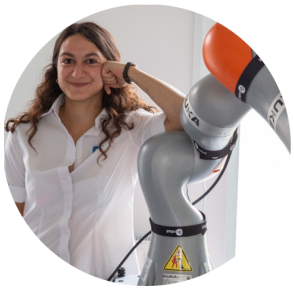

Melbourne, VIC

daniellatola.au

Citizenship:

Australian and Danish

Languages:

English (mother tongue)

Danish (fluent)

Assyrian (proficient)

Arabic (conversational)

Transferrable Skills:

Project management

Public speaking

Systems thinking

Adaptable

Collaborative

Technical Leadership

Daniella Tola

Summary

Software engineer with PhD in robotic systems integration and hands-on experience applying ML, automation, and safety across manufacturing, pharmaceuticals, and agriculture. Strength in systems thinking: rapidly understanding complex workflows across diverse industries and architecting practical solutions. Combines technical depth in ML, computer vision, and ROS with strong client communication and teaching experience. Known for methodical problem-solving and innovative thinking.

Relevant Work Experience

2024/10 - Present, Robotics & ML Engineer (Data Scientist) at Trifork

Key Responsibilities:

- Development of ML and computer vision production code for object detection in different domains: train tracks and signals, manufacturing
- Design and implement ROS2 nodes and software architecture decisions
- Interface software with industrial camera systems and edge computing hardware (Jetson)
- Contribute to the software pipeline including annotation, testing, CI/CD, and deployment

Achievements:

- Proposed novel computer vision solutions within first week of current project, one assessed for patent potential by client
- Built strong client relationships resulting in direct client request for continued project engagement despite relocating from Denmark to Australia
- Worked across the full stack from algorithm development through deployment in fast-paced prototyping environment
- 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

Key Responsibilities:

- Conceptualise novel aseptic factory layouts for optimising low volume small batch production
- Conduct interviews with domain experts to inform design decisions
- Analyse complex requirements including cleanroom standards (cleanroom class A), low-volume specialised production, and cost optimisation

Achievements:

- Led development of KPIs for quantitative layout comparison
- Methodically broke down vast requirement sets into manageable decision frameworks

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 standard 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.

Communication & Stakeholder Engagement

Technical Communication

- Engaged 500+ robotics developers through research survey; open-source dataset achieved 33k+ views and 3.7k+ clones
- Invited speaker at Silicon Valley Robotics, Danish Academic Society of Robotics, IEEE RAS Hyderabad Chapter
- Guest lecturer representing Trifork at Danish Technical University ML summer course
- Adapted communication style for diverse audiences: PhD researchers, industry professionals, and complete beginners

Teaching and Mentoring

- Assistant Lecturer, Aarhus University (Sep - Dec 2025): Redesigned lecture materials with real-world examples and step-by-step explanations, resulting in positive student feedback
- PhD Teaching and Supervision (2020-2023): 25 ECTS across discrete mathematics, programming, game technologies. Supervised 1 thesis, 1 intern, 2 semester projects
- Volunteer Instructor, ReDI School (2024-2025): Taught Python to women and non-binary individuals from migrant/refugee backgrounds, adapting approach for learners with no mathematical background

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, 3.7k+ clones.

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.

2016/11 - 2017/08 (Part-time), Tutor at "Red Barnet" (Save the Children) Ungdom
Helped middle school students with their homework, with special focus on mathematics and physics.

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
- 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

Systems Engineering

- SysML
- UML
- Digital Twins
- Enterprise Architect