

Petr Dvořáček

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EDUCATION

University of Ostrava

Pursuing a Doctoral degree in Informatics

Ostrava, Czech Republic

2021 – Present

Technische Universität Chemnitz

Erasmus exchange during Master's

Chemnitz, Germany

6 months in 2021

VSB – Technical University of Ostrava

Bachelor's degree in Control and Information Systems

Ostrava, Czech Republic

2016 – 2019

Master's degree in Control and Information Systems

2019 – 2021

RESEARCH EXPERIENCE

University of Ostrava

Researcher

Ostrava, Czech Republic

2022 – Present

Computer Vision

Deep Learning

PyTorch

TensorFlow

Python

Linux

LaTeX

- Brain atlas creation based on MRI scans and neural network.
- Semantic segmentation of brain structures in MRI scans.
- MRI (Magnetic Resonance Imaging) scan processing in DICOM format.
- Research publication on the topic of the security of neural networks [1,2].
- Manager of the Student Grant Competition Project.
- Teaching computer vision with emphasis on state-of-the-art deep learning methods.
- Popularization of my research topic for general public (AI Days).

IT4Innovations National Supercomputing Center

Research Assistant

Ostrava, Czech Republic

2018 – 2020

Python

Linux

LaTeX

- Utilized VASP (Vienna Ab initio Simulation Package) to model the electron structure of alloys.
- Became proficient in supercomputer calculations and Linux.
- Presented my work at TU Berlin.

WORK EXPERIENCE

Innovatrics

AI Developer (Internship)

Brno, Czech Republic

2024 – present

Computer Vision

Deep Learning

PyTorch

Python

Linux

- Improving computer vision algorithms for fingerprint recognition

Hugmarket Digital s.r.o.

AI Developer

Prague, Czech Republic (remote)

2021 – 2022

Computer Vision

Deep Learning

PyTorch

Python

Linux

- One-shot image classification algorithm based on neural network.
- Object detection algorithm based on neural network.

Ullmann s.r.o.

Software Engineer

Opava, Czech Republic

2019 – 2021

Computer Vision

Deep Learning

PyTorch

TensorFlow

Python

Embedded Devices

Linux

- Fast image classification algorithm for field crops recognition based on neural network.
- Deployment of neural networks to NVIDIA Jetson Nano and Google Coral embedded devices.
- A tool to gather image dataset of field crops.
- Won main prize at the Greenlight Accelerator.
- Great experience of the startup environment.

Fraunhofer IWU

Software Developer (Internship)

Chemnitz, Germany

4 months in 2021

Computer Vision

Deep Learning

TensorFlow

- Fast textile error detection system based on neural network.
- Integrated my solution into the Xeidana software using TensorFlow serving.
- Gave a lecture on TensorFlow.

VSB – Technical University of Ostrava

Software Developer

Ostrava, Czech Republic

2018 – 2020

Computer Vision

Deep Learning

TensorFlow

Python

Linux

Embedded Devices

LaTeX

- Fast wood error detection system based on neural network.
- Deployment of neural networks to NVIDIA Jetson embedded devices.
- C# application for streamlining industrial machine development procedures.

Profiq s.r.o.

Software Developer (Internship)

Ostrava, Czech Republic

3 months in 2019

Linux

JavaScript

- Learned JavaScript, Docker NoSQL databases, improved Linux skills.
- Developed scalable application with serverless backend with Firebase and Node.js.

SELECTED PUBLICATIONS

- [1] Dvořáček, P., & Hurtík, P. (2022). What is the cost of privacy? In Springer eBooks (pp. 696–706).
- [2] Dvořáček, P., Hurtík, P., & Števuliáková, P. (2023). Effective Black Box Adversarial Attack with Handcrafted Kernels. In Lecture Notes in Computer Science (pp. 169–180).
- [3] Dvořáček, P. (2024). How image distortions affect inference accuracy. In 2024 International Joint Conference on Neural Networks (IJCNN) (pp. 1-7).

FURTHER SCIENTIFIC ACTIVITIES, AWARDS & ACHIEVEMENTS

Presentation on IEEE WCCI conference

Yokohama, Japan, 2024

Presentation of my publication [3].

SGS Project

Ostrava, Czech Republic, 2023

Manager of the Student Grant Competition Project at the University of Ostrava.

Talent of the Year Award

Ostrava, Czech Republic, 2023

I was awarded the "Talent of the Year Award" by the city of Ostrava thanks to my study and research results.

Moravian-Silesian Region Scholarship

Ostrava, Czech Republic, 2023

I received the Moravian-Silesian Region Scholarship thanks to my study results.

Presentation on IWANN conference

Ponta Delgada, Portugal, 2023

Presentation of my publication [2].

Presentation on IPMU conference

Milano, Italy, 2022

Presentation of my publication [1].

Presentation on DPG 2018 conference

Berlin, Germany, 2018

Presentation about lattice dynamics calculation from first principles in alloys.

Representation of VSB–TUO at the project week in Antwerp

Antwerp, Belgium, 2017

I was selected to represent VSB–TUO during the project week in Antwerp, where I collaborated with an international group of students to address an industry-related challenge.

VOLUNTEERING

Do Rakouska na zkušenou (Up to Austria)

Innsbruck, Austria, 2023

Organization of German language course in Austria.

SKILLS

Programming: Python, C#, JavaScript

Technologies: PyTorch, TensorFlow, LaTeX, Git, Docker, OpenCV, NVIDIA Jetson, Google Coral

Languages: Czech (Native), English (Professional), German (Elementary)