# Julia Pap

**ML Engineer | Data Scientist | Mathematician**


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## Summary


- Machine learning and data scientist with a Ph.D. in applied mathematics and 10 years of experience in research and industry.
- Recently completed a Diploma of Advanced Studies in Data Science at ETH Zürich, specializing in image analysis and computer vision.
- Experienced in 3D reconstruction, deep learning, applied data science, and discrete mathematics.


## Skills

- Programming (Python, Java, JavaScript, C++).
- Some tools I used: TensorFlow, PyTorch, OpenCV, Open3D, NumPy, AWS, etc.
- Problem solving, applying mathematical methods to real world problems.
- Machine learning, computer vision, data visualization.

## Software engineering experience

- Computer Vision contractor at Orbio 11/2023 – 01/2024
  - as a part-time job during my studies at ETH, I helped Orbio start a computer vision approach for methane detection in satellite images, setting up development environment on Azure, and building a synthetic data generation pipeline using data from Sentinel-2
- Machine learning engineer contractor at Orderfox 06/2022 – 08/2022
  - as a pilot project, trained and deployed an autoencoder for 3d models of machined parts (using TensorFlow and AWS)
- Machine learning engineer at Archilogic, Zürich 12/2017 – 06/2021
  - implemented automation tasks in Python (furnishing rooms, zoning office spaces) using computational geometry and optimization
  - trained and integrated a deep convolutional model for parsing floor plan images
- Software engineer at Creo Group, Budapest 05/2017 – 06/2017
  - NLP backend for news topic classification (Java)

- Research fellow at Institute for Computer Science and Control (SZTAKI), Data Mining and Search Group, Budapest 2014 – 2016
  - R&D of new recommender system methods that leverage location information, for recommending topics for Twitter users based on geo-tagged tweets (C++)
  - developed gathering and visualization of book popularity data
  - R&D of matrix-factorization based recommender system in Python

## Research experience

- Research assistant at ELTE Institute of Mathematics, Budapest 2009 – 2013
  - I worked in the areas of combinatorial optimization, polyhedral combinatorics, graph theory, algorithms and complexity.
- ADONET–Marie-Curie research fellow in G-SCOP, Grenoble, France 2007
- Member of the Egerváry Research Group on Combinatorial Optimization (EGRES). 2003–2013
- Publications: 11 peer-reviewed papers and 5 technical reports on combinatorics and recommendation systems, see https://papjuli.github.io/#publications. I also co-authored the online exercise book *Operations research exercises* (in Hungarian).

## Education

- Diploma of Advanced Studies in Data Science at ETH Zürich, specializing in Image Analysis and Computer Vision 2023 – 2025
- PhD in Applied Mathematics 2013
  Eötvös University, Budapest (Summa cum laude). Advisor: András Frank.
  Thesis: *Integrality, complexity and colourings in polyhedral combinatorics*.
- MSc in Mathematics 1999 – 2004
  Eötvös University, Budapest. Advisor: András Frank.
  Thesis: *Structure and polyhedra of stable matchings* (in Hungarian).

### Additional Courses

- Computer Vision Nanodegree on Udacity 2022
- Deep Learning Specialization on Coursera 2021

## Other projects and services

- I'm volunteering as an AI engineer at the Panelista project of Hello 50:50 World.
- I participated in the Hack4Good program of the Analytics Club of ETH Zürich.
- I participated in the NASA Datanauts program.

## Languages

- Hungarian (native), English (advanced), German (intermediate).

*Januray 2026*