Michał Zawalski | Curriculum Vitae

Experience

○ **Google** **Zurich**
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** **Warsaw**
Internship in Advanced Natural Language Processing group *July - October 2017*

Graduate theses

○ **Model-free approach to solving the Rubik's Cube**
Master of Computer Science *September 2020*
The aim of this work is to develop an algorithm capable of learning to solve the Rubik's Cube without built-in human knowledge, with no access to the environment's model and only from binary signal whether the problem is solved or not. The Rubik's Cube poses a major challenge for learning due to its complexity and extreme sparsity of rewards, which makes the problem intractable for standard learning algorithms. In my work I propose an algorithm which satisfy all those requirements and successfully solves moderately scrambled cubes. Additionally my experiments give some insights on the techniques I have used, sometimes even contrary to claims published in original paper.

○ **Building sentence embeddings**
Bachelor of Computer Science *June 2018*
The work focuses on algorithms designed to transform sentences to a meaningful low-dimensional representation, which can be seen as a variant of well-known problem of embedding words. We start with a survey of existing methods, aiming to capture a variety of possible approaches and propose our own solutions which obtain comparable results. This thesis is co-authored by me.

Technical skills

○ **Good knowledge of algorithms and data structures**

○ **Advanced C++ programming**
over 9 years of experience

○ **Experience in machine learning and deep learning**
particularly reinforcement learning

○ **Experience in using TensorFlow and Keras**

○ **Strong mathematical background**

○ **Experience in competitive programming, demonstrated in international competitions**
mainly ACM-style contests requiring team cooperation and dealing with pressure of time

○ **Willingness to learn and grow better**

Education

University of Warsaw **Warsaw**
PhD in Computer Science, expected graduation June 2024 *2020–today*

University of Warsaw **Warsaw**
Master's degree in Computer Science *2018–2020*

University of Warsaw **Warsaw**
Double Degree Program in Computer Science and Mathematics (BS) *2015–2018*

XIV LO im. Stanisława Staszica w Warszawie **Warsaw**
High school *2012–2015*

Programming languages

- C++, over 500.000 LOC
- Python, over 5.000 LOC
- Java, over 1.000 LOC
- basic knowledge of OCaml, Haskell

Selected university classes

- **Deep neural networks**
- **Algorithms and Data Structures**
- **High Performance Computing**
- **Concurrent Programming**
- **Security of Computer Systems**

Competitions

Central Europe Regional Contest 2017
8th place

XI Microsoft Bubble Cup
2nd place

Google Hashcode 2017, 2020
Finalist

Akademickie Mistrzostwa Polski w Programowaniu Zespołowym
12th place, 10th place

LXV, LXVI Polish Mathematical Olympiad
Laureate

XXI, XXII Polish Olympiad in Informatics
Laureate

Interests

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