

Miltiadis Kofinas

DEEP LEARNING RESEARCH SCIENTIST

Amsterdam, The Netherlands

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Education

PhD in Computer Science (Artificial Intelligence)

Amsterdam, The Netherlands

UVA (UNIVERSITY OF AMSTERDAM)

Apr. 2020 - June 2024 (expected)

- Title: Deep Future Spatio-temporal Forecasting
- Supervisor: Efstratios Gavves
- Expected graduation: September 2024

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

Thessaloniki, Greece

AUTH (ARISTOTLE UNIVERSITY OF THESSALONIKI)

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 \(Translated\)](#)

Research Experience

Research Assistant

Amsterdam, The Netherlands

UNIVERSITY OF AMSTERDAM

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

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, L ^A T _E X, 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
- 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 Haggai 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

Teaching Experience

TEACHING ASSISTANT

Machine Learning I	University of Amsterdam, MSc AI	2020, 2021
Deep Learning	University of Amsterdam, MSc AI	2020
Deep Learning II	University of Amsterdam, MSc AI	2022, 2023

THESIS SUPERVISION

Daniël (Stijn) Hamerslag DRIVING ON DATA, OBJECT DETECTION IN URBAN DRIVING SCENES	University of Amsterdam, BSc AI Oct. 2020 - Jan. 2021
Daniel Perez Jensen PREDICTING RIVER FLOW IN ATACAMA REGION WATERSHEDS	University of Amsterdam, MSc AI Nov. 2021 - July 2022
Victor Kyriakou EQUIVARIANT TRAJECTORY FORECASTING WITH LATENT ORIENTATION GRAPH NETWORKS	University of Amsterdam, MSc AI Nov. 2022 - July 2023

Talks

Learning on Graphs Conference Amsterdam Meetup NEURAL NETWORKS ARE GRAPHS! GRAPH NEURAL NETWORKS FOR EQUIVARIANT PROCESSING OF NEURAL NETWORKS	Elsevier, Amsterdam 29 November, 2023
Geometric Deep Learning Study Visit ROTO-TRANSLATED LOCAL COORDINATE FRAMES FOR INTERACTING DYNAMICAL SYSTEMS	Vrije Universiteit, Amsterdam 2 June, 2022
Amsterdam Applied ML Meetup ROTO-TRANSLATED LOCAL COORDINATE FRAMES FOR INTERACTING DYNAMICAL SYSTEMS	Hyperion Lab, Amsterdam 6 Apr, 2022
LoGaG: Learning on Graphs and Geometry Reading Group ROTO-TRANSLATED LOCAL COORDINATE FRAMES FOR INTERACTING DYNAMICAL SYSTEMS – Recording (YouTube)	Virtual 1 Feb, 2022

Honors & Awards

2nd Best Autonomous Robot, Robocup Rescue Competition P.A.N.D.O.R.A. ROBOTICS TEAM	Hefei, China July 2015
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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

Academic References

Available upon request.