

CONTACT INFORMATION	<ul style="list-style-type: none"> ▪ Email: vaghat@seas.upenn.edu ✉ ▪ Webpage 🔗 / Google Scholar 🔗 / LinkedIn in / Twitter 🐦 / Github 🔗
RESEARCH INTERESTS	Computer Vision, Robotics, Geometric Deep Learning, Equivariant representations, Optimization on Manifolds, Generative Models, Differential Geometry, AI for Science and Engineering
EDUCATION	<div> <div>University Of Pennsylvania (UPenn) Sep 2018-</div> <ul style="list-style-type: none"> ▪ PhD in Computer and Information Science <ul style="list-style-type: none"> • Specialization: Geometric Deep Learning, Computer Vision • Advisor: Kostas Daniilidis 🎓 ▪ Master in Statistics and Data Science (Wharton) Jan 2023- <ul style="list-style-type: none"> • Current GPA: 4.00/4.00 • Relevant Coursework: Statistical Machine Learning, High-dimensional Statistics, Time-Series Forecasting, Stochastic Processes, Conformal Prediction ▪ Master of Engineering in Robotics (GRASP Laboratory) Sep 2020- Dec 2022 <ul style="list-style-type: none"> • GPA: 4.00/4.00 • Relevant Coursework: Convex Optimization, Learning in Robotics, Machine Perception, Advanced Machine Perception, Principles of Deep Learning, Theory of Computation </div> <div> <div>National Technical University of Athens (NTUA), Greece Sep 2012- Sep 2018</div> <ul style="list-style-type: none"> ▪ BSc & MSc in Electrical and Computer Engineering (5-year joint degree; 300 ECTS) <ul style="list-style-type: none"> • GPA: 9.58/10.0 (top 1% among graduate class of 341 students; highest honors) • Major GPA: 9.64/10.0 (top 1%) Specialization: Computer Science • Relevant Coursework: Computer Vision, Stochastic Processes, Pattern Recognition, Deep Learning, Advanced Algorithms, Algorithmic Machine Learning, Spectral Graph Theory, Social Network Analysis • Undergraduate Thesis: “<i>Spectral Graph Methods with Applications in Computer Vision</i>” 🔗 (Greek) Advisor: Petros Maragos 🎓 </div>
PUBLICATIONS	<ul style="list-style-type: none"> ▪ EqNIO: Subequivariant Neural Inertial Odometry. Royina Karegoudra Jayanth, Yinshuang Xu, Ziyun Wang, Evangelos Chatzipantazis, Daniel Gehrig, Kostas Daniilidis. 🔗 (Under Review) ▪ BiEquiFormer: Bi-Equivariant Representations for Global Point Cloud Registration. Stefanos Pertigkiozoglou*, Evangelos Chatzipantazis*, Kostas Daniilidis. 🔗 (Under Review) ▪ Improving Equivariant Model Training via Constraint Relaxation, Stefanos Pertigkiozoglou*, Evangelos Chatzipantazis*, Shubhendu Trivedi, Kostas Daniilidis. 🔗 NeurIPS 2024. ▪ (Best Student Paper) Structural Risk Minimization for Learning Nonlinear Dynamics, Charis Stamouli, Evangelos Chatzipantazis, George J Pappas. 🔗 ACC 2024. ▪ SE(3)-Equivariant Attention Networks for Shape Reconstruction in Function Space, E.Chatzipantazis*, S.Pertigkiozoglou*, E.Dobriban, K.Daniilidis. 🔗 🔗 🔗 ICLR 2023. ▪ (Outstanding Paper) Graph Neural Networks for Multi-Robot Active Information Acquisition. M.Tzes, N.Bousias, E.Chatzipantazis, G.Pappas. 🔗 🔗 🔗 ICRA 2023. ▪ Learning Augmentation Distributions Using Transformed Risk Minimization, E.Chatzipantazis*, S.Pertigkiozoglou*, K.Daniilidis, E.Dobriban. 🔗 TMLR 2023. ▪ Unsupervised Monocular Depth and Latent Structure, K.Chaney*, B.Bucher*, E.Chatzipantazis, J.Shi, K.Daniilidis. CVPR Workshop on 3D Scene Understanding for Vision, and Robotics 2019.
RESEARCH EXPERIENCE	<ul style="list-style-type: none"> ▪ (Boston Dynamics) AI Institute <ul style="list-style-type: none"> - Research Intern. Jun 2024- <ul style="list-style-type: none"> • Designed a novel policy learning algorithm for robotic manipulation tasks that exploits advanced perception representations to produce fat and robust multimodal policies. - Supervisor: Robert Platt 🎓, Robin Walters 🎓.

▪ University of Pennsylvania (Upenn)

- *Graduate Research Assistant, GRASP Lab, UPenn.*

Sep 2018-

- Conceptualized and implemented an equivariant attention-based neural network for point cloud reconstruction and improved the state-of-the-art by a large margin while achieving zero-shot generalization to real scenes.
- Conceptualized a mathematical framework for automatic discovery of symmetries in data and implemented a modular and efficient algorithm for recovering and applying useful augmentations while training large neural networks for vision tasks.
- Implemented a deep network for monocular depth estimation and fused it with IMU measurements using a MSCKF for vision and inertial odometry.

- Supervisor: Kostas Daniilidis 

▪ National Technical University of Athens,

Sep 2017- Sep 2018

- *Undergraduate Research Assistant, Computer Vision and Signal Processing (CVSP) Lab.*

- Scaled up spectral graph algorithms for image segmentation and extended previous methods by incorporating user-defined hard constraints.

- Supervisor: Petros Maragos 

HONORS& AWARDS

▪ Best Student Paper Award

ACC 2024.

Paper: [Structural Risk Minimization for Learning Nonlinear Dynamics](#)

▪ Outstanding Paper Award in Multi-Robot Systems

ICRA 2023.

Paper: [Graph Neural Networks for Multi-Robot Active Information Acquisition.](#)

▪ Gerondelis Foundation Graduate Scholarship

2022.

Awarded for academic excellence to support Ph.D. Studies.

▪ Thomaideion Award

2016, 2018.

Awarded for highest grade among all students of Electrical and Computer Engineering in academic years 2015-2016 and 2017-2018.

▪ Kritikos Award

2017.

Awarded for highest grade in all courses of Mathematics among fellow students for the academic year 2016-2017.

▪ Papakyriakopoulos Award

2016.



Awarded for highest grade in all courses of Mathematics among fellow students for years 2015-2016.



▪ "The Great Moment of Education" Eurobank EFG Award

2012.

Ranking 1st among fellow students in high school in the National Qualification Exams, 2012.

ACADEMIC SERVICE

▪ **Organizer** of IROS 2024 Workshop on *Equivariant Robotics: The Role of Symmetry Across Perception, Estimation, and Control* [Website](#) , [Recording](#) 

▪ **Invited Speaker** in CVPR 2024 workshop on *Equivariant Vision: From Theory to Practice*: Talk on practical and theoretical aspects of equivariant deep learning. [Website](#) , [Slides](#) .

▪ Machine Learning Conference Reviewer: ICML 2022,2023,2024, NeurIPS 2022,2023,2024.

▪ Computer Vision Conference Reviewer: ICCV 2023.



▪ Robotics Conference Reviewer: ICRA 2023.

TEACHING EXPERIENCE

▪ Teaching Assistant CIS700: Advanced Topics in Geometric Deep Learning,




Spring 2024


- Lectures on Equivariant Deep Learning: [Harmonic networks from steerability constraints.](#)


- Professor: Kostas Daniilidis , Jean Gallier 





▪ Teaching Assistant CIS680: Advanced Machine Perception,

Spring 2019

- MaskRCNN implementation from scratch on a newly curated COCO dataset: : (, ).

- Website 






- Professor: Jianbo Shi 

- **Teaching Assistant ESE546: Principles of Deep Learning,** Spring **2019, 2020**
 - Co-authored course material in PAC-learning ([Chapter 13](#)) and [Markov Chains](#).
 - Class Notes 
 - *Professor:* Pratik Chaudhari 
- **Teaching Assistant ESE650: Learning in Robotics,** Fall **2019**
 - Designed assignment on Partially Observable Markov Decision Processes (POMDP) and developed a novel fusion of Multi State Constraint Kalman Filter with deep depth estimators .
 - *Professor:* Kostas Daniilidis 

LANGUAGES **Greek:** Native language. **English:** fluent. **French:** novice

- TECHNICAL SKILLS**
- **Programming Languages**
 - Current Frequent Use: Python
 - Past Frequent Use: C, C++, Java, Prolog, SMLNJ, MATLAB, HTML5, Javascript, PHP, mySQL
 - **Other Programming Skills**
 - PyTorch, Parallel & GPU Programming , Github, \LaTeX , Unix Kernel programming, bash scripting

OTHER INTERESTS Competitive Swimming (7 years), Water Polo (3 years), Tennis (3 years), Guitar(self-taught)

REFERENCES (UPON REQUEST)	Kostas Daniilidis Edgar Dobriban Robert Platt Robin Walters Pratik Chaudhari	Ruth Yalom Stone Professor UPenn  Associate Professor of Statistics and Data Science Wharton  Associate Professor, Northeastern University  Assistant Professor, Northeastern University  Assistant Professor UPenn 
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