

Miltiadis Kofinas

DEEP LEARNING RESEARCH SCIENTIST

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Work Experience

Postdoc in Artificial Intelligence for Climate

Amsterdam, The Netherlands

VRIJE UNIVERSITEIT AMSTERDAM (VU)

Feb. 2025 - now

- Supervisor: Dim Coumou

KEYWORDS: FOUNDATION MODELS · TRANSFORMERS · EARTH SYSTEM

PhD in Computer Science (Artificial Intelligence)

Amsterdam, The Netherlands

UNIVERSITY OF AMSTERDAM (UvA)

Apr. 2020 - June 2024

- Title: Deep Future Spatio-temporal Forecasting
- Supervisor: Efstratios Gavves
- Expected graduation: June 2025

KEYWORDS: GRAPH NEURAL NETWORKS · TRANSFORMERS · NEURAL FIELDS · GEOMETRIC DEEP LEARNING · TEMPORAL DYNAMICS · DEEP WEIGHT SPACE

Research Assistant

Amsterdam, The Netherlands

UNIVERSITY OF AMSTERDAM (UvA)

Mar. 2019 - May 2019

Project: Scene Graph Generation using Graph Transformer Networks

Supervisors: Assistant Professor Efstratios Gavves & Professor Cees G.M. Snoek

- Development of a novel Graph Network for visual scene graph generation that explicitly utilizes both local and global information on the graph space, using Transformer blocks to attend to global context.

KEYWORDS: VISUAL SCENE GRAPH GENERATION · GRAPH NEURAL NETWORKS · TRANSFORMERS · GRAPH PRUNING

Computer Vision & Machine Learning Engineer

Thessaloniki, Greece

P.A.N.D.O.R.A. ROBOTICS TEAM, ARISTOTLE UNIVERSITY OF THESSALONIKI

Oct. 2014 - Oct. 2015

- Development of a general-purpose image classification API using RGB-D sensor data, as well as a benchmarking API for performance evaluation of computer vision algorithms; motion detection and obstacle detection from RGB-D sensor data.
- Honors: 2nd Best Autonomous Robot, Robocup Rescue Competition, Hefei, China, July 2015

KEYWORDS: IMAGE CLASSIFICATION · NEURAL NETWORKS · SVMs · BENCHMARKING · MOTION DETECTION · OBSTACLE DETECTION

Education

Diploma (M.Sc. equivalent) in Electrical and Computer Engineering

Thessaloniki, Greece

ARISTOTLE UNIVERSITY OF THESSALONIKI (AUTH)

Oct. 2010 - Nov. 2018

- Specialization Field: Electronics and Computer Engineering
- GPA: 7.57/10
- ECTS: 307
- Thesis: Scene Graph Generation using Message Passing Neural Networks and Graph Convolutional Networks
 - SUPERVISORS: POSTDOCTORAL RESEARCH ASSOCIATE CHRISTOS DIOU & ASSOCIATE PROFESSOR ANASTASIOS DELOPOULOS
 - Visual scene graph generation using an end-to-end neural network that incorporates a message passing neural network, propagating contextual information between objects and their relationships to iteratively refine its predictions, as well as a relationship pruning network that learns to identify and dismiss unlikely relationships.
 - Links to thesis: [Greek \(Original\)](#), [English \(Translated\)](#)

Technical Skills

Programming Languages Python, C++, C, MATLAB/Octave, Java

Deep Learning Frameworks PyTorch, TensorFlow

Deep Learning Libraries PyTorch Geometric, PyTorch Lightning, WandB, Tensorboard, Hydra

Miscellaneous Git, Linux, SLURM, \LaTeX , TikZ, OpenCV, ROS

Selected Publications

CONFERENCE PAPERS

- Yongtuo Liu, Sara Magliacane, Miltiadis Kofinas, and Efstratios Gavves. **Amortized Equation Discovery in Hybrid Dynamical Systems**. In: *The Forty-first International Conference on Machine Learning (ICML)*. 2024 ([ArXiv](#)) ([Github](#))
- Samuele Papa, Riccardo Valperga, David M. Knigge, Miltiadis Kofinas, Phillip Lippe, Jan-jakob Sonke, and Efstratios Gavves. **How to Train Neural Field Representations: A Comprehensive Study and Benchmark**. In: *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*. 2024 ([ArXiv](#)) ([Github](#))

- [Miltiadis Kofinas](#)[†], Boris Knyazev, Yan Zhang, Yunlu Chen, Gertjan J. Burghouts, Efstratios Gavves, Cees G.M. Snoek, and David W. Zhang[†]. **Graph Neural Networks for Learning Equivariant Representations of Neural Networks**. In: *12th International Conference on Learning Representations (ICLR)*. 2024 ([ArXiv](#)) ([OpenReview](#)) ([Github](#)) [[Oral](#)] [†]: Joint first and last authors
- [Miltiadis Kofinas](#), Erik J. Bekkers, Naveen Shankar Nagaraja, and Efstratios Gavves. **Latent Field Discovery in Interacting Dynamical Systems with Neural Fields**. In: *Advances in Neural Information Processing Systems 36 (NeurIPS)*. 2023 ([ArXiv](#)) ([OpenReview](#)) ([Github](#))
- Yongtuo Liu, Sara Magliacane, [Miltiadis Kofinas](#), and Efstratios Gavves. **Graph Switching Dynamical Systems**. In: *The Fortieth International Conference on Machine Learning (ICML)*. 2023 ([ArXiv](#)) ([Github](#))
- [Miltiadis Kofinas](#), Naveen Shankar Nagaraja, and Efstratios Gavves. **Roto-translated Local Coordinate Frames For Interacting Dynamical Systems**. In: *Advances in Neural Information Processing Systems 34 (NeurIPS)*. 2021 ([ArXiv](#)) ([OpenReview](#)) ([Github](#))

WORKSHOP PAPERS

- Aviv Shamsian[†], David W. Zhang[†], Aviv Navon, Yan Zhang, [Miltiadis Kofinas](#), Idan Achituve, Riccardo Valperga, Gertjan Burghouts, Efstratios Gavves, Cees Snoek, Ethan Fetaya, Gal Chechik, and Hagga Maron. **Data Augmentations in Deep Weight Spaces**. In: *Workshop on Symmetry and Geometry in Neural Representations (NeurReps), NeurIPS*. 2023 ([ArXiv](#)) [[Oral](#)] [†]: Equal contribution
- Piyush Bagad[†], Floor Eijkelboom[†], Mark Fokkema[†], Danilo de Goede[†], Paul Hilders[†], and [Miltiadis Kofinas](#). **C-3PO: Towards Rotation Equivariant Feature Detection and Description**. In: *3rd Visual Inductive Priors for Data-Efficient Deep Learning Workshop*. 2022 ([OpenReview](#)) [[Oral](#)] [†]: Equal contribution

PREPRINTS

- [Miltiadis Kofinas](#), Samuele Papa, and Efstratios Gavves. **From MLP to NeoMLP: Leveraging Self-Attention for Neural Fields**. 2024 ([ArXiv](#)) ([Github](#))

Languages

Greek Native Language

English Certificate of Proficiency in English, University of Michigan

[Level C2](#)

French Diplôme d'études en langue française B2, Centre international d'études pédagogiques (CIEP)

[Level B2](#)