

Filip Kučera

PhD Student @ JMU Würzburg

March 10th, 2000

Akasaka 9-5-29, Minato-ku, Tokyo, T-107-0052

+420 776 270 247

f.kucera@media-bias-research.org

Czech

Social Network

LinkedIn

Github

ORCID

Google Scholar

X (formerly Twitter)

Languages

Czech ●●●●●

English ●●●●○

Japanese ●○○○○

Hard Skills

Machine Learning

Programming

Working Experience

2025 – **PhD Student** — JMU Würzburg
Working under the supervision of Prof.Dr. Radu Timofte on "Bias Detection and Mitigation in Vision-Language Models" applying methods of mechanistic interpretability for uncovering and mitigating bias in multi-modal models. Collaborating with Media Bias Research Group at the National Institute of Informatics in Tokyo.

2022 – 2025 **Research Fellow** — Czech Technical University in Prague
Research Fellow in the Visual Recognition (VR) lab, headed by Prof. Jiří Matas in the Center for Machine Perception (CMP) @ FEE CTU.

2023 – 2024 **External Teacher** — Czech Technical University in Prague
Teaching labs of Computer Architectures (B0B35APO) course at FEE CTU.

2022 – 2025 **Lecturer** — National Library of Technology
Lectured robotic workshops created with my colleague targeting high school groups but expanding even for companies as teambuilding offerings later. The workshop uses Robotis Premium robots.

2022 – 2023 **External Teacher** — Gymnázium Nad Kavalírkou (Grammar School)
Teaching a non-compulsory robotics class, looking deep into topics such as Raspberry Pi & Electronics, LEGO Robotics (coupled with preparing student teams for the national LEGO Competition), and (Java & Processing) Programming.

2021 – 2022 **Undergraduate Research Fellow** — Czech Technical University in Prague
Undergraduate Research Fellow in the Computational Robotics Lab (COMROB), headed by Prof. Jan Faigl. Research, culminating in my Bachelor Thesis, focused on developing FPGA DSP for real-time LiDAR data processing and odometry from a point cloud.

2018 – 2019 **Software Content Engineer (Internship)** — Autodesk
Software Content Engineer (C++) helping the Content Center division of Autodesk Inventor team (in Děčín, CZ). Bugfixes and ribbon prototypes in the Microsoft Foundation Class (MFC) Library.

Education

Extra-Curricular Education

2022 – 2025 **prg.ai Minor** — prg.ai
Many of the best Prague ML/AI courses across the top Prague universities, paired with talks from Prague AI startups & community of smiliar-minded learners with diverse backgrounds.

Studies

2022 – 2025 **Master – Open Informatics** — Faculty of Electrical Engineering CTU
Focus: Computer Engineering – efficient software, GPGPU, massively distributed computing, super-scalar CPU design, advanced embedded & circuit design. Through my enrollment in prg.ai I've finished many extracurricular ML courses.

Master Thesis
Visual predictor of local surface maps in front of a vehicle.

2019 – 2022 **Bachelor – Open Informatics**
Focus: Computer Science, focusing on ELMG Field, embedded hardware, CPU & FPGA design, parallel & distributed computing.

Bachelor Thesis
FPGA–based Processing of LiDAR Data.

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About Me

I am highly self-motivated curiosity-driver student with strong passion for understanding Machine Learning models inside-out. I've always been passionate about research and passing the knowledge down in a digestible form in various forms of teaching & lecturing.

Publications

2022 **Single Session Walking Robot Workshop for High School Students**
Martin Zoula, Filip Kučera
International Conference on Robotics in Education

2022 **FPGA-based Processing of LiDAR Data.**
Filip Kučera
Bachelor Thesis

2025 **Visual predictor of local surface maps in front of a vehicle.**
Filip Kučera
Master Thesis

2026 **SciDef: Datasets and Tools for Automated Definition Extraction from Scientific Literature with LLMs**
Filip Kučera, Christoph Mandl, Isao Echizen, Radu Timofte, Timo Spinde
Accepted at KEIR @ CIKM 2026

2026 **Mechanistic Interpretability for Bias and Fairness in (Vision-)Language Models: A Systematic Review**
Filip Kučera, Carsten Eickhoff, Isao Echizen, Radu Timofte, Timo Spinde
Preprint submitted to ACM Computing Surveys (CSUR)

Awards

2022 Graduated with Honors FEE CTU

Extra-Curricular Activities

Volunterring in Dormitory Club(s) (Former) Head of the System Administrator dormitory division in Sincoolka Club. Dormitories' system administrator ever since the beginning of my university studies (2019). Juniper switches, Ruckus routers, Linux, Networks, PHP & PostgreSQL, Access Point installation/placement, PR, parties, and *of course, Printers*.

Voluntary Subjects Advanced Machine / Deep (Reinforcement) Learning. Theoretical Physics (Mechanics, Quantum). Quantum Computing. Advanced Calculus (Hilbert/Banach spaces, Lebesgue Integral, etc.).

Teaching Teaching at University, Grammar School and Library.

Conference Talk Short public conference talk about a work I've done after my first year of the university about custom FPGA design used in the teaching of Computer Architectures at the CTU.