

# Pavlo Melnyk

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## Education

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**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

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**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 (Regional Ukrainian Association)* [ukrfo.se](#) [↗](#) *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** *Linköping, Sweden*  
*Computer Vision Laboratory, Linköping University* *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** *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

- 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, '25   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](https://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  
*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