Ioannis Karagiannis

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in LinkedIn │ Personal-Website │ ⌾ GitHub │ ʞ Kaggle │ 𝕾 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

- Managed 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)

TECHNICAL SKILLS

- **Programming Languages:** Python, C/C++, C#, Java
- **Robotics & Middleware:** ROS, MATLAB/Simulink, LabVIEW
- **ML Frameworks:** PyTorch, TensorFlow, Keras, Scikit-Learn, Hugging Face, ONNX
- **Optimization & Acceleration:** CUDA Toolkit, cuDNN, TensorRT
- **Computer Vision & Perception:** OpenCV, Open3D, PIL, MediaPipe, YOLO, Darknet, DeepSORT, Grounding DINO
- **Generative & Multimodal AI:** Stable Diffusion (with ControlNet), CLIP, Meta LLaMA, Qwen, Mistral
- **Web & API Frameworks:** FastAPI
- **Data Analysis & Visualization:** NumPy, Pandas, SciPy, Matplotlib, Seaborn
- **Development Environments:** Jupyter, Visual Studio, Unity, Xcode, Eclipse, Android Studio
- **Version Control & DevOps:** Git, Docker
- **Operating Systems:** Linux (Ubuntu/Debian/Mint), Windows, macOS

PATENTS

- **US 11,893,155 B2**. Determining a transformation between coordinate systems in an ultrasonic haptic device and a visual sensor device. José Araújo, Amir Hossein Taher Kouhestani, Lars Andersson, Diego Gonzalez Morin, **Ioannis Karagiannis**, Ananya Muddukrishna. Filed Mar 26, 2019. Issued Jun 2, 2022. Granted Feb 6, 2024.
- **US 11,854,234 B2**. Calibration of mobile electronic devices connected to headsets wearable by users. José Araújo, Leonard Bruns, Diego Gonzalez Morin, **Ioannis Karagiannis**, Amir Hossein Taher Kouhestani. Filed Mar 29, 2022. Issued Jul 7, 2022. Granted Dec 26, 2023.

- **US 20230033951 A1**. Controlling sensor activation and deactivation for energy-efficient localization. **Ioannis Karagiannis**, José Araújo, Amir Hossein Taher Kouhestani, Diego Gonzalez Morin, Lars Andersson, Ananya Muddukrishna. Filed Dec 17, 2019. Issued Jun 16, 2022.
- **US 11,314,094 B2**. Portable electronic device for mixed reality headset. José Araújo, Lars Andersson, Diego Gonzalez Morin, **Ioannis Karagiannis**, Amir Hossein Taher Kouhestani. Filed Feb 22, 2021. Issued Jun 10, 2021. Granted Apr 26, 2022.

As of today, 3 patents granted. For an updated list, see Google Patents.

PUBLICATIONS

- "Cross-layer Configuration Optimization for Localization on Resource-constrained Devices." Sebastian Hernandez, José Araújo, Patric Jensfelt, **Ioannis Karagiannis**, Ananya Muddukrishna, Babak Donyanavard. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 22822288, Sep 2021.
- "A Smart Sensor Node for the Internet-of-Elevators Non-Invasive Condition and Fault Monitoring." Isaac Skog, **Ioannis Karagiannis**, Anders Betts Bergsten, Jonas Härdén, Lars Gustafsson, Peter Händel. *IEEE Sensors Journal*, vol. 17, no. 16, pp. 51985208, Aug 2017.

For a complete and up-to-date list of publications, see Google Scholar.

CERTIFICATIONS & PROFESSIONAL DEVELOPMENT

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**

ACHIEVEMENTS & DISTINCTIONS

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

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

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

INTERESTS

Running, Swimming, Playing Guitar, Philosophy.