Klára Janoušková
Curriculum Vitae

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Nationality: Czech

About

I am currently a PhD student at the Visual Recognition Group of CTU in Prague, FEE, currently working on learning with limited supervision for image segmentation, in particular self-supervised test-time adaptation and weakly supervised learning. Previously my research focused on document analysis, mainly weakly supervised learning for text detection and recognition. Apart from machine learning and mathematics, I am interested in psychology and neuroscience.

Work experience

Centre for Machine Perception, **CTU in Prague**, Research Intern *2017 - 2023*
Visual Recognition Group, working under the supervision of prof. Jiří Matas. I am working mainly on learning with limited supervision for image segmentation with focus on self-supervised test-time adaptation and weakly supervised learning.
I used to work on document analysis projects - scene-text region detection and document layout analysis, in particular weakly supervised learning for text detection and recognition.

Equilibre Technologies, Research Scientist *2022-now*
Research on time-series data.

VISTA lab, Technion, Research Intern *September 2022 - October 2022*
Czech-Israeli Innovation Internships. I was hosted by prof. Alex Bronstein, working with Chaim Baskin, on the topic oftest-time adaptation for image segmentation.

IBM Research - Zurich, Student Researcher *July 2021 - December 2021*
AI Automation group, explainability. I am working on visual inspection for civil infrastructure.

Computer Vision Center, UAB, Research Intern *July 2019 - September 2019*
I worked on weakly supervised learning for text detection and recognition under the supervision of prof. Dimosthenis Karatzas.

Applifting, Ruby on Rails Backend Trainee developer *June 2016 - August 2016*
I worked on project Yunoia, a social network for the game industry.
Startup that develops iOS, web and Android applications.

Volunteering

Czechitas, Volunteer *2018 - 2021*
Teaching introductory level programming courses.
Non-profit organization that aims for higher tech literacy among women and youth.

MoRoUS, Organizer *2016 - 2018*
Correspondence seminar for high school students organised by a group of volunteers from the Faculty of Electrical Engineering, CTU Prague.

Education

Czech Technical University in Prague, Master of Science *September 2020 - June 2023*

Faculty of Electrical Engineering, major in Computer Vision (1.18/4 WGPA).
Courses: Statistical Machine Learning, Digital Image, Advanced Algorithms, Evolutionary Optimization Algorithms, Neurophysiology, Computer Vision Methods, Geometry of Computer Vision and Graphics, Combinatorial Optimization, Theory of Algorithms

Czech Technical University in Prague, Bachelor of Science *September 2017 - 2020*
Faculty of Electrical Engineering, major in Informatics and Computer Science.
I graduated with honours (1.15/4 WGPA, rank 7), completing a minor degree in mathematics.
Bachelor thesis: Learning with Weak Annotations for Text in the Wild Detection and Recognition
CS: Solving Problems and other Games; Procedural Programming; Operating Systems; Database Systems; Parallel and Distributed Computing; Functional Programming; Recognition and Machine Learning, Object Design and Modelling
Math: Discrete Mathematics; Logic and Graphs; Linear Algebra; Mathematical Analysis I and II; Optimization; Information Theory and Coding; Advanced Analysis; Graph Theory; Numerical Analysis
Other: Philosophy

Universitat Politècnica de València, *September 2018 - January 2019*
Erasmus+ at School of Informatics. I obtained the best possible score for *Algorithms* and 'Matrícula de Honor' (granted to up to 5% of the students provided they have obtained the 'Excellent' classification) for *Probability and Statistics*, *Introduction to AI*, and *Languages, Automata and Grammars*.
Courses: Language, automata and grammars; Introduction to Artificial Intelligence; Techniques, tools and applications of Artificial Intelligence, Probability and Statistics; Algorithms

Publications

Towards Workflows for the Use of AI foundation Models in Visual Inspection Applications, Mattia Rigotti, Diego Antognini, Roy Assaf, Kagan Bakirci, Thomas Frick, Ioana Giurgiu, Klára Janoušková, Filip Janicki, Husam Jubran, Cristiano Malossi, Alexandru Meterez, Florian Scheidegger

Model-Assisted Labeling via Explainability for Visual Inspection of Civil Infrastructures, Klara Janouskova, Mattia Rigotti, Ioana Giurgiu, Cristiano Malossi; CVCIE workshop@ECCV'22 (arxiv)

Text Recognition - Real World Data and Where to find Them, Klára Janoušková, Lluis Gómez, Dimosthenis Karatzas, Jiří Matas; ICPR2020 (arxiv, youtube)

Languages

Native: **Czech**
Advanced: **English** (CAE certificate), **Spanish** (Título de Bachiller, Czech-Spanish high-school)
Intermediate: **French**
Elementary: **German**

Technical skills

Work experience: Python (OpenCV, scikit-learn, PyTorch), Ruby (Ruby on Rails)

Invited talks

Rossum, Machine-learning talks - scene-text detection and recognition.
UBS Switzerland internal seminar - scene-text detection and recognition.

Achievements

Josef Hlavka Prize 2022
the oldest Czech foundation, supports outstanding students and graduates. The prize is awarded to no more than one student per faculty a year.

Best paper award 2022
for our paper *Model-Assisted Labeling via Explainability for Visual Inspection of Civil Infrastructures*

CI3 selected student *2022*
I have been selected as one of the six participants in the first year of the Czech-Israeli Innovation Internship, a new project focusing on commercialization and technological transfer https://www.nfneuron.cz/novinky/mladi-cesti-vedci-miri-do-izraele-diky-novemu-projektu-vedeckych-stazi

IBM Great Minds 2021 winner *2021*
https://www.zurich.ibm.com/greatminds/ - a competition for 3 to 6-month internships at one of the IBM Research Labs.

Dean's award for an outstanding bachelor's thesis. *2020*

100th percentile in the SCIO National Comparative Exams in Mathematics *2017*
The best result in the cohort. Criterion in the acceptance processes of many Czech universities.

Open Informatics scholarship for talented girls *2017*
A scholarship awarded to top-scoring students in the NCE in Mathematics.