Ioannis Karagiannis

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in LinkedIn │ Personal-Website │ ◯ GitHub │ k Kaggle │ ✦ Google-Scholar │ R⁶ ResearchGate

CAREER OBJECTIVE

Innovative Research Engineer with a solid background in Robotics, Control Theory, and Signal Processing, complemented by hands-on expertise in SLAM-based Positioning Systems, Computer Vision, Object Detection/Tracking, Augmented Reality, and AI/Deep Learning. Eager to leverage this experience to design and implement state-of-the-art software solutions and intelligent systems that advance research and industrial applications.

WORK EXPERIENCE

I-SenseGroup/ICCS **Athens, Greece, Mar 2024 – Present**
AI/ML Robotics Engineer

- Architecting an AI-powered solution that combines zero-shot object detection, vision-language models, and multi-modal LLMs to assess the recyclability of user-uploaded images, integrated with an intuitive web-based interface for public accessibility.
- Engineered a lightweight computer vision service for ergonomics assessment, leveraging state-of-the-art pose estimation models to enable real-time workplace risk analysis.
- Developed a computer vision pipeline for stockpile volume estimation and extraction rate monitoring in opencast mining, contributing to the EU Horizon TERRAVISION project and advancing sustainable resource management.

Intracom Defense SA **Athens, Greece, Jul 2021 – Feb 2024**
Senior Artificial Intelligence Engineer Aug 2023 – Feb 2024

- Spearheaded a team of three AI engineers in the design and deployment of advanced Automatic Target Recognition & Tracking (ATR&T) systems, achieving robust target detection and tracking in real-world defense scenarios.
- Optimized ATR&T pipelines for deployment on resource-constrained platforms, including NVIDIA Jetson Nano, Xavier AGX, and Orin NX, ensuring real-time performance under strict computational and energy constraints.
- Strengthened and aligned EU Horizon and EDF proposals (PROTEAS, TICHE) with cutting-edge AI methodologies, directly contributing to successful submissions of multi-million-euro research initiatives.

Staff Artificial Intelligence Engineer Jul 2021 – Jul 2023

- Designed and implemented ATR&T systems for multiple UAV platforms, including variants integrated into the mothership airborne platform (MAP) and foldable-wing drone airborne platforms (DAPs) of the EU-funded LOTUS project.
- Advanced secure collaborative learning frameworks for ISR missions involving classified data within the EU-PADR-funded PRIVILEGE project, blending Federated Learning (FL) and PATE with privacy-preserving technologies such as Fully Homomorphic Encryption (FHE), Multi-Party Computation (MPC), and Verifiable Computing (VC).

Ericsson AB **Stockholm, Sweden, Mar 2018 – May 2021**
Experienced Researcher Jun 2020 – May 2021

- Engineered edge-assisted SLAM solutions optimized for NVIDIA Jetson Xavier NX/AGX, enabling real-time localization and mapping on resource-constrained hardware.
- Developed machine learning models to predict SLAM accuracy in the absence of ground-truth, leveraging proxy metrics and uncertainty estimation to improve system robustness.
- Conducted pioneering research in multi-agent SLAM with heterogeneous sensors, advancing collaborative localization for future 5G/6G-enabled robotics and IoT ecosystems.

Researcher Mar 2018 – May 2020

- Designed and implemented a collaborative multi-sensory communication platform in Unity integrating mixed reality (Microsoft HoloLens), haptics (3D Systems Touch), and 3D spatial audio (Google Resonance SDK).
- Showcased the platform at MWC 2019, Barcelona, representing Ericsson as a business builder and demonstrating next-generation immersive collaboration technologies.
- Supported and maintained the platform for internal research initiatives and external events such as Digitalize in Stockholm 2019, enabling large-scale remote collaboration demonstrations.
- Supervised two interns and three masters thesis students, guiding research on XR and SLAM technologies.

SafeLine Sweden AB **Stockholm, Sweden, Sep 2015 – Oct 2016**
Research Engineer

- Engineered an independent positioning system (IPS) for elevators using SLAM algorithms and Particle Filters, delivering a commercial-ready solution for accurate floor-level detection without external infrastructure.

- Developed a smart sensor node for condition monitoring and predictive maintenance of elevators, enhancing safety and reliability through early fault detection and data-driven maintenance.
- Co-authored a paper in the *IEEE Sensors Journal*, bridging applied research and industrial deployment in smart sensing and elevator systems.
- Designed a ride quality indicator compliant with the ISO-18738 standard and an Android application that functioned both as an Emergency Positioning System (EPS) and a ride quality monitoring tool.

KTH Royal Institute of Technology   **Stockholm, Sweden, Jun 2015 – Aug 2015**
Research Engineer Intern

- Designed and implemented a gyroscopic stabilizer in C++ for a small-scale two-wheeled vehicle at the Naval Architecture Center, enabling real-time balance control.
- Developed an Android application in Java at the Signal Processing Laboratory to serve as a floor-indicator for elevators, applying inertial sensor data and signal processing techniques.

University of Patras   **Patras, Greece, Mar 2012 – Jun 2013**
Research Engineer

- Supervised two masters thesis students, providing guidance on research design, implementation, and evaluation.
- Assisted in teaching undergraduate courses including Signals and Systems, Neural Networks, and Adaptive Control, supporting lectures, labs, and student mentoring.
- Authored and co-authored three peer-reviewed publications, contributing to advancements in automation, neural networks, and decision support systems.

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 & Libraries:** PyTorch, Hugging Face (Transformers, Diffusers), TensorFlow, Keras, ONNX, cuDNN, CUDA Toolkit, TensorRT, Scikit-Learn
- **Computer Vision & Detection:** OpenCV, PIL, Open3D, YOLO, Darknet, DeepSORT, Google MediaPipe Pose Landmarker, Grounding DINO
- **Multimodal & Generative Models:** Stable Diffusion, Meta LLaMA, CLIP
- **Data Analysis & Visualization:** Pandas, NumPy, SciPy, Matplotlib, Seaborn
- **IDEs & Development Environments:** Microsoft Visual Studio, Jupyter Notebook, Unity, Xcode, Eclipse, Android Studio, MATLAB/Simulink, LabVIEW
- **Version Control & DevOps:** Git, Docker
- **Project Management:** Jira
- **Operating Systems:** 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 Härdén, 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 today I have 3 granted patents. For an updated list of publications visit my Google-Scholar profile.

ADDITIONAL SKILLS AND QUALIFICATIONS

Udemy	**online**
■ *The AI Engineer Course 2025: Complete AI Engineer Bootcamp Certificate*	**Sep 2025**

Coursera	**online**
■ *AI for Good Specialization Certificate*	**Sep 2023**
■ *Deep Learning Specialization Certificate*	**Apr 2022**

DataCamp	**online**
■ *Data Scientist with Python Track Certificate*	**Apr 2021**

Hellenic Army	**Greece**
Fulfilled Military Obligations	**Nov 2016 – Aug 2017**

Tohoku University	**Sendai, Miyagi, Japan**
Certificate of Completion of Tohoku Engineering Summer Program 2014 - Robotics	**Jul 2014 – Aug 2014**

Hellenic Mathematical Society	**Kalamata, Greece**
Certificate of Excellence at the Pan-Hellenic Mathematics Competition 'THALIS'	**2003**

INTERESTS

Running, Swimming, Playing Guitar, Philosophy.