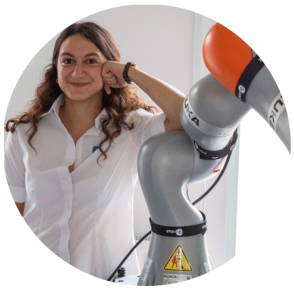

Melbourne, Australia

Citizenship:

Australian and Danish

Languages:

English (mother tongue)

Danish (fluent)

Assyrian (proficient)

Arabic (conversational)

Key Skills:

Project management

Public speaking

Systems thinking

Adaptable

Collaborative

Technical Leadership

CV - Daniella Tola

Summary

Software engineer with PhD in robotic systems integration, developing computer vision, ML, and ROS2 solutions at Trifork. Published URDF research with 500+ survey participants and open-source dataset (33k+ views). Combines technical expertise in robotics systems with initiative in driving team learning and effective technical communication. Known for systems thinking, rapid domain adaptation, and collaborative problem-solving.

Education

2020/11 - 2023/10, Ph.D. in Robotics with Danish Company Technicon, Aarhus University

Study abroad period (September-December 2022) at Queensland University of Technology in Australia with Distinguished Professor Peter Corke. The Ph.D. was in collaboration with the Danish system integrator, Technicon, on optimising robotic systems integration processes via a robotic systems configurator, developing digital shadows of robotic systems, and researching the de-facto robot modelling format, URDF.

2018/08 - 2020/06, M.Sc. in Computer Engineering, Aarhus University

Student exchange period (September-January 2019) at Katholieke Universiteit Leuven in Belgium with focus on automation and control. Specialisation in Machine Learning, Computer Vision, and Embedded Devices. Thesis on agricultural machinery safety. Finished with a GPA of 11.2/12.0.

2015/02 - 2018/06, B.Eng. in Electronics, Aarhus University

Thesis on building a vertical farming cabinet system. Finished with a GPA of 10.5/12.0.

Relevant Work Experience

2024/10 - Present, Data Scientist at Trifork

Worked on two projects with object detection for trains; captured images, annotated, trained and deployed ML models. Currently working on a manufacturing project involving ROS2, ML, camera setup, real-time image processing, and software architecture, developing computer vision solutions using Python on Linux-based systems (NVIDIA Jetson) for production deployment. Proposed computer vision solutions within first week of current project, one assessed for patent potential by client. Initiated knowledge-sharing sessions focused on learning from mistakes and technical challenges, building a culture of psychological safety and organisational learning.

2024/04 - 2024/09, Postdoc at Aalborg University with Novo Nordisk

Led technical development of optimisation framework for aseptic manufacturing layouts. Developed KPIs for data-driven layout comparison, created system requirement models using Enterprise Architect, and conducted domain expert interviews to inform design decisions. Framework adopted by team for evaluating multiple factory configurations. Contributed strategic insights within 2 months despite pharmaceutical domain being new to me.

2023/11 - 2024/03, Postdoc at Aarhus University

Developed Augmented Reality applications for visualising an incubator in a Digital Twin context. Further developed on a software tool for exporting FMUs in Python and C#.

2020/08 - 2020/11, Research Assistant at Aarhus University

Created a dataset for fault detection in automated screwdriving applications, and implemented machine learning algorithms for detecting faults in the time-series data.

Student Experience

- **2019/07 - 2019/09, Student Programmer at Aarhus University Hospital**
  Simulated a system for controlling liquid in human brains, and performed *in vitro* experiments of a prototype. Included data analysis and presentation to lead doctor.
- **2018/09 - 2018/11 (Part-time), Robotics Developer at Bendt Inventors**
  Led project for controlling the wheels of the robot. Tasks involved project and risk management, ROS setup, control systems programming, communication protocols. (Now called Capra Robotics).
- **2017/01 - 2017/06, Software Development Intern at Marel**
  Drove refactoring of image processing algorithm related to object detection, and visualised the configuration of a delta robot on a webpage using Three.js.

Selected Volunteer Experience

2022/12/06-08, Assistant at Australasian Conference on Robotics and Automation

Managed registrations, assisted with audiovisual setups, and helped out with the food service.

Teaching and Leadership

University Teaching

- Assistant Lecturer, Aarhus University (2025-Present): Supervising bachelor software projects and teaching Practical Linear Algebra
- PhD Teaching & Supervision (2020-2023): 25 ECTS teaching across discrete mathematics, programming, and game technologies. Supervised 1 bachelor thesis, 1 research intern, and 2 semester projects
- Teaching Assistant, Aarhus University (2020): Stochastic Modelling & Processing, Network Programming
- Guest Lecturer, Danish Technical University (2024, representing Trifork): Taught 3-hour session on Machine Learning applications in industry at summer course

Community and Volunteer Teaching

- Instructor (Volunteer), ReDI School of Digital Integration (2024-2025): Teaching Python fundamentals to women and non-binary individuals from migrant/refugee backgrounds (15-20 students per semester). Adapted pedagogical approach for learners with diverse mathematical backgrounds
- Mentor, Aarhus University (2017-2019): Provided individualised support to engineering students with diverse learning needs
- Founded informal PhD/Masters networking group combining research presentations with social activities (paddle tennis, etc.)

Technical Leadership and Speaking

- Led knowledge-sharing initiative at Trifork focused on learning from technical mistakes and building psychological safety
- Invited speaker at Danish Academic Society of Robotics, Silicon Valley Robotics, IEEE RAS Hyderabad Chapter

Publications

Selected From 10+ Publications (View Full List)

- D. Tola and P. Corke, "Understanding URDF: A Survey Based on User Experience," in *2023 IEEE 19th International Conference on Automation Science and Engineering (CASE)*, 2023, pp. 1–7. DOI: 10.1109/CASE56687.2023.10260660
- D. Tola and P. Corke, "Understanding URDF: A Dataset and Analysis," *IEEE Robotics and Automation Letters*, vol. 9, no. 5, pp. 4479–4486, 2024. DOI: 10.1109/LRA.2024.3381482.
- D. Tola, E. Madsen, C. Gomes, L. Esterle, C. Schlette, C. Hansen, and P. G. Larsen, "Towards Easy Robot System Integration: Challenges and Future Directions," in *2022 IEEE/SICE International Symposium on System Integration (SII)*, 2022, pp. 77–82. DOI: 10.1109/SII52469.2022.9708846

Open Source Contributions

- **URDF Dataset:** Curated dataset of 300+ robot models from diverse sources, supporting robotics research and development. 33k+ views, 3.5k+ clones.

Selected Technical Skills

Programming Languages

- C
- C++
- C#
- Python
- Answer Set Programming
- VDM (Formal modelling)

Robotics and Visualisation

- ROS/ROS2
- Gazebo
- URSim
- Unity
- Blender

Machine Learning and Computer Vision

- Current focus: Object detection models including YOLO, TAO, and MMDetection
- Foundation: Anomaly detection (Resnet, TABL, LSTM), Hough line transform
- Annotation: Darwin, LabelStudio, MVTec Deep Learning Tool
- Python libraries: pandas, polars, ultralytics, roboflow, sklearn, opencv, matplotlib, keras

Development Tools

- Google Cloud
- UpCloud
- Git
- Docker
- Atlassian
- CI/CD
- Tailscale