

Pavlo Melnyk

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Education

PhD in Electrical Engineering with a specialization in Computer Vision *Linköping, Sweden*
Computer Vision Laboratory, Linköping University *Aug 2019 – Sept 2024*

- Specialization includes Machine Learning and Geometric Deep Learning
- Funded by [Wallenberg AI, Autonomous Systems and Software Program \(WASP\)](#) [↗](#)
- Under the supervision of Michael Felsberg at the [Computer Vision Laboratory](#) [↗](#) and WASP Graduate School
- 5-year degree with 30% of coursework (90 ECTS) and 20% of teaching and other academic duties
- Thesis “[Spherical NeurO\(n\)s for Geometric Deep Learning](#)” [↗](#)

MEng in Computer Science and Technology *Changsha, China*
Hunan University *Sept 2016 – June 2019*

- Master’s thesis “Deep Learning for Offline Handwritten Chinese Character Recognition”

BEng in Information Security Systems (Electrical Engineering) *Pokrovsk, Ukraine*
Donetsk National Technical University *Sept 2012 – June 2016*

Experience

Postdoctoral Researcher *Linköping, Sweden*
Computer Vision Laboratory, Linköping University *Feb 2025 -*

- Research on geometry, including applications for materials science and human pose estimation

Researcher in a Materials Science Project *Linköping, Sweden*
Linköping University *Feb 2024 - Feb 2025*

- WASP-WISE AI4Science collaborative project with Mårten Wadenbäck and Jonas Björk as PIs
- Developed an equivariant ML framework to be combined with DFT in a holistic approach enabling exploration of a broad range of materials and catalytic processes

Co-Founder, Co-Director *London, UK*
Demine Foundation [deminefoundation.com](#) [↗](#) *Jan 2023 -*

- Not-for-profit organization developing ML-assisted drone-based humanitarian demining tools
- Part of the ML team; assisting in the development and data collection; managing international connections

Co-Founder, Board Member *Linköping, Sweden*
Ukrainska Föreningen Östergötland [ukrfo.se](#) [↗](#) *Mar 2022 -*

- Regional Ukrainian Association; Chairman 2023-2025
- Association was awarded Vitsipps Prize 2023 for extraordinary civic efforts in Linköping Municipality

Teaching Assistant, Supervisor of Master’s Theses *Linköping, Sweden*
Computer Vision Laboratory, Linköping University *Aug 2019 -*

- Over 1300 hours of teaching conducted in English and Swedish
- Laboratory exercises in Multidimensional Signal Analysis, Neural Networks and Deep Learning, and Computer Vision; lessons in Signal- and Image-Processing; projects in Computer Vision and Conceive-Design-Implement-Operate (CDIO)
- 20 Master’s theses conducted at companies such as Maxar, Saab, Qualcomm, Ericsson, Bosch, Wikipedia, RISE (Research Institute of Sweden), SICK, FOI (Swedish Defence Research Agency), Combitech, etc.

Doctoral Student *Linköping, Sweden*
Computer Vision Laboratory, Linköping University *Aug 2019 - Sept 2024*

Student Representative

UNESCO Youth Forum

Changsha, China

May 2018

Student Researcher

Key Laboratory of Embedded and Network Computing of Hunan Province

Changsha, China

Dec 2016 – June 2019

- Developed a SOTA [CNN-based method](#) [↗](#) for offline handwritten Chinese character recognition (3755 classes)

Awards & Honors

- Honorable mention in [ICML Topological Deep Learning Challenge](#) [↗](#) 2023
- WASP Doctoral student grant (5 years): collaborative project "How to Inject Geometry into Deep Learning" 2019
- Award by Ministry of Science and Education of Ukraine (3 years): recipient (1/50) of a Chinese Government Scholarship to pursue a Master's in China 2016
- Award by the Verkhovna Rada of Ukraine (1 year): recipient of a two-term stipend as recognition of excellent achievements in studies 2014

Reviewing Service

CVPR 2022, 2024 NeurIPS 2021, 2023 ICCV 2025 ECCV 2024 ICLR 2024, 2025 WACV 2024 3DV 2024

Technologies

- Currently using: Python, PyTorch, Git, LaTeX
- Other experience: MATLAB, C++ (fundamentals), TensorFlow, Keras, Theano
- Code samples: github.com/pavlo-melnyk [↗](#)

Languages

Ukrainian — Native

Swedish — C1 (advanced), certified in 2021

English — Full professional proficiency

Chinese — HSK5 (advanced), certified in 2019

Publications

Peer-reviewed

[On Learning Deep \$O\(n\)\$ -Equivariant Hyperspheres](#) [↗](#) ICML 2024

Pavlo Melnyk, Michael Felsberg, Mårten Wadenbäck, Andreas Robinson, Cuong Le

[TetraSphere: A Neural Descriptor for \$O\(3\)\$ -Invariant Point Cloud Analysis](#) [↗](#) CVPR 2024

Pavlo Melnyk, Andreas Robinson, Michael Felsberg, Mårten Wadenbäck

[Steerable 3D Spherical Neurons](#) [↗](#) ICML 2022
spotlight

Pavlo Melnyk, Michael Felsberg, Mårten Wadenbäck

[Embed Me If You Can: A Geometric Perceptron](#) [↗](#) ICCV 2021

Pavlo Melnyk, Michael Felsberg, Mårten Wadenbäck

[A High-Performance CNN Method for Offline Handwritten Chinese Character Recognition and Visualization](#) [↗](#) Soft Computing [↗](#) 2020

Pavlo Melnyk, Zhiqiang You, Keqin Li

Preprints

[Learning to Augment: Hallucinating Data for Domain Generalized Segmentation](#) [↗](#) 2023

Qiyu Sun, *Pavlo Melnyk*, Michael Felsberg, Yang Tang