC), or Verifiable Computing (VC) within the scope of the EU-PADR-funded [PRIVILEGE](#) project.

Ericsson AB

Stockholm, Sweden, Mar 2018 – May 2021

Experienced Researcher

Jun 2020 – May 2021

- Developed edge-assisted SLAM for resource-constrained devices (NVIDIA Jetson Xavier NX/AGX).
- Developed machine learning models to predict the accuracy of SLAM algorithms in situations where the ground-truth was missing, by utilizing proxies of accuracy.
- Conducted research in multi-agent SLAM with heterogeneous sensors.

Researcher

Mar 2018 – May 2020

- Developed collaborative multi-sensory communication application in Unity combining mixed reality (Microsoft HoloLens 1st gen), haptics (3D Systems Touch) and 3D spatial audio (Google Resonance SDK).
- Demonstrated the aforementioned application at [MWC-2019](#) in Barcelona representing Ericsson as business builder.
- Supported, troubleshooted, and maintained the aforementioned application both for internal projects and for other events such as [Digitalize in Stockholm 2019 - Remote Collaboration](#).
- Supervised two interns and three master thesis students.

SafeLine Sweden AB

Stockholm, Sweden, Sep 2015 – Oct 2016

Research Engineer

- Developed independent positioning system ([IPS](#)) for elevators employing SLAM algorithms and Particle Filters.
- Developed a smart sensor node for condition monitoring and predictive maintenance of elevators.

KTH Royal Institute of Technology

Stockholm, Sweden, Jun 2015 – Aug 2015

Research Engineer Intern

- Naval Architecture Center: Developed gyroscopic stabilizer in C++ for a small-scale two-wheeled vehicle.
- Signal Processing Laboratory: Developed android app in Java serving as floor-indicator for elevators.

University of Patras

Patras, Greece, Mar 2012 – Jun 2013

Research Engineer

- Supervised two master thesis students.
- Teacher assistant in Signals and Systems, Neural Networks, and Adaptive Control courses.
- Authored and co-authored three published papers.

EDUCATION

KTH Royal Institute of Technology

Stockholm, Sweden, Aug 2013 – Jun 2015

School of Electrical Engineering and Computer Science

M.Sc. in Systems, Control and Robotics (GPA: 4.76/5.0)

University of Patras

Patras, Greece, Sep 2005 – Feb 2012

School of Electrical and Computer Engineering

5-year Diploma (M.Eng. equivalent) in Electrical and Computer Engineering (GPA: 7.36/10.0)

LANGUAGES

Greek (Native), English (Proficient - C1 level)

COMPUTER SKILLS

- **Programming Languages:** Python, C/C++, C#, ROS, Java
- **DL/ML Frameworks and Tools:** Keras, TensorFlow, PyTorch, ONNX, cuDNN, CUDA Toolkit, TensorRT, YOLO, Darknet, DeepSORT, Stable Diffusion, MediaPipe
- **Data Analysis and Visualization Libraries:** Pandas, Numpy, Scipy, Scikit-Learn, Seaborn, Matplotlib
- **Computer Vision Libraries:** OpenCV, Open3D
- **IDE:** Microsoft Visual Studio, Jupyter Notebook, Unity, Xcode, Eclipse, Android Studio
- **Engineering Software:** MATLAB/Simulink, LabVIEW
- **Version Control Tools:** Git
- **DevOps Tools:** Docker
- **Agile Project Management Tool:** Jira
- **OS:** Linux (Ubuntu/Debian/Mint), Windows, MacOS

PUBLICATIONS

- Araújo, José. Taher Kouhestani, Amir Hossein. Andersson, Lars. Gonzalez Morin, Diego. Karagiannis, Ioannis. Muddukrishna, Ananya. 2022. Determining a transformation between coordinate systems in an ultrasonic haptic device and a visual sensor device. [US Patent US20230014448A1](#), filed Mar. 26, 2019, issued June 02, 2022, and granted Feb. 6, 2024.
- Karagiannis, Ioannis. Araújo, José. Taher Kouhestani, Amir Hossein. Gonzalez Morin, Diego. Andersson, Lars. Muddukrishna, Ananya. 2022. Controlling sensor activation and deactivation for energy efficient localization. [US Patent US20230033951A1](#), filed Dec. 17, 2019, and issued June 16, 2022.
- Araújo, José. Andersson, Lars. Gonzalez Morin, Diego. Karagiannis, Ioannis. Taher Kouhestani, Amir Hossein. 2021. Portable electronic device for mixed reality headset. [US Patent US11314094B2](#), filed Feb. 22, 2021, issued June 10, 2021, and granted Apr. 26, 2022.
- Araújo, José. Bruns, Leonard. Gonzalez Morin, Diego. Karagiannis, Ioannis. Taher Kouhestani, Amir Hossein. 2022. Calibration of mobile electronic devices connected to headsets wearable by users. [US Patent US11854234B2](#), filed Mar. 29, 2022, issued Jul. 07, 2022, and granted Dec. 26, 2023.
- S. Hernandez, J. Araujo, P. Jensfelt, I. Karagiannis, A. Muddukrishna, B. Donyanavard, “[Cross-layer Configuration Optimization for Localization on Resource-constrained Devices](#)”, *2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 2282-2288, Sep. 2021.
- Isaac Skog, Ioannis Karagiannis, Anders Betts Bergsten, Jonas Hårdén, Lars Gustafsson, and Peter Händel, “[A Smart Sensor Node for the Internet-of-Elevators – Non-Invasive Condition and Fault Monitoring](#)”, *IEEE Sensors Journal*, vol. 17, no. 16, pp. 5198-5208, Aug. 2017.

As of June 2024 I have 3 granted patents. For an updated list of publications see my Google-Scholar profile.

ADDITIONAL SKILLS AND QUALIFICATIONS

Coursera

- *AI for Good Specialization* [Certificate](#)
- *Deep Learning Specialization* [Certificate](#)

online

Sep 2023

Apr 2022

DataCamp

Data Scientist with Python Track [Certificate](#)

online

Apr 2021

Hellenic Army

Fulfilled Military Obligations

Greece

Nov 2016 – Aug 2017

Tohoku University

Certificate of Completion of Tohoku Engineering Summer Program 2014 - Robotics

Sendai, Miyagi, Japan

Jul 2014 – Aug 2014

Hellenic Mathematical Society

Certificate of Excellence at the Pan-Hellenic Mathematics Competition 'THALIS'

Kalamata, Greece

2003

INTERESTS

Running, Swimming, Playing Guitar, Philosophy.