



EDUCATION



11/2021 –
CURRENT

Doctoral Programme – Automatic Control, Robotics and Vision
Institute of Industrial and Control Engineering – Universitat Politècnica de Catalunya (ESP)
Doctoral thesis: *Autonomous and Collaborative Robotic Systems in 5G Smart Factories*

04/2018 –
02/2021

Master of Science – Robotics, Cognition, Intelligence
Department of Informatics – Technical University of Munich (GER)

Master's thesis: *Blending Task and Motion Planning using Learning from Demonstration and Reinforcement Learning*

10/2013 –
04/2018

Bachelor of Science – Engineering Science

Munich School of Engineering – Technical University of Munich (GER)

Bachelor's thesis: *Computer Vision in an Automotive Context: High Dynamic Range Imaging with a Dual Camera System*

DOMINIK URBANIAK

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LinkedIn

Website



SKILLS

Programming

Python C++ Matlab
Linux Docker

Robotics

Task planning Motion Planning
Kinematics Gazebo CoppeliaSim
ROS 2 MoveIt! Human-Robot Interaction
(Distributed) Control

Computer Vision

OpenCV Stereo cameras HDR imaging
Point clouds Calibration

Artificial Intelligence

Reinforcement learning Regression
Supervised learning Classification
Neural Networks PyTorch

Soft Skills

Collaborative Organized Presentations
Communication Problem-solving

WORK EXPERIENCE



11/2021 –
02/2025

Early-Stage-Researcher (ESR) – Horizon 2020 5GSmartFact

Universitat Politècnica de Catalunya – Barcelona
Including 18-month secondment at Roboception GmbH – Munich

- Contribution to three project deliverables about 5G-aware industrial applications.
- First-author journal publication of an interdisciplinary analysis of latency measurements from distributed control experiments for collaborative robotics using 5G edge computing.
- Development of a fast method for generating smooth and optimal collision-free trajectories from point clouds. Successfully tested in simulation and with the real hardware.
- First ESR representative in the supervisory board of the project, creating a shared calendar for better course scheduling, main organizer of an ESR workshop to improve collaborations.

11/2018 –
09/2019

Working Student – IIoT Innovation Center

Accenture GmbH – Garching

Programming user interfaces to illustrate the opportunities of
– machine learning in predictive maintenance, and
– supervised learning and generative models in computer vision.

03/2016 –
09/2016

Intern – Quality and Supplier Management

BMW AG – Munich

– Weekly moderation of an international meeting to improve the communication between the supplier and the BMW production sites.
– Collection and preparation of quality metrics to monitor the performance of the suppliers.

07/2014 –
12/2014

Working Student – Automotive Quality Management

Infineon Technologies AG – Neubiberg

Responsible for creating and distributing Production Part Approval Process (PPAP) documents on request for international customers.

03/2015 –
04/2015

Intern – Metalworking

Kottmaier CNC – Bergkirchen

Operating CNC turning and milling machines for metal part production.

08/2013 –
09/2013

VOLUNTEERING



06/2023 –
10/2024

HR Generalist – European Young Engineers (EYE)

Responsible for onboarding new members by contacting applicants, and creating and setting up their Google Workspace accounts.

05/2017 –
10/2021

Badminton Youth Coach – TSV Eintracht Karlsfeld

Responsible for weekly training sessions, supervision at tournaments, organizing events.



PUBLICATIONS

1. Distributed Control for Collaborative Robotic Systems Using 5G Edge Computing.
IEEE access. (2024)



2. Edge computing in autonomous and collaborative assembly lines.
ETFA. (2022)



3. Combining task and motion planning using policy improvement with path integrals.
Humanoids. (2021)

