

# Miltiadis Kofinas

DEEP LEARNING RESEARCH SCIENTIST

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## Education

### PhD in Computer Science

Amsterdam, The Netherlands

UvA (UNIVERSITY OF AMSTERDAM)

April 2020 - present

- Specialization: Deep Learning
- Title: Future Spatio-temporal Forecasting
- Supervisor: Efstratios Gavves

### Diploma in Electrical and Computer Engineering (M.Sc. Equivalent)

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

### Scene Graph Generation using Graph Transformer Networks

University of Amsterdam

RESEARCH ASSISTANT · SUPERVISORS: ASSISTANT PROFESSOR EFSTRATIOS GAVVES & PROFESSOR CEES G.M. SNOEK

Mar. 2019 - May 2019

- 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

### P.A.N.D.O.R.A. Robotics Team

Aristotle University of Thessaloniki

COMPUTER VISION & MACHINE LEARNING ENGINEER

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

<b>Programming Languages</b>	Python, C++, C, MATLAB/Octave, Java
<b>Deep Learning Frameworks</b>	PyTorch, TensorFlow
<b>Deep Learning Tools</b>	PyTorch Lightning, PyTorch Geometric, WandB, Tensorboard, Hydra
<b>Miscellaneous</b>	OpenCV, ROS, Linux, Git, Slurm, $\LaTeX$ , TikZ

## Publications

### CONFERENCE PAPERS

- **Kofinas, Miltiadis**, Bekkers, Erik J, Nagaraja, Naveen Shankar, and Gavves, Efstratios. “Latent Field Discovery in Interacting Dynamical Systems with Neural Fields”. In: *Advances in Neural Information Processing Systems 36 (NeurIPS)*. 2023 ([ArXiv](#)) ([Github](#))
- Liu, Yongtuo, Magliacane, Sara, **Kofinas, Miltiadis**, and Gavves, Efstratios. “Graph Switching Dynamical Systems”. In: *International Conference on Machine Learning (ICML)*. 2023 ([ArXiv](#)) ([Github](#))
- **Kofinas, Miltiadis**, Nagaraja, Naveen Shankar, and Gavves, Efstratios. “Roto-translated Local Coordinate Frames For Interacting Dynamical Systems”. In: *Advances in Neural Information Processing Systems 34 (NeurIPS)*. 2021 ([ArXiv](#)) ([OpenReview](#)) ([Github](#))

### WORKSHOP PAPERS

- Shamsian†, Aviv, Zhang†, David W, Navon, Aviv, Zhang, Yan, **Kofinas, Miltiadis**, Achituve, Idan, Valperga, Riccardo, Burghouts, Gertjan, Gavves, Efstratios, Snoek, Cees, Fetaya, Ethan, Chechik, Gal, and Maron, Haggai. “Data Augmentations in Deep Weight Spaces”. In: *Workshop on Symmetry and Geometry in Neural Representations (NeurReps)*, *NeurIPS*. 2023
- Papa, Samuele, Knigge, David M., Valperga, Riccardo, Moriakov, Nikita, **Kofinas, Miltiadis**, Sonke, Jan-jakob, and Gavves, Efstratios. “Neural Modulation Fields for Conditional Cone Beam Neural Tomography”. In: *SynS and ML Workshop, International Conference on Machine Learning*. 2023

Learning (ICML). 2023 ([ArXiv](#))

- Zhang, David W, **Kofinas, Miltiadis**, Zhang, Yan, Chen, Yunlu, Burghouts, Gertjan J, and Snoek, Cees GM. “Neural Networks Are Graphs! Graph Neural Networks for Equivariant Processing of Neural Networks”. In: *Workshop on Topology, Algebra, and Geometry in Machine Learning (TAG-ML), ICML. 2023* ([OpenReview](#))
- Bagad†, Piyush, Eijkelboom†, Floor, Fokkema†, Mark, Goede†, Danilo de, Hilders†, Paul, and **Kofinas, Miltiadis**. “C-3PO: Towards Rotation Equivariant Feature Detection and Description”. In: *3rd Visual Inductive Priors for Data-Efficient Deep Learning Workshop. 2022* ([OpenReview](#))
- **Kofinas, Miltiadis**, Bekkers, Erik J, Nagaraja, Naveen Shankar, and Gavves, Efstratios. “Neural Fields for Latent Force Field Discovery in Interacting Systems”. In: *ICLR 2023 Neural Fields across Fields Workshop. 2023*