DÁNIEL HORVÁTH

Phd student
in computer science

PERSONAL DATA

Date of Birth: 7th of July, 1994
E-mail: danielhorvath@inf.elte.hu
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Google Scholar
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YouTube

LANGUAGE SKILLS

- Hungarian: native
- English: IELTS ACADEMIC 7.5 (C1)
- French: DELF B1 (85%)
- German: minimal (~A1/A2)

SCHOLARSHIPS

- 2017 - 2018: Hungarian National Higher Education Scholarship
- 2016 - 2017: Hungarian Republican Scholarship
- 2016: BME Faculty of Mechanical Engineering Scholarship

MAIN RESEARCH FIELDS

- Reinforcement Learning in Robotics
- Computer Vision and Object Detection
- Sim2Real Transfer Learning

**List of publications is attached*

PROGRAMMING SKILLS

- Main: Python, C/C++, ROS
- Studied: Wolfram Mathematica, SQL, LabVIEW, Web development (HTML, CSS, JavaScript, PHP), PLC, MATLAB, C#

EXPERIENCE

SZTAKI Research Laboratory on Engineering & Management Intelligence, Budapest
Research Associate | July 2020 - present
Robotics, Transfer and Reinforcement Learning
System Engineer | Sept 2016 - Jan 2020
Computer Vision, System Design, Industrial Cobots
Internship | July 2016 - Aug 2016
Automated Guided Vehicles (AGV)

European Knowledge Centre Ltd., Budapest
AI Engineer | Sept 2019 - present
Robotics, Computer Vision, Mobile Robots

EDUCATION

Eötvös Loránd University, Budapest
Phd in Computer Science | 2020 - present
Reinforcement Learning Based Adaptive Robotic Systems

★ **MINES ParisTech, PSL University, Paris**
Campus France Scholarship | 2022 - 2023

Budapest University of Technology and Economics
Mechatronics BSc & MSc | 2013 - 2019
4.88 / 5 with highest honours
Advanced Robotic System Enhanced with Computer Vision

★ **Technical University of Denmark, Copenhagen**
Campus Mundi Scholarship | Fall of 2018

★ **Otto-von-Guericke University, Magdeburg**
Erasmus+ Scholarship | Spring of 2018

AWARDS

2021: **Young Author Award finalist at the INCOM 2021 Symposium in Budapest, Hungary**
Visual Servo Guided Cyber-Physical Robotic Assembly Cell

2017: **3rd place at the Scientific Student' Conference**
University level; Digital Twin Model in Robotics; New Hungarian National Excellence Program

2016 - 2017: **1st place at the XXXIII. Hungarian National Scientific Students' Conference, 1st place at the University Level, and Special Prize of Audi Hungaria**
Development and Implementation of Navigation and Control Algorithm for AGV Robots in a Smart Factory

2016: **4th place at the WRO Advanced Robotics Challenge** | *Robot Bowling; Hungarian National level*

2016: **1st place at the Micromouse Challenge**
Software category, University level

LIST OF PUBLICATIONS

JOURNAL PAPERS

D. Horváth, G. Erdős, Z. Istenes, T. Horváth, and S. Földi, 'Object Detection Using Sim2Real Domain Randomization for Robotic Applications', *IEEE Transactions on Robotics*, vol. 39, no. 2, pp. 1225–1243, Apr. 2023, doi: 10.1109/TRO.2022.3207619.

CONFERENCE PAPERS

D. Horváth, K. Bocsi, G. Erdős, and Z. Istenes, 'Sim2Real Grasp Pose Estimation for Adaptive Robotic Applications', *IFAC-PapersOnLine*, vol. 56, no. 2, pp. 5233–5239, Jan. 2023, doi: 10.1016/j.ifacol.2023.10.121.

G. Erdős, **D. Horváth**, and G. Horváth, "Visual servo guided cyber-physical robotic assembly cell, "*IFAC-PapersOnLine*, vol. 54, no. 1, pp. 595–600, Jan. 2021, doi: 10.1016/j.ifacol.2021.08.068.

M. Hajós and **D. Horváth**, "Robotic pick-and-place operation enhanced with environment sensing," *28th International Conference on Mechanical Engineering – OGÉT*, pp. 305–308, Apr. 2020.

Z. Kemény, R. Beregi, J. Nacsa, C. Kardos, and **D. Horváth**, "Example of a problem-to-course life cycle in layout and process planning at the MTA SZTAKI learning factories," *Procedia Manufacturing*, vol. 31, pp. 206–212, Jan. 2019, doi: 10.1016/j.promfg.2019.03.033.

Z. Kemény, R. Beregi, J. Nacsa, C. Kardos, and **D. Horváth**, "Human–robot collaboration in the MTA SZTAKI learning factory facility at Győr," *Procedia Manufacturing*, vol. 23, pp. 105–110, Jan. 2018, doi: 10.1016/j.promfg.2018.04.001.

OTHER WORKS

D. Horváth, J. B. Martín, G. Erdős, Z. Istenes, and F. Moutarde, 'HiER: Highlight Experience Replay and Easy2Hard Curriculum Learning for Boosting Off-Policy Reinforcement Learning Agents'. *arXiv*, Dec. 14, 2023. doi: 10.48550/arXiv.2312.09394.

SCIENTIFIC STUDENTS' CONFERENCE

D. Horváth, "Development and implementation of an intelligent robotic manipulator-application with adaptive environment sensing in an experimental cyber-physical production system," *BME Scientific Student Conference*, Nov. 2017

D. Horváth, G. Losonczi, and T. Magyar: "Development and Implementation of Navigation and Control Algorithm for AGV Robots in a Smart Factory," *XXXIII. National Scientific Student Conference*, Apr. 2017.