Achilleas Santi Seisa

Luleå, Sweden +46730926670 achilleas.seisa@gmail.com
https://www.linkedin.com/in/seisa/ http://achilleas2942.github.io
https://github.com/achilleas2942 ORCID 0000-0001-9685-1026

Summary

- Robotics researcher with 5+ years of experience in edge-enabled autonomous systems, UAV control, scalable cloud-robot architectures, and industrial automation procedures. Proven track record in EU-funded projects, academic publications, and applied industrial collaborations.

Professional Experience

To date — **CTO | Co-Founder** at **Eighth Dimension GmbH**, Munich, Germany (since Jan. 2025)
- *Module integration for detection and tracking of objects in real time*
- *Module integration for multi-modal and multi-session 3D SLAM*
- *Development of navigation and planning tools utilizing continuously updated 3D world models*

2025 — **Visiting Researcher** at **Epiroc**, Automation Lab, Örebro, Sweden (1 week)
- *Facilitate research directions on dynamic resource allocation for edge-enabled autonomous machines*

2023 — **Visiting Researcher** at **Ericsson Research**, Cloud and Technology, Lund, Sweden (4 months)
- *Development of Kubernetes-based scalable cloud-robot architectures for multi-agent systems*

2021 — **Automation Engineer** at **Rockwell Automation**, (I.C. SYSTEMS), Athens, Greece (6 months)
- Tasty Foods S.A.: *Development of SCADA systems*
- V. Bougatsos S.A.: *Design and implementation of electrical panels* | *Development of SCADA systems*
- Motor Oil (Hellas), Corinth Refineries S.A.: *Development of PLC systems* | *Design of electrical panels*

Education

2025 — **Ph.D.** at Luleå University of Technology, Robotics and AI research group, Luleå, Sweden
Thesis title: *Towards the Next Generation Robotic Autonomy on the Edge: Scalability, Resiliency, and Dynamic Resource Allocation*

2023 — **Licentiate** at Luleå University of Technology, Robotics and AI research group, Luleå, Sweden
Thesis title: *Towards Enabling the Next Generation of Edge Controlled Robotic Systems*

2020 — **Integrated M.Sc.** at University of Patras, Electrical and Computer Engineering, Patras, Greece
Thesis title: *Development and Control of an Advanced Robotic Tool for Enhanced Minimally Invasive Robotic Surgery*

Skills

Languages	English | Greek
Coding	Python | MATLAB | Simulink | C | C++
Robotics	ROS | ROS2 | CAD
Cloud/Edge	Docker | Kubernetes
Industry	PLC | SCADA | HMI | Electrical Design
Misc.	Academic Research | Teaching | Supervising

Projects

2024
- **SUNRISE-6G,** EU's Horizon Research and Innovation Programme, Ph.D. Researcher (1 year)
  Project: *Edge-offloading and data processing for enhancing autonomous multi-agent robotic missions*
  Project lead for the Robotics and AI group
- **AMBITIOUS,** EU's Horizon Research and Innovation Programme, Ph.D. Researcher (1 year)
  Project: *Autonomous UAV missions for IoT sensor data collection and operation*
  Project lead for the Robotics and AI group
- **PERSEPHONE,** EU's Horizon Research and Innovation Programme, Ph.D. Researcher (1 year)
  Project: *Server-robot communication for enhanced autonomous robotic mining-drilling missions*
- **ARCTIC EDGE,** EU's Northern Periphery and Arctic Programme, Ph.D. Researcher (1 year)
  Project: *Implementation of a cloud-based, IoT, and MQTT technology-driven solution for rural manufacturing NPA SMEs, aiming to optimize supply chain processes*
- **LIFELONG LEARNING,** Luleå University of Technology, Course Coordinator and Instructor (6 months)
  Course: *Edge Computing in Robotics*
  Course: *6G in Automation*

2023
- **REBOOT SKILLS,** Digital Europe Programme, Course Coordinator and Instructor (1 year)
  Course: *Industrial Automation*

2021
- **AERO-TRAIN,** Marie-Sklodowska-Curie ITN - ETN project, Early-Stage Researcher (3 year)
  Project: *Augmented reality for enhancing semi-autonomous remote aerial manipulation*
- **5G EDGE INNOVATIONS FOR MINING,** Vinovva project, Ph.D. Researcher (3 year)
  Project: *Development of 5G / edge-based architectures for enabling autonomous drone operations in underground mines*
- **G-DRONES,** Vinovva project, Ph.D. Researcher (1.5 year)
  Project: *Integrate seamless communication between a base station (Grafana interface) and drones through MQTT protocol for safe aerial inspection of open-pit mines*

Research Publications

Journal Articles

1. A. Berra, J. Mellet, **A. S. Seisa**, *et al.*, "Towards advanced aerial physical inspection in real industrial conditions," *(submitted)*, 2025.
2. **A. S. Seisa**, S. Velhal, S. Kotpalliwar, S. G. Satpute, and G. Nikolakopoulos, "Optimization of edge-offloading for centralized controllers through dynamic computational resource allocation," *(submitted)*, 2025.
3. **A. S. Seisa**, B. Lindqvist, S. G. Satpute, and G. Nikolakopoulos, "An edge architecture for enabling autonomous aerial navigation with embedded collision avoidance through remote nonlinear model predictive control," *Journal of Parallel and Distributed Computing*, p. 104 849, 2024. DOI: 10.1016/j.jpdc.2024.104849.
4. M.-N. Stamatopoulos, P. Koustoumpardis, **A. Seisa**, and G. Nikolakopoulos, "Path planning for collaborative system of tethered uavs in dynamic and confined environments," *(submitted)*, 2024.
5. **A. S. Seisa**, B. Lindqvist, S. G. Satpute, and G. Nikolakopoulos, "E-cnmpc: Edge-based centralized nonlinear model predictive control for multiagent robotic systems," *IEEE Access*, vol. 10, pp. 121 590–121 601, 2022. DOI: 10.1109/ACCESS.2022.3223446.
6. **A. S. Seisa**, S. G. Satpute, B. Lindqvist, and G. Nikolakopoulos, "An edge-based architecture for offloading model predictive control for uavs," *Robotics*, vol. 11, no. 4, p. 80, 2022. DOI: 10.3390/robotics11040080.

Conference Proceedings

1. V. N. Sankaranarayanan, **A. S. Seisa**, A. Saradagi, S. G. Satpute, and G. Nikolakopoulos, "Safe coordinated operation of a coupled aerial-ground multi-robot system enhanced by edge computing," in *(submitted)*, 2025.

2. **A. S. Seisa**, S. Kotpalliwar, S. G. Satpute, and G. Nikolakopoulos, "Dynamic computational resource allocation for ensuring stability of remote edge-based controlled multi-agent systems," in *2025 IEEE 23rd European Control Conference (ECC) (accepted)*, 2025.

3. **A. S. Seisa**, V. N. Sankaranarayanan, G. Damigos, S. G. Satpute, and G. Nikolakopoulos, "Cloud-assisted remote control for aerial robots: From theory to proof-of-concept implementation," in *2025 IEEE 25th International Symposium on Cluster, Cloud and Internet Computing Workshops (CCGridW)*, 2025, pp. 171–176. DOI: 10.1109/CCGridW65158.2025.00032.

4. A. Berra, V. N. Sankaranarayanan, **A. S. Seisa**, *et al.*, "Assisted physical interaction: Autonomous aerial robots with neural network detection, navigation, and safety layers," in *2024 International Conference on Unmanned Aircraft Systems (ICUAS)*, IEEE, 2024, pp. 1354–1361. DOI: 10.1109/ICUAS60882.2024.10557050.

5. J. Mellet, A. Berra, **A. S. Seisa**, *et al.*, "Design of a flexible robot arm for safe aerial physical interaction," in *2024 IEEE 7th International Conference on Soft Robotics (RoboSoft)*, IEEE, 2024, pp. 1048–1053. DOI: 10.1109/RoboSoft60065.2024.10522019.

6. **A. S. Seisa**, S. G. Satpute, and G. Nikolakopoulos, "Cloud-based scheduling mechanism for scalable and resource-efficient centralized controllers," in *IECON 2024 - 50th Annual Conference of the IEEE Industrial Electronics Society*, 2024, pp. 1–6. DOI: 10.1109/IECON55916.2024.10905254.

7. G. Damigos, **A. S. Seisa**, S. G. Satpute, T. Lindgren, and G. Nikolakopoulos, "A resilient framework for 5g-edge-connected uavs based on switching edge-mpc and onboard-pid control," in *2023 IEEE 32nd International Symposium on Industrial Electronics (ISIE)*, IEEE, 2023, pp. 1–8. DOI: 10.1109/ISIE51358.2023.10228114.

8. V. N. Sankaranarayanan, G. Damigos, **A. S. Seisa**, S. G. Satpute, T. Lindgren, and G. Nikolakopoulos, "Paced-5g: Predictive autonomous control using edge for drones over 5g," in *2023 International Conference on Unmanned Aircraft Systems (ICUAS)*, IEEE, 2023, pp. 1155–1161. DOI: 10.1109/ICUAS57906.2023.10156241.

9. **A. S. Seisa**, N. Evangeliou, A. Tzes, and G. Nikolakopoulos, "Development and experimental evaluation of a 3dof tendon-driven probe for robot assisted minimally invasive surgical operations," in *2023 International Conference on Control, Automation and Diagnosis (ICCAD)*, IEEE, 2023, pp. 1–6. DOI: 10.1109/ICCAD57653.2023.10152334.

10. M.-N. Stamatopoulos, P. Koustoumpardis, **A. Seisa**, and G. Nikolakopoulos, "Combined aerial cooperative tethered carrying and path planning for quadrotors in confined environments," in *2023 31st Mediterranean Conference on Control and Automation (MED)*, 2023, pp. 364–369. DOI: 10.1109/MED59994.2023.10185884.

11. **A. S. Seisa**, G. Damigos, S. G. Satpute, A. Koval, and G. Nikolakopoulos, "Edge computing architectures for enabling the realisation of the next generation robotic systems," in *2022 30th Mediterranean Conference on Control and Automation (MED)*, IEEE, 2022, pp. 487–493. DOI: 10.1109/MED54222.2022.9837289.

12. **A. S. Seisa**, S. G. Satpute, B. Lindqvist, and G. Nikolakopoulos, "An edge architecture oriented model predictive control scheme for an autonomous uav mission," in *2022 IEEE 31st International Symposium on Industrial Electronics (ISIE)*, IEEE, 2022, pp. 1195–1201. DOI: 10.1109/ISIE51582.2022.9831701.

13. **A. S. Seisa**, S. G. Satpute, and G. Nikolakopoulos, "A kubernetes-based edge architecture for controlling the trajectory of a resource-constrained aerial robot by enabling model predictive control,"

in *2022 26th International Conference on Circuits, Systems, Communications and Computers (CSCC)*, IEEE, 2022, pp. 290–295. DOI: 10.1109/CSCC55931.2022.00056.

14 **A. S. Seisa**, S. G. Satpute, and G. Nikolakopoulos, "Comparison between docker and kubernetes based edge architectures for enabling remote model predictive control for aerial robots," in *IECON 2022–48th Annual Conference of the IEEE Industrial Electronics Society*, IEEE, 2022, pp. 1–6. DOI: 10.1109/IECON49645.2022.9968933.

Books and Chapters

1 **A. S. Seisa** and A. Koval, "Edge connected arws," in *Aerial Robotic Workers*, Elsevier, 2023, pp. 245–253. DOI: 10.1016/B978-0-12-814909-6.00019-6.

Miscellaneous Experience

Lecturing & Teaching

2025 **Robotics for all course** (R0006E), Luleå University of Technology
Industrial Automation course (R7008E), Luleå University of Technology
2024 **Industrial Automation course** (R7008E), Luleå University of Technology
Robotics for all course (R0006E), Luleå University of Technology
2023 **Industrial Automation course** (R7008E), Luleå University of Technology
Robotics for all course (R0006E), Luleå University of Technology
2022 **Industrial Automation course** (R7008E), Luleå University of Technology

Talks

2025 **Enabling 5G/Edge Connected Robots within Subterranean Environments**, Keynote at the IEEE International Symposium on Cluster, Cloud, and Internet Computing (CCGrid 2025) RISE Workshop, Trømso, Norway
2024 **Cloud-enabled Remote Control**, Presentation at the AERO-TRAIN Summer School 2024, Human-Robot Interaction Day, Crete, Greece
2023 **Edge Connected Drones**, Seminar at the Automatic Control Group 2023, Lund University, Lund, Sweden

Supervision

2025 **Endemann, Moritz**, Multiple Edge Robots for World Mapping
2023 **Markostamos, Georgios**, Autonomous Multi-Agent Exploration and Mapping
2022 **Stamatopoulos, Marios-Nektarios**, Collaborative Control of Aerial Robots (drones) for Co-Manipulating Flexible Objects (ropes)
Dahlquist, Niklas, Generation of Behavior Trees for Dynamic Agents Based on Market Inspired Task Allocation

Workshops & Events

2025 **Full-Day CCGrid 2025 Workshop**, Committee at the "RISE" - Robotic Systems in the Edge-Cloud Continuum Workshop, Trømso, Norway
2024 **Full-Day ICUAS 2024 Workshop**, Organizer at the Aerial Workers for Infrastructure and Asset Maintenance: The journey from "Lab" to "Real-World" Workshop, Crete, Greece
AERO-TRAIN Summer School 2024, Presenter at the Aerial robots and their role in inspection and maintenance of industrial plants, Crete, Greece

Miscellaneous Experience (continued)

2023 **Mohamed Bin Zayed International Robotics Challenge 2023** Team ROC

Honors & Awards

2024 **IVA's 100 List** Reconfigurable 6G Quality of Service (QoS) and Edge Integration for Robotics and Automation

References

Available on Request