

Ioannis Karagiannis

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LinkedIn | Personal-Website | GitHub | Kaggle | Google-Scholar | 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

Institute of Communication and Computer Systems (ICCS)
AI/ML Robotics Engineer

Athens, Greece, Mar 2024 – Present

- Designed and developed an agentic pipeline combining zero-shot detection, local multimodal LLMs, RAG with multi-node LangChain workflows, and an LLM-based translator to assess the recyclability of user-uploaded images, integrated with an intuitive web-based interface for public accessibility.
- Designed and developed a lightweight computer vision service for ergonomics assessment, leveraging state-of-the-art pose estimation models to enable real-time workplace risk analysis.
- Designed and developed a computer vision and point-cloud processing pipeline (LiDAR/photogrammetry) for stock-pile volume estimation and extraction rate monitoring in opencast mining, contributing to the EU Horizon [TERRAVISION](#) project and advancing sustainable resource management.

Intracom Defense SA
Senior Artificial Intelligence Engineer

Athens, Greece, Jul 2021 – Feb 2024
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
Experienced Researcher

Stockholm, Sweden, Mar 2018 – May 2021
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
Research Engineer

Stockholm, Sweden, Sep 2015 – Oct 2016

- 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

Research Engineer Intern

Stockholm, Sweden, Jun 2015 – Aug 2015

- 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

Research Engineer

Patras, Greece, Mar 2012 – Jun 2013

- 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

School of Electrical Engineering and Computer Science

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

Stockholm, Sweden, Aug 2013 – Jun 2015

University of Patras

School of Electrical and Computer Engineering

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

Patras, Greece, Sep 2005 – Feb 2012

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

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- “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	The AI Engineer Course 2025: Complete AI Engineer Bootcamp Certificate	Online
		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
<i>Fulfilled Military Obligations</i>	Nov 2016 – Aug 2017
Tohoku University	Sendai, Japan
<i>Certificate of Completion, Tohoku Engineering Summer Program 2014 - Robotics</i>	Jul 2014 – Aug 2014
Hellenic Mathematical Society	Kalamata, Greece
<i>Certificate of Excellence, Pan-Hellenic Mathematics Competition THALIS</i>	2003

INTERESTS

Running, Swimming, Playing Guitar, Philosophy.