

David M. Knigge, PhD Candidate

✉ d.m.knigge@uva.nl ✕ [@davidmknigge](https://twitter.com/davidmknigge) [in](https://www.linkedin.com/in/david-knigge) [david-knigge](https://www.linkedin.com/in/david-knigge)
[github](https://github.com/david-knigge) [david-knigge](https://github.com/david-knigge) <https://davidmknigge.nl>



Bio

Hi! My name is David Knigge, I'm a third year PhD student in geometric deep learning and dynamics at the University of Amsterdam's Video Image Sense Lab. My research interests include continuous processing of signals (e.g. continuous modelling of dynamics on cool geometries¹), and efficient deep learning, for example through incorporating equivariances or other inductive biases².

In my spare time I enjoy sports, modular synthesizers, and recently picked up stone sculpting classes—smashing rocks is great fun.

Education

- 2021 – 2026 **Ph.D., University of Amsterdam** Artificial Intelligence, w/ dr. Efstratios Gavves.
Topic: *Continuous data modelling with applications in forecasting dynamics.*
- 2019 – 2021 **M.Sc. Artificial Intelligence, University of Amsterdam** GPA 8.92/10 (Cum Laude), w/ dr. Erik J. Bekkers.
Thesis title: *Continuous Kernel Group Convolutions for Equivariance to Lie Groups.*
- 2016 – 2019 **B.Sc. Artificial Intelligence, University of Amsterdam** GPA 8.98/10 (Cum Laude), w/ dr. Sander van Splunter.
Thesis title: *Event Correlation and Root Cause Analysis for IT Service Management.*
Honours Programme B.Sc. Artificial Intelligence, University of Amsterdam GPA 8.2/10, w/ dr. Gjorgji Strezoski.
Thesis title: *Art-Inspired Fashion: Image retrieval and transfer with Siamese GANs.*

Publications


Conference Publications

- 1 **D.M. Knigge**, D. R. Wessels, R. Valperga, *et al.*, “Space-time continuous pde forecasting using equivariant neural fields,” in *Advances in Neural Information Processing Systems*, 2024.
- 2 S. Papa, R. Valperga, **D.M. Knigge**, *et al.*, “How to train neural field representations: A comprehensive study and benchmark,” in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2024, pp. 22 616–22 625.
- 3 **D.M. Knigge**, D. W. Romero, A. Gu, *et al.*, “Modelling long range dependencies in N d: From task-specific to a general purpose cnn,” in *The Eleventh International Conference on Learning Representations*, 2023.
- 4 **D.M. Knigge**, D. W. Romero, and E. J. Bekkers, “Exploiting redundancy: Separable group convolutional networks on lie groups,” in *International Conference on Machine Learning*, PMLR, 2022, pp. 11 359–11 386.






Preprints & Workshop publications

- 1 **D.M. Knigge**, D. Wessels, R. Valperga, S. Papa, S. Gavves, and E. J. Bekkers, “Equivariant neural fields for symmetry preserving continuous pde forecasting,” *ICLR 2024 Workshop on AI4DifferentialEquations In Science*,
- 2 D. R. Wessels, **D.M. Knigge**, S. Papa, *et al.*, “Grounding continuous representations in geometry: Equivariant neural fields,” *arXiv preprint arXiv:2406.05753*, 2024.
- 3 R. A. Cosma, L. Knobel, P. A. Van der Linden, **D.M. Knigge**, and E. J. Bekkers, “Geometric superpixel representations for efficient image classification with graph neural networks,” *4th Visual Inductive Priors for Data-Efficient Deep Learning Workshop*, 2023.
- 4 S. Papa, **D.M. Knigge**, R. Valperga, *et al.*, “Neural modulation fields for conditional cone beam neural tomography,” *Synergy of Scientific and Machine Learning Modeling Workshop (SynS & ML Workshop @ ICML) 2023*, 2023.
- 5 D. W. Romero, **D.M. Knigge**, A. Gu, *et al.*, “Towards a general purpose cnn for long range dependencies in N d,” *Workshop on Continuous Time Methods for Machine Learning (CTMML@ICML)*, 2022.

Academic Experience

2017 – 2024  **Teacher Assistant for M.Sc. and B.Sc. A.I., University of Amsterdam** For courses: *Calculus & Statistics, Linear Algebra, Machine Learning, Deep Learning, Cognitive Modelling, Logic Programming & Search, Computer Systems, Computer Vision, Datastructures & Algorithms, Logic.*

Internships & Misc

- 2022  **Outstanding Reviewer NeurIPS.**
- 2022  **Outstanding Reviewer ICML.**
- 2019  **Huawei SFTF Internship 2019.** Summer internship at Huawei China in Shenzhen and Beijing on 4G and 5G networking.
- 2019  **KPMG Ideation Challenge.** World-Finalist in KPMG Ideation Challenge, where we proposed using NLP techniques for detecting fraudulent rental contract clauses.
- 2018 & 2019  **The Next Web's T500.** Awarded a spot on TNW's T500 Promising Tech-Talent under 25 short-list.

References

Available on Request