

# Michalina PACHOLSKA

pacholska.michalina@gmail.com  
London, Cambridge, Remote

linkedin.com/in/michalina-pacholska  
scholar.google.com/citations?user=2s9gMX8AAAAJ

## PERSONAL STATEMENT

---

I am a creative and motivated researcher a PhD in mathematical signal processing from École Polytechnique Fédérale de Lausanne. My broad and interdisciplinary experience allows me to evaluate problems from a unique perspective, and I am skilled at communicating complex technical information to a wide range of audiences. Whether working independently or as part of a team, I thrive on the challenge of developing creative solutions that push the boundaries of what is possible. I am confident that I can contribute to any project that creative digital solutions and the ability to think critically.

## WORK EXPERIENCE

---

ASSOCIATE RESEARCHER AT **Cosimmetry** SINCE FEB. 2023

I'm working on the Defence and Security Accelerator's (DASA) Autonomous Resilient Cyber Defence (ARCD) project.

RESEARCH SCIENTIST AT **Improbable** MAY 2022 - JAN 2023

- I developed a prototype tool to speed up the creation of agent-based models from data to save time model engineers spend on every project (Julia, genetic programming, Jax, imitation learning)
- I conducted a literature review as a part of the DASA's ARCD project. The review was well received by the customer.
- I advised an intern who added a reinforcement learning model MuZero to the internal collection of ML tools (Python, PyTorch, genetic programming, reinforcement learning)

RESEARCH INTERN AT **DeepMind** SEPT. 2018 – JAN. 2019

I adapted an early AlphaFold2 method to predict the positions of side-chain atoms in proteins, needed to integrate physics into AlphaFold2. I achieved multiple orders of magnitude speed-up over the s.o.t.a. methods. Used: Python, TensorFlow, Transformer Neural Networks.

DOCTORAL ASSISTANT AT **EPFL** OCT. 2016 – DEC. 2021

At École Polytechnique Fédérale de Lausanne, I conducted exercises for three different master-level classes and supervised two student projects including a style transfer in PyTorch.

SOFTWARE ENGINEERING INTERN AT **Google** JULY 2016 – SEPT. 2016

I implemented a data-processing pipeline that reduced data flow from 2TB per day to a few GB per day without information loss, enabling further data analysis and resource savings. Used: c++, MapReduce.

MATHEMATICS AND PROGRAMMING TEACHER AT **ICMCM** FEB. 2016 – MAY 2016  
JAN. 2014 – MAY 2014

I taught an extra-circular class for high school students at Interdisciplinary Centre for Mathematical and Computational Modelling. The goal of the class was to provide interested students from outside top schools with skills and experience they would not be taught otherwise.

## EDUCATION

---

PHD IN COMPUTER SCIENCE AT **EPFL**: SAMPLING GEOMETRY AND COLOUR

- Awards: Doctoral Program Thesis Distinction (top 8% theses)
- I developed new sampling schemes inspired by problems of shape from texture and of localisation of a smoothly moving device.

- I build a mathematical model interference-based colour photography and proposed how it can be used in data storage.

MASTER'S DEGREE IN MATHEMATICS AT **University of Warsaw**: GRADE 5.0/5.0

In my thesis, I analysed the problem of sampling at unknown locations and implemented a novel reconstruction algorithms in Python.

EXCHANGE YEAR AT **EPFL**

During a semester project, I developed in MATLAB and tested on artificial data a new super-resolution method for fluorescent light microscopy.

BACHELOR'S DEGREE IN MATHEMATICS AT **University of Warsaw**: GRADE 4.5/5.0

I took interdisciplinary classes at at College of Inter-Faculty Individual Studies in Mathematics and Natural Sciences

## RELEVANT VOLUNTEERING EXPERIENCE

---

VOLUNTEER & DESIGNER FOR HELVETIC CODING CONTEST 2015–2019

I designed T-shirts, help write coding problems and Volunteered on site during Switzerland's biggest programming contest

TEACHER & ORGANIZER OF SUMMER SCIENCE SCHOOL 2011–2015

I prepared and taught workshops as well as managed other volunteers in preparation and during a mathematics, physics and computer science focused camp for high school students.