

Ignacy Stepka

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EDUCATION

Poznan University of Technology

Poznan, Poland

Artificial Intelligence, formerly Computer Science

October 2020 - January 2025

- I studied Computer Science for two years before transferring to the Artificial Intelligence major
- Overall GPA: 4.73/5.0. (2-5 scale)
- University's President Scholarship for top 10% of students
- Active member in a student society for machine learning

RESEARCH EXPERIENCE

Carnegie Mellon University

Pittsburgh PA, USA

ML Research Intern (*Robotics Institute Summer Scholars Program*)

June 2023 - now

- Conducting research on resiliency of distributed optimization algorithms
- Developed a formal verification approach for Bayesian Networks enabling rigorous model testing and validation
- Collaborated closely with [Prof. Artur Dubrawski](#), [Dr. Nicholas Gisolfi](#) and [Dr. Kyle Miller](#)

Poznan University of Technology

Poznan, Poland

Undergraduate Research Assistant

November 2022 – now

- Conducting research on counterfactual explanations, which remain robust under model shifts
- Developed a novel counterfactual explanation method, based on a multi-criteria ensemble analysis
- Collaborated with [Prof. Jerzy Stefanowski](#) and [Dr. Mateusz Lango](#)

Poznan Supercomputing and Networking Center (*Polish Academy of Science*)

Poznan, Poland

Junior Machine Learning Engineer

August 2021 – May 2024

- Contributed to deliverables in 3 distinct [EU HORIZON](#) funded projects

Anomaly detection projects – [ADMIRE](#), [SHOP4CF](#) (20 months)

- Investigated anomaly detection techniques for HPC centers in order to detect early faults and prevent server failures.
- Designed and implemented a MVP which later served as a base for further development of the final solution.
- Prepared models for deployment and build the interface app for deployment in the factory of a large car manufacturer.

Explainable AI project – [TAPAS](#) (6 months)

- Analyzed the behavior of a black-box model in a multi-agent scenario setting, employing various XAI techniques
- Found critical vulnerabilities in the decision-making process and made the team modify their approach

Internship – position granted by winning [Intel AI4Y](#) program (3 months)

- Performed extensive analysis of the impact, that different preprocessing techniques have on the UNet model in a medical imaging setting

PUBLICATIONS

- **Ignacy Stepka**, Nicholas Gisolfi, Artur Dubrawski – "[A SAT-based approach to rigorous verification of Bayesian networks](#)" – Forthcoming at the Workshop on Explainable and Robust AI for Industry 4.0 & 5.0 (X-RAI) @ European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML), September 2024
- **Ignacy Stepka**, Mateusz Lango, Jerzy Stefanowski – "[A multi-criteria approach for selecting an explanation from the set of counterfactuals produced by an ensemble of explainers](#)" – AMCS – International Journal of Applied Mathematics and Computer Science, March 2024
- **Ignacy Stepka**, Mateusz Lango, Jerzy Stefanowski – "[On usefulness of dominance relation for selecting counterfactuals from the ensemble of explainers](#)" – Proceedings of the 4th Polish Conference on Artificial Intelligence (PP-RAI), September 2023

LEADERSHIP AND SERVICE

Seminar section leader in Student Research Group

Poznan University of Technology

Poznan, Poland

January 2020 - now

- Former leader of the eXplainable AI seminar study group in [Group of Horribly Optimistic STatisticians \(GHOST\)](#) - a student research group at my university
- Former co-leader of the Machine Unlearning seminar reading group
- Before 2023, an active member in three different focus groups: "Intro to ML", "Probabilistic Machine Learning seminar", "Deep Learning Architectures".

AWARDS

University's President Scholarship

Poznan University of Technology

Poznan, Poland

March 2021 - June 2024

- Awarded a scholarship granted every semester to the top 10% students at Poznan University of Technology.

Intel AI4Youth Program Laureate

High School

Poznan, Poland

2019

- Won the country-wide Intel AI4Youth Program in the competition to invent and prototype a useful [ML project](#).
- Built a software that used computer vision to assist individuals with disabilities in operating a computer using only their eyes by detecting and estimating their gaze direction.

SKILLS

🔗 Technical

Python · C++ · PyTorch · Tensorflow · Git · Slurm · Linux · MLFlow · Scikit-learn · Pandas · Numpy · VSCode · Docker

🗣️ Languages

Polish · English