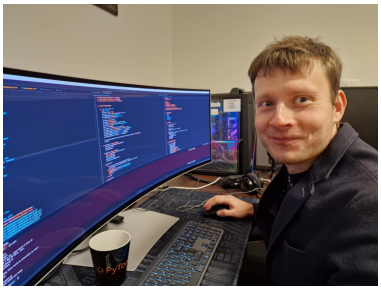

Branislav Hesko

Tescan Group
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OVERVIEW

Senior Machine Learning Engineer at Tescan Group. Freelancer focused on AI/ML for any type of data with emphasis on computer vision. Machine learning enthousiast following current trends and research.

WORK EXPERIENCE

Senior machine learning engineer 2022-
Tescan Group a.s.

- Various ML projects in the field of transmission electron microscopy.
- Image registration for navigation, measurement and calibrations. Large image stitching.
- Ronchigram correction and evaluation.
- Diffraction pattern analysis (classification, segmentation, object detection).
- Automatic sample navigation, nanoparticle detection and material evaluation.
- MLOps - serving machine learning models and handling their lifecycle.
- Model optimization for large scale inference on a single GPU.

Machine learning engineer - Freelancer 2021-
Aireen a.s., Indusight, s.r.o., DNAI.ai, Scannera s.r.o.

- Automatic diagnostics from retinal fundus images.
- MLOps on Azure - managing lifecycle of disease grading model.
- Manufactured product tracking on a conveyor belt: object detection, tracking, recognition and counting.
- Model deployment for industrial applications. Model optimizations for CPU/GPU inference.
- Facade segmentation for augmented reality applications.
- Keypoint detection in 3D pointclouds.
- Framework for object detection for security and surveillance applications.

Research specialist 2020-2022
Konica Minolta Business Solutions Czech Republic

- End to end text detection and recognition.
- Deep learning based visual quality inspection, object counting and inventory check applications.
- Machine learning studio - backend, deployment + modeling development.
- MLOps - serving machine learning models and handling their lifecycle.

3D picking and computer vision research 2019-2020
Sanezoo s.r.o.

- Deep learning and variation based disparity and depth calculation.
- Deep learning based object detection in dense pointclouds. Feature based methods using sparse convolution operators
- 3D random bin picking pipeline and optimizations.

Intern at TEM systems 2017-
Thermo Fisher Scientific

- Numerical methods for automatic alignments of the electron miscroscope.

Junior researcher 2015-
Brno University of Technology, Department of Biomedical Engineering

- Deep learning for treating retina images, mostly focused on segmentation and classification.
- Image processing with accent on segmentation via deep learning and active contours approaches.
- Solving technological grant focused on automatic estimation of drivers fatigue. Worked on infrastructure detection and biosignals processing
- Supervising: Bachelor and master thesis in facial recognition, deep learning and biofeedback.

EDUCATION

Mgr. in Plasma physics 2016-2018
Masaryk University, Brno, Faculty of Science
Master thesis subject: "Analysis and processing of images for plasma diagnostics."
Supervisor: Mgr. Petr Synek, PhD.
Passed with honors.

Ing. in Biomedical and ecological engineering 2013-2015
Brno University of Technology, Faculty of Electronics and Communication
Master thesis subject: "Active contour methods for ultrasound image segmentation."
Supervisor: Ing. Vratislav Harabiš, PhD.
Passed with honors.

Bc. in Biomedical technology and bioinformatics 2010-2013
Brno University of Technology, Faculty of Electronics and Communication
Bachelor thesis subject: "Automatic classification of antibiotic disks photographies."
Supervisor: Ing. Petr Walek

Bc. in Applied physics - nanotechnology 2012-2016
Masaryk University, Brno, Faculty of Science

Bachelor thesis subject: "Plasmachemical synthesis of magnetic nanoparticles."
Supervisor: doc. Mgr. Vít Kudrle, PhD.

Unfinished Ph.D. in Biomedical electronics and biocybernetics 2015-2023
Brno University of Technology, Department of Biomedical Engineering
Thesis subject: "Image processing of ophtalmologic data using deep learning methods."
Supervisor: Ing. Vratislav Harabiš, PhD.
Dropped in 2023 due to shift of priorities and other projects.

PERSONAL SKILLS

Foreign languages
English - level C1, French - level C1

Technical specialization
Computer vision, Deep learning, MLOps, Data analysis, Numerical methods.

Computer skills
Python, Rust, C++, Linux(Ubuntu), git, JIRA, Docker, WSL2.

Known frameworks
PyTorch, TorchServe, Nvidia Triton, OpenCV, FastAPI, MLflow, Streamlit.

Personal qualities
teamwork, communication, reliability, creativity, complex problem solving, self-driven, learning ability.

Interests: science, technology, computers, sports, games and books

AWARDS

- 2006 - Township round in Mathematical olympiad - 3rd place, County round in Physics olympiad - 2rd place, County round in Astronomy olympiad - 4rd place, County round in Chemistry olympiad - 4rd place.
- 2008 - School round in kangaroo France, mathematical competition - 1st place.
- 2015 - Dean's Award for Master's thesis, Faculty of Electrical Engineering and Communication and awarded by Red Diploma.
- 2016 - Student conference EEICT - 3rd place.
- 2018 - Student conference EEICT - 1st place.
- 2019 - 2nd place in optic disc segmentation - PALM challenge. [valid on 25.3.2019]