Damian Sójka

- BSc in Mechatronics
- MSc in Automatic Control and Robotics

Contact Information

Morzyczańska 3A/24
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GitHub Repository

Google Scholar

Frameworks and Technologies

- PyTorch
- Linux
- ROS
- Docker
- Git
- TensorFlow
- Qt

Interests

- Artificial Intelligence
- Autonomous Systems
- Programming

Cerificates

- Microsoft Student Partners - C# Academy
- Microsoft Office Specialist Excel (Core)
- Cisco Networking Academy - IT Essentials

Personal Profile

I am deeply passionate about exploring the crossroads between machine perception, deep learning, and robotics.

Professional Experience

IDEAS NCBR

PhD Student
January 2023 - Present

Intern
December 2022 - January 2023

- Research related to computer vision.

AETHER BIOMEDICAL

Embedded Software Developer
October 2021 - November 2022

Embedded Software Developer Intern
July 2021 - October 2021

- Software development of bionic hand prosthesis and its accessories.
- Responsible for the software used to log the activity and statistics of the prosthesis usage.
- Development of Qt PC app communicating with hand prosthesis.

FARMUTIL HS

Maintenance Department Employee
July 2020 - September 2020

- Inspection, repair and maintenance of production lines.

QUBIQA

Apprentice
August 2019 - September 2019

- Assembly of control cabinets and production line machines based on technical documentation.

Education

SCIENTIFIC INTERNSHIP AT ENSTA PARIS

September 2024 - November 2024
Internship Project Title: *Increasing the reliability of self-supervised monocular depth estimation with online continual learning*

PHD AT POZNAN UNIVERSITY OF TECHNOLOGY

January 2023 - September 2026
Dissertation Topic: *Computationally efficient representations of multidimensional data in deep learning*

SECOND-CYCLE STUDIES AT POZNAN UNIVERSITY OF TECHNOLOGY

March 2021 - September 2022
Field of Study: Automatic Control and Robotics
Specialisation: Robots and Autonomous Systems
MSc degree thesis (written in English):
Triplet loss in haptic localization of a walking robot

- Member of a student team building autonomous race car to compete in Formula Student events.
- FInal grade: 4.88 / 5.
- Rector's Scholarship for the high-achieving students.

FIRST-CYCLE STUDIES AT POZNAN UNIVERSITY OF TECHNOLOGY

October 2017 - February 2021
Field of Study: Mechatronics
Specialisation: Mechatronic Constructions
BSc degree thesis:
Control of logistics tractor using artificial intelligence methods

- Final grade: 4.75 / 5.
- Rector's Scholarship for the high-achieving students.

Skills and Abilities

- **Research** Skilled in devising and executing scientific experiments. Knowledge of how to write scientific papers and publish at peer-reviewed conferences.
- **Programming** Proficiency in Python and C, with basic-level skills in C++. Expertise in embedded software development. Expert-level at PyTorch.
- **Teamwork** History of effective collaborations within a diverse international teams.
- **Languages** Fluency in English and Polish.

Research Topics

Presently, my research revolves around **test-time adaptation, online continual learning, self-supervised learning, and machine perception**. During my master's studies, I conducted research on student race car's perception utilizing LiDAR sensors and investigated the localization of walking robots using haptic signals.

Publications

- **D. Sójka**, M. Masana, B. Twardowski, S. Cygert. "Intransigent Teachers Guide Better Test-Time Adaptation Students," in review for 2025 International Joint Conference on Artificial Intelligence (IJCAI).
- **D. Sójka**, S. Cygert, B. Twardowski, T. Trzciński. "AR-TTA: A Simple Method for Real-World Continual Test-Time Adaptation," The Proceedings of the 35th British Machine Vision Conference (BMVC). 2024. (to be published)
- **D. Sójka**, M. R. Nowicki and P. Skrzypczyński. "Triplet loss-based metric learning for haptic-only robot localization," Proceedings of the 5th Polish Conference on Artificial Intelligence (PP-RAI). 2024.
- **D. Sójka**, S. Cygert, B. Twardowski, T. Trzciński. "AR-TTA: A Simple Method for Real-World Continual Test-Time Adaptation," Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV) Workshops. 2023.
- **D. Sójka**, M. R. Nowicki and P. Skrzypczyński. "Learning an Efficient Terrain Representation for Haptic Localization of a Legged Robot," 2023 IEEE International Conference on Robotics and Automation (ICRA). 2023.

Achievements

- **Innovation award and third place** in Continual Test Time Adaptation for Semantic Segmentation challenge organized within Visual Continual Learning workshop at International Conference on Computer Vision (ICCV) 2023.

Presented Posters and Talks

- **D. Sójka**, M. R. Nowicki, P. Skrzypczyński. Learning an Efficient Terrain Representation for Haptic Localization of a Legged Robot. 2023 IEEE International Conference on Robotics and Automation (ICRA). ExCeL London, London, UK. 29.05–02.06.2023.
- **D. Sójka**, S. Cygiert, B. Twardowski, T. Trzciński. AR-TTA: A Simple Method for Real-World Continual Test-Time Adaptation. ML in PL 2023. Copernicus Science Centre, Warsaw, Poland. 26.10–29.10.2023.
- **D. Sójka**, M. R. Nowicki, P. Skrzypczyński. Triplet loss-based metric learning for haptic-only robot localization. 5th Polish Conference on Artificial Intelligence (PP-RAI`2024). Faculty of Mathematics and Information Science, Warsaw University of Technology, Warsaw, Poland. 19.04.2024.
- **D. Sójka**, S. Cygiert, B. Twardowski, T. Trzciński. AR-TTA: A Simple Method for Real-World Continual Test-Time Adaptation. International Computer Vision Summer School (ICVSS'2024). Hotel Village Baia Samuele in Punta Sampieri - Scicli (Ragusa), Sicily. 07.07–13.07.2024.
- **D. Sójka**, M. Masana, B. Twardowski, S. Cygert. Build To Last: Intransigent Teachers Guide Better Test-Time Adaptation Students.18th European Conference on Computer Vision ECCV 2024, Out-Of-Distribution Generalization in Computer Vision Workshop. MiCo Milano, Milan, Italy. 29.09–4.10.2024.
- **D. Sójka**, S. Cygiert, B. Twardowski, T. Trzciński. AR-TTA: A Simple Method for Real-World Continual Test-Time Adaptation. The 35th British Machine Vision Conference. Scottish Exhibition Centre, Glasgow, UK. 25.11–28.11.2024.