Jędrzej Orbik

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RESEARCH INTERESTS

I am interested in machine learning for robotics, learning from demonstration, especially with the use of reinforcement learning and computer vision. My goal is to build general purpose algorithms that will empower machines to autonomously acquire complex behavior within wide variety of domains.

EDUCATION

Technical University of Munich, Germany
Master of Science, Electrical and Computer Engineering, 2020

Wroclaw University of Technology, Poland
Engineer, Automatics and Robotics, 2016

PUBLICATIONS

CoRL 2022	"Don't Start From Scratch: Leveraging Prior Data to Automate Robotic Reinforcement Learning" Homer Walke, Jonathan Yang, Albert Yu, Aviral Kumar, **Jędrzej Orbik**, Avi Singh, Sergey Levine
IEEE ICDL 2021	"Inverse reinforcement learning for dexterous hand manipulation" **Jędrzej Orbik**, Alejandro Agostini, Dongheui Lee
CoRL 2021	"ReLMM: RL for Autonomous Mobile Manipulation Learning to Cleanup in the Real World" Charles Sun*, **Jędrzej Orbik***, Coline Devin, Brian Yang, Abhishek Gupta, Glen Berseth, and Sergey Levine
Ubiquitous Robots 2021	"Human hand motion retargeting for dexterous robotic hand" **Jędrzej Orbik**, Shile Li, Dongheui Lee

RESEARCH EXPERIENCE

RESEARCH ENGINEER, UC BERKELEY; BERKELEY, CA, USA – 09.2020-09.2021

Contribution to the deep reinforcement learning research projects - mobile robot manipulation, robot teleoperation using the VR headset, transfer learning for the object manipulation.

INVERSE REINFORCEMENT LEARNING FOR DEXTEROUS HAND MANIPULATION – 2020

Master's thesis. Department for Dynamic Human-Robot-Interaction for Automation Systems, Prof. Dongheui Lee, Technical University Munich.

LEARNING BY DEMONSTRATION FROM TELEOPERATION – 2019

Course project. Development of the system for the acquisition of the human hand trajectories from a depth-camera stream using a deep learning pose estimation model.

AUTONOMOUS SWIMMING PLATFORM WITH IMAGE ANALYSIS – 2016

Bachelor Thesis. Department of Technical Informatics, Dr. Krzysztof Halawa, Technical University of Wroclaw

WORKING EXPERIENCE

SOFTWARE ENGINEER, ROBOCEPTION; MUNICH GERMANY – 05.2022-PRESENT

Object detection with deep learning from point cloud and the conventional methods. Presentation of the product with the customers. Software development using the test-centric approach.

WORKING STUDENT, YOUMMDAY; MUNICH, GERMANY – 07.2018-09.2020

Independent development of machine learning solution - research and implementation of authentication systems: face recognition, keystroke pattern recognition. Tools: C++14 with Dlib library, Tensorflow.

WORKING STUDENT, OBJECTIVE SOFTWARE; MUNICH, GERMANY – 08.2017-03.2018

Development in ROS in area of BMW's autonomous driving at sensorics team - visualizations of sensor data (camera, LIDAR, radar, GPS map drawing), sensor data debugging

SKILLS

- **Software development:** Python (advanced), modern C++17/20 and Qt (advanced), CMake, Git

- **Libraries**: PyTorch, Tensorflow (1 and 2), ROS, NumPy, MuJoCo

- **Information processing:** data structures, algorithms, databases (MySQL, Oracle Database)

- **Languages:** English (fluent, daily used), German (fluent), Polish (native)

RELEVANT UNIVERSITY COURSES

Machine learning for robotics, dynamic human-robot interaction, computer vision, advanced robotic perception, introduction to autonomous systems, pattern recognition, information retrieval in high-dimensional data.

INTERESTS & ACTIVITIES

Sports: tennis, swimming, dancing, motorcycle touring
Music: Electronic, groove metal
Games: Starcraft 2, chess