

# Júlia Pap



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**Home page:** <https://papjuli.github.io/>

**TLDR:** Machine learning and computer vision engineer 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.

## Software engineering experience

- Computer Vision engineer at [Orbio](#) 2023 Nov. – 2024 Jan.
  - helped jumpstart computer vision project for methane detection in satellite images
- Machine learning engineer at [Orderfox](#), Zürich 2022 June – 2022 August
  - trained and deployed an autoencoder for 3d models of machined parts (using TensorFlow and AWS)
- Machine learning engineer at [Archilogic](#), Zürich 2017 Dec. – 2021 June
  - Python development for automation tasks (furnishing rooms, zoning office spaces) using computational geometry and optimization
  - machine learning training and integration for parsing of floor plan images
  - devops on AWS
- Software engineer at [Creo Group](#), Budapest 2017 May – July
  - 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
  - new recommender system methods that leverage location information, for recommending topics for Twitter users based on geo-tagged tweets (C++)
  - 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

## Education

- Diploma of Advanced Studies in Data Science at ETH Zürich, specializing in Image Analysis and Computer Vision 2023 – 2025
- [Computer Vision Nanodegree](#) on Udacity 2022
- [Deep Learning Specialization](#) on Coursera 2021
- 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).

## Programming skills

- Python, Java, JavaScript, C++.
- Some tools I used: TensorFlow, PyTorch, OpenCV, Open3D, NumPy, AWS, etc.

## Teaching experience

- University course taught as instructor: game theory.
- University courses taught as teaching assistant: combinatorial algorithms, operations research, and discrete mathematics.

## Publications

- 11 peer-reviewed papers and 5 technical reports on combinatorics and recommendation systems, see <https://papjuli.github.io/publications>.
- K. Bérczi et. al, *Operations research exercises*, online exercise book (in Hungarian)

## Other projects and services

- I participated in the [Hack4Good](#) program of the Analytics Club of ETH Zürich.
- I participated in the [NASA Datanauts](#) program.
- I advised Vanda Horváth, BSc. Title of her thesis: *Schnyder-labelings and applications*.

## Languages

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

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