Pavlo Melnyk

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🔗 pavlomelnyk.com

Education

PhD in Electrical Engineering with a specialization in Computer Vision
Computer Vision Laboratory, Linköping University
Linköping, Sweden
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
Hunan University
Changsha, China
Sept 2016 – June 2019

- Master's thesis "Deep Learning for Offline Handwritten Chinese Character Recognition"

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

Experience

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

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

Researcher in a Materials Science Project
Linköping University
Linköping, Sweden
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
Demine Foundation deminefoundation.com ⍈
London, UK
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
Ukrainska Föreningen Östergötland (Regional Ukrainian Association) ukrfo.se ⍈
Linköping, Sweden
Mar 2022 -

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

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

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

Student Representative	*Changsha, China*
UNESCO Youth Forum	*May 2018*
Student Researcher	*Changsha, China*
Key Laboratory of Embedded and Network Computing of Hunan Province	*Dec 2016 – June 2019*

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

Awards & Honors

○ [Top reviewer at NeurIPS 2023](#) ↗ (top 10%, 1,197 of 11,725 reviewers)	*2023*
○ 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 '22, '24   NeurIPS '21, '23   ICCV '25   ECCV '24   ICLR '24, '25   WACV '24   3DV '24

Technologies

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

Languages

Ukrainian — Native	**English** — Full professional proficiency
Swedish — C1 (advanced), certified in 2021	**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
Pavlo Melnyk, Michael Felsberg, Mårten Wadenbäck	**spotlight**
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	