# Michał Zawalski | Curriculum Vitae

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## **Experience**

#### University of California 0

Research Internship in Berkeley Artificial Intelligence Research Lab January - July 2024 Under the supervision of Prof. Sergey Levine, I worked on improving robot learning, focusing on bridging the gap between perception, planning, and action in complex environments. We trained models to perform intermediate reasoning steps based on visual and robot state information.

### **G**-Research

Internship in Natural Language Processing team June - September 2022 I verified the performance of speech recognition models on financial audio data. I built a pipeline for evaluating and fine-tuning transformer-based models for speech recognition and audio classification.

#### Google 0

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Internship in Shopping Ads Image Data Quality team July - September 2019 I was responsible for implementing a new enforcement aiming to filter images from shopping offers that contain promotional overlays. Prior to the implementation I've prepared an analysis of potential impact and correctness.

#### Samsung 0

Internship in Advanced Natural Language Processing group July - October 2017 I was working on implementing and testing an algorithm for efficient handwriting recognition.

## **Publications**

#### Robotic Control via Embodied Chain-of-Thought Reasoning 0

### CoRL 2024

We introduce Embodied Chain-of-Thought Reasoning (ECoT) for vision-language-action (VLA) models in robotics. This approach trains model to perform multiple steps of reasoning about plans, sub-tasks, motions, and visually grounded features before predicting the robot action. ECoT significantly improves the performance of state-of-the-art policies, while also enhancing interpretability and enabling behavior correction.

### Fast and Precise: Adjusting Planning Horizon with Adaptive Subgoal Search

#### 0 ICLR 2023, notable-top-5%

In this work, we propose an improvement of subgoal search, the hierarchical planning framework. Specifically, we study the methods of adjusting the proposed subgoals to the local complexity of the environment. Our algorithm shows strong performance, even tested on out-of-distribution data.

### Off-Policy Correction For Multi-Agent Reinforcement Learning

#### 0 AAMAS 2022

We propose a simple yet effective algorithm for multi-agent reinforcement learning. Despite its on-policy nature, the computations can be distributed to many workers with nearly perfect speedup and a negligible impact on the quality of training.

### Subgoal Search For Complex Reasoning Tasks

#### 0 NeurIPS 2021

We propose an algorithm for efficient planning in complex tasks. Instead of searching the space by taking atomic actions, we propose to use high-level subgoals for a faster and deeper search. Our method shows strong results in complex reasoning environments: Sokoban, the Rubik's Cube, and INT (proving inequalities).

### Zurich

Warsaw

London

### November 2024

## May 2022

Mav 2023

## December 2021

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## Berkeley

## Competitions

**Central Europe Regional Contest 2017** 0 8th place XI Microsoft Bubble Cup 0 2nd place Google Hashcode 2017, 2020 0 22nd place, 19th place Polish Academic Championships in Team Programming 2016, 2017 0 12th place, 10th place LXV, LXVI Polish Mathematical Olympiad 0 Laureate, Laureate XXI, XXII Polish Olympiad in Informatics 0 Laureate, Laureate

## **Education**

0	University of Warsaw PhD in Computer Science	Warsaw 2020–today
0	University of Warsaw Master's degree in Computer Science	Warsaw 2018–2020
0	<b>University of Warsaw</b> Double Degree Program in Computer Science and Mathematics (BS)	<b>Warsaw</b> 2015–2018

## **Technical skills**

- Good knowledge of algorithms and data structures
- Advanced C++ and Python programming
- Experience in deep learning, particularly reinforcement learning
- Experience in using PyTorch, TensorFlow, NumPy, and other libraries
- Strong mathematical background
- Experience working with git
- Willingness to learn and grow better

## Interests

- 3D graphics modelling
- o Books by JRR Tolkien and works related
- Playing contract bridge
- Mountain hiking
- o Sport, particularly football and snooker