



Ali Tourani

Robotics Researcher and Computer Vision Enthusiast

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Education

Ph.D. in Computer Science / 2022-2026 [expected]

Interdisciplinary Centre for Security, Reliability, and Trust (SnT), University of Luxembourg, LUXEMBOURG

Supervisor: Prof. Dr. Holger Voos | **Group:** Automation and Robotics (ARG)

Project: TRansforming Autonomous Navigation, Swarm robotics, and Construction by ENcoding Data into surfaces (TRANSCEND)

Master's Degree, Computer Engineering (Software Engineering stream) / 2016-2019

University of Guilan, IRAN

Supervisor: Prof. Asadollah Shahbahrami | **Advisor:** Dr. Alireza Akoushideh

Thesis: Automatic Vehicle Speeding Violation Detection using Video Processing Techniques ([Demo](#) - [GitHub](#) - [Paper](#)) | **GPA:** 18.97 out of 20

Bachelor's Degree, Computer Engineering (Software Engineering stream) / 2009-2013

University of Guilan, IRAN

Thesis: An E-Ticketing System for Medical Clinics | **GPA:** 14.64 out of 20

Experience (Since 2018)

[Interdisciplinary Centre for Security, Reliability, and Trust \(SnT\)](#) / Doctoral Researcher / Full-time

April 2022 - Present | Luxembourg City, LUXEMBOURG

Conducting research to employ visual data provided by sensors to make robots more aware of the environment (Situational Awareness) and create digital twins of the environments as a member of the [Automation and Robotics Research Group \(ARG\)](#), headed by Prof. Dr. Holger Voos.

[AVID Technology Development Co.](#) / Full-Stack Developer / Full-time

January 2019 - December 2021 | Rasht, Guilan, IRAN

Coding, mentoring, and developing web-based applications in various live projects with acquired front-end and back-end development, database, and DevOps skills.

Guilan Science and Technology Park Business Incubator / Research Software Engineer / Part-time

January 2019 - July 2021 | Rasht, Guilan, IRAN

Requirement gathering, implementing software applications, designing and implementing complex algorithms, and continuous learning and exploration for various research projects.

University of Guilan / University Lecturer / Part-time

September 2019 - September 2021 | Rasht, Guilan, IRAN

Lecturing "Computational Intelligence" (Fall 2019 to Spring 2021) and "Software Laboratory (Spring 2018)" courses to undergraduate students.

Selected Publications

International Conferences

[2023] [A. Tourani](#), H. Bavle, J.L. Sanchez-Lopez, R. Muñoz Salinas, and H. Voos, "Marker-based Visual SLAM leveraging Hierarchical Representations," IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS'23), Detroit, Michigan, USA [[DOI](#), [ArXiv](#)].

[2023] H.A. Rahmani, M. Naghiaei, [A. Tourani](#), and Y. Deldjoo, "Exploring the Impact of Temporal Bias in Point-of-Interest Recommendation," 16th ACM Conference on Recommender Systems (RecSys'22), New York, NY, USA [[DOI](#), [ArXiv](#)].

Peer-review Journals

[2022] H. Agha, Y. Geng, X. Ma, D. Avşar, R. Kizhakidathazhath, Y.S. Zhang, [A. Tourani](#), H. Bavle, J.L. Sanchez-Lopez, H. Voos, M. Schwartz, and J. P.F. Lagerwall, "Unclonable Human-invisible Machine Vision Markers Leveraging the Omnidirectional Chiral Bragg Diffraction of Cholesteric Spherical Reflectors," Light: Science & Applications (**Nature Publications**), vol. 11, no. 309 [[DOI](#) - **IF: 17.78 (Q1)**].

[2022] [A. Tourani](#), H. Bavle, J.L. Sanchez-Lopez, and H. Voos, "Visual SLAM: What Are the Current Trends and What to Expect," Sensors, vol. 22, no. 23 [[DOI](#), [ArXiv](#) - **IF: 3.84 (Q1)**].

[2020] [A. Tourani](#), A. Shahbahrami, S. Soroori, S. Khazaei, and A. Akoushideh, "A Robust Deep Learning Approach for Automatic Iranian Vehicle License Plate Detection and Recognition for Surveillance Systems," IEEE Access, vol. 8, pp. 201317-201330 [[DOI](#) - **IF: 3.36 (Q1)**].

*** Other publications are available on [Google Scholar](#) and [ResearchGate](#) profiles (h-index: 10) ***

Awards

[2022] Ph.D. Scholarship, Interdisciplinary Centre for Security, Reliability, and Trust (SnT), University of Luxembourg, LUXEMBOURG.

[2018] Best Student Researcher, Department of Computer Engineering, University of Guilan, Rasht, IRAN.

[2018] Holding the highest average grade point among all Computer Engineering students in the class of 2016, Department of Computer Engineering, University of Guilan, Rasht, IRAN.

[2014] Top-15 Business Planners Award, 10th Sheikh Bahai National Technopreneurship Competitions, Isfahan, IRAN.

Patent

[2020] *Motion-based Vehicle Speeding Violation Detection System*, No. 102641, Patent Office Iran.

Skills

Software Development Skills

Desktop PLs: Python, C#, C++, Java, MATLAB

Web: HTML, CSS, JS, React, Webpack, Next.js, MUI, PHP, Node, GraphQL, NestJS

Databases: MSSQL, MySQL, PostgreSQL, SQLite, MongoDB, Elasticsearch, Neo4j

Tools and Technologies

Robotics tools: ROS, RViz, Gazebo, VoxBlox

Computer Vision tools: OpenCV, EmguCV, Aforge.net, Scikit-image, YOLO

Machine Learning tools: Keras, PyTorch, TensorFlow, Scikit-learn, Weka

Soft Skills

Communication: Presentation, Scientific Writing **Management:** Mentoring, Project Management

Teamwork: Team Spirit, Cultural Awareness **Personal:** Creativity, Passion, Problem-solving

Languages

English (Professional working proficiency), **French** (Limited working proficiency), **German** (Elementary proficiency), **Persian** (Native proficiency)

References

Prof. Dr. Holger VOOS (holger.voos@uni.lu) - Ph.D. Supervisor

Full professor in Engineering science at SnT, University of Luxembourg, Luxembourg.

Dr. Jose Luis SANCHEZ-LOPEZ (joseluis.sanchezlopez@uni.lu) - Research Cooperation

Research Scientist at SnT, University of Luxembourg, Luxembourg.

Dr. Yashar DELDJOO (deldjooy@acm.org) - Research Cooperation

Tenure track Assistant Professor (RtD-B) at Polytechnic University of Bari, Bari, Italy.