Marcin Przewięźlikowski

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I am a Machine Learning / Computer Vision researcher at Jagiellonian University, with 9 years of academic and professional experience. I have submitted my PhD thesis and will defend it in December 2026.

Research areas: Self-Supervised Learning, Visual Foundation Models, World Modeling, Meta-Learning.

Education

Jul 2021 - Present — **PhD student – Jagiellonian University, Krakow, Poland**
Faculty of Mathematics and Computer Science
Technical Computer Science PhD Program. I am focused on topics related to Meta-learning and Self-supervised learning. Supervisor: prof. Marek Śmieja .

Oct 2019 - Jul 2021 — **Master's Degree – Jagiellonian University, Krakow, Poland**
Faculty of Mathematics and Computer Science
Master's degree in Computer Science - Machine Learning specialization. Final grade: 5 (5 is the highest). Master's thesis ***"Processing of incomplete data with convolutional neural networks"*** completed under the supervision of prof. Marek Śmieja.

Sep 2015 - Jan 2019 — **Bachelor's Degree – AGH University of Science and Technology, Krakow, Poland**
Faculty of Computer Science, Electronics and Telecommunications
Bachelor of Engineering degree in Computer Science. Final grade: 4.5 (5 is the highest). Engineering thesis ***"Julia-based Bayesian Networks Support"*** completed under the supervision of dr. Katarzyna Rycerz.

Selected research & publications

Przewięźlikowski, M., Balestriero, R., Jasiński, W., Śmieja, M., and Zieliński, B. Beyond [cls]: Exploring the true potential of masked image modeling representations. *International Conference on Computer Vision (ICCV)* (2025)

Przewięźlikowski, M., Pyla, M., Zieliński, B., Twardowski, B., Tabor, J., and Śmieja, M. Augmentation-aware self-supervised learning with conditioned projector. *Presented at NeurIPS 2023 (Self-Supervised Learning: Theory & Practice Workshop). Full version published in Knowledge-Based Systems* (Oct. 2024), 112572

Kargin, T. C., Jasiński, W., Pardyl, A., Zieliński, B., and Przewięźlikowski, M. SpaRRTa: A synthetic benchmark for evaluating spatial intelligence in visual foundation models. *International Journal of Computer Vision 134*, 12 (2026), 521

Przewięźlikowski, M., Osial, M., Zieliński, B., and Śmieja, M. A deep cut into split federated self-supervised learning. In *Machine Learning and Knowledge Discovery in Databases. Research Track: European Conference, ECML PKDD 2024, Vilnius, Lithuania, September 9–13, 2024, Proceedings, Part II* (Berlin, Heidelberg, 2024), Springer-Verlag, p. 444–459

Przewięźlikowski, M., Przybysz, P., Tabor, J., Zięba, M., and Spurek, P. Hypermaml: Few-shot adaptation of deep models with hypernetworks. *Neurocomputing 598* (2024), 128179

Przewięźlikowski, M., Śmieja, M., Struski, Ł., and Tabor, J. Misconv: Convolutional neural networks for missing data. In *Winter Conference on Applications of Computer Vision (WACV)* (2022), pp. 2060–2069

Selected professional experience

March 2026 - Current — **Jagiellonian University**
Research assistant (part-time)
Conducting research on Visual Foundation Models and World Modeling, as well as applying Computer Vision for environment conservation tasks (identification of Lynx individuals in Polish National Parks). Teaching an introductory course on Deep Learning for Master's Students. Member of the GMUM Group of Machine Learning Research led by Prof. Jacek Tabor.

Jan 2024 - Jul 2026 — **Jagiellonian University**
Principal Investigator in the PRELUDIUM grant
I lead an investigation into mitigating biases induced by pretraining objectives to enhance the generalization of deep neural networks. My work focuses on developing more robust foundational models that require significantly less labeled data and fewer computational resources for downstream tasks. The grant is awarded by the Polish National Centre of Science with the acceptance rate of 10.73%.

Oct 2022 - Sep 2025 — **IDEAS NCBR**
PhD Student
As a member of "Zero-waste Machine Learning in Computer Vision" led by Prof. Tomasz Trzciński, I research data-efficient and self-supervised machine learning, as well as practical aspects of self-supervised learning, such as operating in federated environments and the usage of video data.

Jul 2018 - Aug 2022 — **ShelfWise (acquired by FORM.com in 2021)**
Machine Learning Engineer
I developed and maintained a deep learning solution for object detection in retail and conducted research into domains such as visual search and few-shot classification, as well as internal tools for data analysis and measuring model performance. The solution is successfully used on a daily basis by thousands of sales representatives of companies such as Anheuser-Busch and Heineken Co. in the United States, Poland, and other countries. I also researched topics such as few-shot learning as a part of a project funded by the Polish National Centre of Research and Development, named ***Retail product recognition with automated image analysis.*** *(PL: Rozpoznawanie produktów sklepowych za pomocą analizy obrazu).*

Sep 2017 - Jan 2019 — **BIT Scientific Group**
Head of the AI section
I co-organized and taught over 20 machine learning workshops for beginners in that field, with up to 150 attendants. Scripts and notebooks prepared for the workshops can be found at `github.com/aghbit/BIT_AI/` . BIT is one of the biggest scientific groups at AGH University in Krakow, with over 200 members.

Jul 2017 - Sep 2017 — **Amazon Development Centre - Poland**
Software Developer Intern
I conducted a research project into text processing and analysis with deep neural networks and other machine learning models. My solution improved over the existing baseline by 20% in terms of accuracy.

Sep 2015 - Dec 2018 — **The Noble Gift Project**
Volunteer / Regional Coordinator / Team Leader
The Noble Gift Project (Szlachetna Paczka) is one of the biggest charity projects in Poland. As a Coordinator, I recruited and managed the actions of 6 Team Leaders and over 150 volunteers, who provided help for over 200 families in need. As a Volunteer, over the course of 4 years, I interviewed multiple families in need and coordinated donors, who provided them with help.

Selected achievements

2026	Stipendist in the Polish National Centre of Science grant "Sustainable Computer Vision for autonomous machines" (PI: prof. Bartosz Zieliński)
2025	Polish Minister's of Science and Higher Education scholarship for outstanding young scientists (I was awarded as the only PhD student in the domain of Computer Science)
2022-2024	Stipendist in the Polish National Centre of Science grant "Hypernetworks methods in Meta-Learning" (PI: prof. Przemysław Spurek)
2023	"Improving the transferability of self-supervised learning models" – PRELUDIUM 22 grant awarded by Polish National Centre of Science (10.73% acceptance rate)
2021	Polish Minister's of Education and Science scholarship for best students (awarded to top 16 Computer Science students in Poland)
2015	National Finalist of the 64th Polish Physics Olympiad for high schools

Skills

Technologies

Languages	Python, C, Java, Scala, Julia, Haskell, Go, JavaScript, LaTeX
Frameworks	PyTorch, TensorFlow, Keras, NumPy, Pandas, Scikit-learn, OpenCV, FastAPI, Django
Tools	OpenAI Codex, Claude Code, Git, Weights & Biases, Slurm, Docker, Kubernetes

Soft skills

Management	*During my PhD, I co-organized three editions of the Machine Learning Summer School in Kraków ($MLSS^S$, $MLSS^D$, $MLSS^{R\&S}$) each one attended by approximately 100 students from around the world, and 16 world-class speakers. I led several research projects, which resulted in last-author publications. I successfully managed 6 team leaders at The Noble Gift Charity Project and helped them meet their expectations and deadlines.*
Presenting	*My experience includes creating and presenting academic posters at conferences, teaching Machine Learning courses to Bachelor and Master's students, and presenting projects in my college and during internships, training volunteers at The Noble Gift Project, and numerous talks at various conventions, such as the International Festival of Comics and Games in Lodz, Poland, as well as international scientific conferences and workshops.*

Languages

Polish	Native Language
English	C2 level - Cambridge Proficiency Exam passed at 96% (Grade A).

I hereby give consent for my personal data included in my application to be processed for the purposes of the recruitment process under the Personal Data Protection Act as of 29 August 1997, consolidated text: Journal of Laws 2016, item 922 as amended.