

Ali TOURANI

COMPUTER VISION · DATA SCIENCE · GENERATIVE AI · ROBOTICS

6, Rue Coudenhove-Kalergi, L-1359 Luxembourg, LUXEMBOURG

(+352) 661 697 868 | atourani@acm.org | [alitourani.github.io](https://github.com/alitourani) | [\[GitHub\] alitourani](https://github.com/alitourani) | [\[LinkedIn\] alitourani](https://www.linkedin.com/in/alitourani)

| [\[StackOverflow\] ali-tourani](https://stackoverflow.com/users/10411111/ali-tourani) | [\[Medium\] alitourani](https://medium.com/@alitourani) | [\[GScholar\] alitourani](https://scholar.google.com/citations?user=alitourani)



Summary

R&D Specialist and Senior Software Engineer with **8+ years** of experience in practical **computer vision** and **AI systems**. Currently a **Postdoctoral Research Associate** at the University of Luxembourg, developing **vision-language model** and **generative AI** solutions for real-world robotics. Proven track record in **open-source software development** and building research-driven, **production-grade systems** deployed across **5+ countries**. Experienced in **full-stack development**, **CI/CD**, and **Agile/Scrum** environments.

Work Experience (since 2016)

Interdisciplinary Centre for Security, Reliability, and Trust (SnT)

Luxembourg, LUXEMBOURG

POSTDOCTORAL RESEARCH ASSOCIATE (FULL-TIME)

Apr. 2026 – Present

- **Key Focus: Vision-Language Model (VLM)** grounding for semantic scene understanding and query-based retrieval.
- Integrated **VLMs** with robotic reasoning for **context-aware perception** in unstructured environments.
- Designed and validated **real-world robotic** systems with end-to-end AI-driven perception and reasoning for practical robotics use.
- Mentored **three Ph.D. students** across system development, experimental design, and publication workflows.

DOCTORAL RESEARCHER (FULL-TIME)

Apr. 2022 – Mar. 2026

- Developed **computer vision** and **visual SLAM** frameworks for **robot perception** to improve situational awareness.
- Architected and released **5+ open-source** projects in **robotics and AI**, adopted by the research community.
- Authored **15+ publications** across top-tier scientific venues, achieving an **h-index of 14**.

AVID Technology Development Co.

Rasht, Guilan, IRAN

FULL-STACK DEVELOPER (FULL-TIME)

Jan. 2019 – Dec. 2021

- Built React/Node.js **full-stack** systems for **international** enterprise clients across **5+ countries**, as production-grade software delivery.
- **Mentored** junior developers and led **Agile/Scrum** sprints as secondary Scrum Master for **teams of 10+**.
- Implemented **CI/CD pipelines**, DevOps workflows, and **Docker-based** deployments to support reliable production releases.

Department of Computer Engineering, University of Guilan

Rasht, Guilan, IRAN

UNIVERSITY LECTURER (CONTRACT)

Sep. 2019 – Sep. 2021

- Lectured undergraduate courses, including **Computational Intelligence** and **Software Laboratory**, for four semesters.
- Supervised +20 student projects focused on **machine learning**, **deep learning**, and **software design**.

Guilan Science and Technology Park Business Incubator

Rasht, Guilan, IRAN

RESEARCH SOFTWARE ENGINEER (PART-TIME)

Jul. 2019 – Jul. 2021

- Deployed two production-grade **computer vision** systems for **vehicle tracking** and **license plate recognition** in real-world traffic.
- Bridged **research** and **industry** by translating academic methods into scalable **Intelligent Transportation Systems (ITS)**.

*** A more comprehensive overview of my academic, research, and professional experience is available on my [personal website](#). ***

Education

Interdisciplinary Centre for Security, Reliability, and Trust, University of Luxembourg

Luxembourg, LUXEMBOURG

PH.D. IN COMPUTER SCIENCE (DOCTORAT EN INFORMATIQUE)

Apr. 2022 – Mar. 2026

- **Thesis:** Enhancing Robots' Situational Awareness using Imperceptible Artificial Landmarks ([thesis link](#))
 - Nominated for the **Excellent Thesis Award** of the University of Luxembourg (2026)
- **Affiliation:** [SnT](#), [Automation and Robotics Research Group \(ARG\)](#)
- **Supervisor:** Prof. Dr. Holger VOOS ([link](#)) | **Advisor:** Dr. Jose Luis SANCHEZ-LOPEZ ([link](#))

Department of Computer Engineering, University of Guilan

Rasht, Guilan, IRAN

M.Sc. COMPUTER ENGINEERING (SOFTWARE ENGINEERING STREAM)

Sep. 2016 – Jan. 2019

- **Thesis:** Automatic Vehicle Speeding Violation Detection using Computer Vision
- **Supervisor:** Prof. Asadollah Shahbahrani ([link](#))
- **GPA:** 18.97 out of 20.00 (Excellent)

Department of Computer Engineering, University of Guilan

Rasht, Guilan, IRAN

B.Sc. COMPUTER ENGINEERING (SOFTWARE ENGINEERING STREAM)

Sep. 2009 – Jun. 2013

- **Thesis:** An E-Ticketing Software Platform for Appointment Scheduling in Medical Clinics

Selected Projects (open sourced)

Visual S-Graphs (vS-Graphs)

[github] [snt-arg/visual_sgraphs](#)

- A **robotics** framework for **semantic scene understanding** and generating environments' interpretable **3D digital twins**.
- **Stack:** C++, Python, ROS, Colcon, CMake, OpenCV, Docker, TensorFlow

RAG VisualRec

[github] [recsys-lab/rag-visualrec](#)

- A **Generative AI**-based resource for enhancing **reasoning** with visual, audio, and textual embeddings.
- **Stack:** Python, OpenAI/ST/Llama APIs, Notebook

Popcorn Framework

[github] [recsys-lab/popcorn](#)

- Multimodal framework for **visual embeddings** extraction, fusion, augmentation, and **RAG**-based retrieval.
- **Stack:** Python, OpenCV, FFMpeg, Notebook

iMarker Detector Framework

[snt-arg.github.io/iMarkers/](#)

- A framework for the detection and recognition of **iMarkers**, imperceptible landmarks for **robotics** and **AR** applications.
- **Stack:** Python, OpenCV, PyQt-GUI

Vehicle & License Plate Detection/Tracking

[github] [alitourani/yolo-lpd](#)

- An **end-to-end** pipeline for **vehicle license plate detection and tracking** for smart barrier gates and vehicle **access control**.
- **Stack:** Python, C++, OpenCV, YOLO, TensorFlow, Keras

Skills

Software Development

Desktop Stack
Web Stack
Databases
Extras

Expert: Python, C++ | **Proficient:** C# | **Familiar:** Java
Expert: React.js, Node.js, JavaScript, CSS, HTML | **Proficient:** Next.js, GraphQL | **Familiar:** Webpack
Expert: Microsoft SQL, MySQL, | **Proficient:** PostgreSQL, MongoDB, SQLite | **Familiar:** Elasticsearch, Neo4j
Expert: Git, Linux, Jira | **Proficient:** Docker, REST API, .NET Framework | **Familiar:** CI/CD, VMware

Tools & Technologies

Computer Vision
Machine Learning
Robotics
Generative AI & LLM

Expert: OpenCV, YOLO | **Proficient:** CLIP, Scikit-Image | **Familiar:** EmguCV, AForge.NET
Expert: HuggingFace Transformers, Keras | **Proficient:** PyTorch, TensorFlow | **Familiar:** Scikit-learn
Expert: ROS2, RViz | **Proficient:** PCL, Voxelbox | **Familiar:** GTSAM, Gazebo
Expert: VLM | **Proficient:** RAG, GPT | **Familiar:** Llama, SentenceTransformers

Soft Skills

Communication
Management
Teamwork
Languages

Presentation, Scientific Writing, Technical Documentation
Agile, Scrum, Mentoring (students, developers, interns), Project Coordination
Interdisciplinary collaboration, Team spirit, Cross-cultural collaboration
English (C1), French (B1), German (A2), Luxembourgish (A1), Turkish (A1), Persian (mother tongue)

Research Highlights

- Authored and co-authored **25+ peer-reviewed publications** in leading international conferences and journals across **Computer Vision, Robotics, Recommender Systems, and Applied AI**
- Reviewed research for **top-tier (Q1 / Rank-A) venues**, showing strong expertise in evaluating state-of-the-art methods, experimental design, and technical contributions

*** The complete list of papers and preprints is available on my [Google Scholar](#) profile (**h-index: 14**). ***

Honors & Awards

2026	Nomination , Best Ph.D. Thesis Award Nominee, University of Luxembourg	LUXEMBOURG
2022	Scholarship , Competitive Fully Funded Ph.D. Position (TRANSCEND Project), University of Luxembourg	LUXEMBOURG
2019	Award , Best Student Researcher for Scientific and Practical Contributions (class of 2016), University of Guilan	IRAN
2019	Award , Academic Excellence: Highest GPA in M.Sc. Computer Engineering (class of 2016), University of Guilan	IRAN

Reference

Prof. Dr. Holger VOOS

holger.voos@uni.lu

FULL PROFESSOR IN ENGINEERING SCIENCE, UNIVERSITY OF LUXEMBOURG, LUXEMBOURG

(Ph.D. Supervisor)

Dr. Jose Luis SANCHEZ-LOPEZ

jose Luis.sanchezlopez@uni.lu

SENIOR RESEARCH SCIENTIST, AUTOMATION & ROBOTICS GROUP (ARG), SNT, LUXEMBOURG

(Ph.D. Advisor)

Dr. Yashar DELDJOO

deldjooy@acm.org

SENIOR RESEARCH SCIENTIST AND ASSOCIATE PROFESSOR, POLYTECHNIC UNIVERSITY OF BARI, ITALY

(Research Collaboration)