Mina Ghadimi Atigh

Ph.D. Candidate Computer Vision

linkedin.com/in/minaghadimi github.com/MinaGhadimiAtigh
@ m.ghadimiatigh@uva.nl minaghadimi.github.io

Ph.D. student with a passion for research in computer vision and deep learning, especially representation learning in non-Euclidean manifolds, *e.g.*, hyperbolic space.

Education

Present – October 2020 | **Ph.D. in Artificial Intelligence**
VISLab, University of Amsterdam | Amsterdam, Netherlands
- Supervisor : Pascal Mettes
- Thesis Topic : Hyperbolic Visual Understanding

September 2019 – September 2016 | **M.Sc. in Artificial Intelligence**
SMLLab, Amirkabir University of Technology | Tehran, Iran
- Supervisor : Ahmad Nickabadi
- Thesis Topic : Human Pose Estimation in Video

September 2016 – September 2012 | **B.Sc. in Software Engineering**
Amirkabir University of Technology | Tehran, Iran
- Supervisor : Mohammad Rahmati
- Thesis Topic : Human-Computer Interaction using Hand Gesture Estimation

Publications

Hyperbolic Image Segmentation — CVPR 2022

Authours : **Mina Ghadimi Atigh**, Julian Schoep, Erman Acar, Nanne van Noord, Pascal Mettes
Code Project Page

For image segmentation, the current standard is to perform pixel-level optimization and inference in Euclidean output embedding spaces. When looking at different objects, we have some prior knowledge, *e.g.*, cars and trucks are different types of vehicles. This knowledge is usually hierarchical in nature and can be efficiently embedded in hyperbolic space (Non-Euclidean space with constant negative curvature) compared to Euclidean space. Hyperbolic Image Segmentation opens up new possibilities and practical benefits, such as uncertainty estimation and boundary information for free, zero-label generalization, and increased performance in low-dimensional output embeddings.

Hyperbolic Busemann Learning with Ideal Prototypes — NeurIPS 2021

Code Project Page
Authours : **Mina Ghadimi Atigh**, Martin Keller-Ressel, Pascal Mettes

Classification by prototypes has a long tradition in machine learning. While prototype learning in Euclidean space needs re-learning the prototypes, Non-Euclidean ones propose solutions with fixed prototypes. Hyperbolic space provides hierarchically coherent classification results, but prior hierarchical knowledge is required to embed prototypes. In this work, we introduce a hyperbolic prototype network with class prototypes given as points on the ideal boundary of hyperbolic space, reducing the need for prior knowledge. We also propose a loss function, which allows us to compute distances to prototypes on the ideal boundary - an impossible task for existing distance metrics.

Convolutional Relational Machine for Group Activity Recognition — CVPR 2019

Project Page
Authours : Sina Mokhtarzadeh Azar, **Mina Ghadimi Atigh**, Ahmad Nickabadi, Alexander Alahi

We present an end-to-end deep Convolutional Neural Network called Convolutional Relational Machine (CRM) for recognizing group activities that utilizes the information in spatial relations between individual persons in image or video.
As my main contribution to this project, I was involved in designing the main pipeline.

Miscellaneous

Organizing
- Hyperbolic Representation Learning for Computer Vision, ECCV 2022 tutorial
- Area Chair of Women in Machine Learning workshop, NeurIPS 2022
- Joined Inclusive AI (UvA) as Mentor, 2022

Presentation

- Poster presentation in Mediterranean Machine Learning Summer School (Best Poster Award), 2022
- Poster presentation in International Computer Vision Summer School, 2022
- Oral and poster presentation in The Netherlands Conference on Computer Vision, 2022

Teaching

- Applied Machine Learning 2022, 2021, 2022 @ University of Amsterdam
- Machine Learning @ Amirkabir University of Technology
- Statistical Machine Learning @ Amirkabir University of Technology
- Artificial Intelligence @ Amirkabir University of Technology
- Data Mining @ Amirkabir University of Technology

Honors

- Ranked 4th in Cumulative GPA among 45 registered Artificial Intelligent Master students in Computer Engineering and IT Department, Amirkabir University of Technology, Tehran, Iran, 2018
- Member of scientific committee for the second Amirkabir Data Mining Cup, 2018
- Ranked 4th in Cumulative GPA among 45 registered Artificial Intelligent Master students in Computer Engineering and IT Department, Amirkabir University of Technology, Tehran, Iran, 2018
- Direct Admission to graduate school (M.Sc.) of Computer Engineering and IT Department, Amirkabir University of Technology, without taking the national entrance exam, as a reward for academic records and achievements, 2016
- Ranked 4th in Cumulative GPA among 100 undergraduate students in Computer Engineering and IT Department, Amirkabir University of Technology, Tehran, Iran, 2016
- Ranked Top 0.5% in the National University Entrance Exam among 230000 students and Admission to Amirkabir University of Technology, 2012
- Member of National Organization for Development of Exceptional Talents (NODET), 2008-2012

Work Experience

September 2020 – October 2019 | Data Scientist
Balad Maps, cafeBazaar | Tehran, Iran

October 2019 – July 2019 | Data Scientist Intern
Balad Maps, cafeBazaar | Tehran, Iran

July 2019 – May 2019 | Computer Vision Engineer
AI Bridge | Tehran, Iran

Software

Python ●●●●○
Matlab, C++ ●●●○○
HTML, CSS ●●○○○

Languages

- English
- Azeri
- Persian
- Turkish