

Education

- 2020 – **Carnegie Mellon University, Robotics Institute**, PhD Student.
- Present
- Advisor: [Katerina Fragkiadaki](#), Assistant Professor, MLD, CMU
 - Research on Continual Learning for Vision and Robotics
- 2011 – 2017 **National Technical University of Athens (NTUA)**, ECE, B.Sc/M.Sc. (5-year diploma).
- GPA 9.22/10, 9th among 328 in class, 1st in Electronics and Systems major
 - Thesis on "*Multimodal Classification and Segmentation of Fine-Grained Activities in Videos*"
 - Thesis supervisor: [Petros Maragos](#), Professor, ECE, NTUA
- 2008 – 2011 **3rd Lyceum of New Heraklion, Attika**, General Lyceum Graduation.
- General Graduation Grade 19.7/20
 - General Panhellenic Examinations Grade 19.24/20, top 1% nationwide

Research Collaborations with non-Academic Institutions

- Jan 2022 – **Microsoft Turing Academic Program (MS-TAP)**.
- Jun 2023
- CMU-MSTAP project "*Learning instructible visuo-motor agents through multimodal interactive teaching*"
- Dec 2021 – **Amazon Alexa Prize SimBot Challenge**.
- Apr 2023
- Developed an embodied conversational agent as member of the CMU team Symbiote.

Research Collaborations with Academic Institutions

- Nov 2019 – **Stanford University, Leonidas Guibas Lab**, Stanford, CA, USA, (remotely).
- Jan 2020 and
Apr – Jun
2020
- Worked with Panos Achlioptas on fine-grained language grounding and shape deformation. Recommendation can be provided by [Panos](#).
- Dec 2019 – **TU Darmstadt, Intelligent Autonomous Systems Group**, Germany, (remotely).
- Feb 2020
- Worked with Dr. Georgia Chalvatzaki on improving tensor representations for grasping point detection. Recommendation can be provided by [Georgia](#).
- Aug 2018 – **Computer Vision and Signal Processing Lab, NTUA**, Athens, Greece.
- Aug 2020
- Research on high-level semantic image representation, with application to scene graph generation, in collaboration with Deeplab.

Industrial Research Experience

- Aug 2018 – **Deeplab, Machine Learning Engineer**, Athens.
- Jul 2020
- Research on scene graph generation, in collaboration with Prof. Maragos' lab at NTUA.
 - Built an interactive demo of scene graph generation on videos.
 - Developed the backend of [this](#) webpage for real-time inference of visual relationships on wild images.
- Mar 2017 – **METIS Cybertechnology S.A.**, Artificial Intelligence Engineer, Athens.
- Jul 2018
- Designed and developed the whole natural language processing pipeline behind METIS's textbot.
 - Developed several applications and APIs for METIS's products.

Publications

- 2024 **3D Diffuser Actor: Multi-task 3D Robot Manipulation with Iterative Error Feedback**, *In submission*.
- 2024 **ODIN: A Single Model for 2D and 3D Perception**, *In submission*.
- 2024 **Diffusion-ES: Generative Evolutionary Search with Diffusion Models for Trajectory Optimization**, *In submission*.

- 2023 **Analogy-Forming Transformers for Few-Shot 3D Parsing.** [Gkanatsios N.*](#), Singh M.*, Fang Z., Tulsiani S., Fragkiadaki K., *International Conference on Learning Representations, ICLR 2023*. [PDF](#) [Website](#)
- 2023 **Energy-based Models are Zero-Shot Planners for Compositional Scene Rearrangement.** [Gkanatsios N.*](#), Jain A*, Zhou X., Zhang Y., Atkeson C., Fragkiadaki K., *Robotics Science and Systems, RSS 2023*. [PDF](#) [Website](#)
- 2023 **Unifying Diffusion Models with Action Detection Transformers for Multi-task Robotic Manipulation.** Zhou X.*, [Gkanatsios N.*](#), Gervet T.*, Fragkiadaki K., *Conference on Robot Learning, CoRL 2023*. [PDF](#) [Website](#)
- 2023 **Act3D: Infinite Resolution Action Detection Transformer for Robot Manipulation.** Gervet T.*, Zhou X.*, [Gkanatsios N.](#), Fragkiadaki K., *Conference on Robot Learning, CoRL 2023*. [PDF](#) [Website](#)
- 2022 **Bottom Up Top Down Detection Transformers for Language Grounding in Images and Point Clouds.** Jain A.*, [Gkanatsios N.*](#), Mediratta I., Fragkiadaki K., *European Conference on Computer Vision, ECCV 2022*. [PDF](#) [Code](#)
- 2021 **Grounding Consistency: Distilling Spatial Common Sense for Precise Visual Relationship Detection.** Diomataris M., [Gkanatsios N.](#), Pitsikalis V., Maragos P., *IEEE International Conference on Computer Vision, ICCV 2021*. [PDF](#) [Code](#)
- 2020 **From Saturation to Zero-Shot Visual Relationship Detection Using Local Context.** [Gkanatsios N.](#), Pitsikalis V., Maragos P., *BMVA British Machine Vision Conference, BMVC 2020*. [PDF](#) [Code](#)
- 2020 **Revisiting Grasp Map Representation with a Focus on Orientation in Grasp Synthesis.** [Gkanatsios N.](#), Chalvatzaki G., Maragos P., Peters J., *Visual Learning and Reasoning for Robotic Manipulation, RSS Workshop*. [PDF](#) [Code](#)
- 2019 **Attention-Translation-Relation Network for Scalable Scene Graph Generation.** [Gkanatsios N.](#), Pitsikalis V., Koutras P., Maragos P., *IEEE International Conference on Computer Vision Workshops, ICCVW 2019*. [PDF](#) [Code](#)
- 2019 **Showcasing Deeply Supervised Multimodal Attentional Translation Embeddings: A Demo for Visual Relationship Detection.** [Gkanatsios N.](#), Pitsikalis V., Koutras P., Zlatintsi A., Maragos P., *IEEE International Conference on Image Processing, ICIP 2019*. [Paper](#) [Demo](#)
- 2019 **Deeply Supervised Multimodal Attentional Translation Embeddings for Visual Relationship Detection.** [Gkanatsios N.](#), Pitsikalis V., Koutras P., Zlatintsi A., Maragos P., *IEEE International Conference on Image Processing, ICIP 2019*. [PDF](#) [Code](#)
- 2018 **Metis: A Scalable Natural-Language-Based Intelligent Personal Assistant for Maritime Services.** [Gkanatsios N.](#), Mermikli K., Katsikas S., *24th International Conference on Information and Software Technologies (ICIST 2018)*. [Paper](#)

Talks / Oral Presentations

- July 2023 **RSS 2023**, Daegu, South Korea: oral presentation of the paper "Energy-based Models are Zero-Shot Planners for Compositional Scene Rearrangement".
- Sep 2019 **ICIP 2019**, Taipei, Taiwan: oral presentation of the paper "Deeply Supervised Multimodal Attentional Translation Embeddings for Visual Relationship Detection".
- Oct 2018 **ICIST 2018**, Vilnius, Lithuania: oral presentation of the paper "Metis: A Scalable Natural-Language-Based Intelligent Personal Assistant for Maritime Services".
- Jun 2018 **VOXXEDDAYS Athens**, Greece: A Scalable Maritime Platform Providing Services Through an NLP-Based Intelligent Personal Assistant

Teaching Experience

- Jan 2023 – **CMU 16-726 Teaching Assistant**, Pittsburgh.
- May 2023 ○ Learning-based Image Synthesis, with Prof. Jun-Yan Zhu.

- Sep 2022 – **CMU 16-824 Teaching Assistant**, Pittsburgh.
Dec 2022 ◦ Visual Learning and Recognition, with Prof. Jun-Yan Zhu.
- Sep 2019 – **CVSP Teaching Assistant**, Athens.
Sep 2020 ◦ I co-supervised an undergraduate student's diploma thesis on visual relationship detection, together with Prof. Petros Maragos.

Honors and Awards

- 2018 **Georgios Kontaxis Award** for being the 1st in 2017 class in Electronics and Systems major, ECE NTUA.
- 2018 **Christos Chalkias Award** for being the 1st in 2017 class in Electronics and Systems major, ECE NTUA.
- 2017 **EESTECH Challenge Athens 1st Prize** for winning the Machine Learning Hackathon, hold by EESTEC Athens and ECE NTUA.
- 2012 **Hellenic Physical Society Award** for making the top 10 in the final round of the Panhellenic Physics Competition for high-school students on a nationwide level.
- 2010 – 2011 **Awards from Hellenic Police** for excellence in high-school classes.

Research Interests

Computer Vision, Robotics, Natural Language Processing, Embodied AI
Continual Learning, In-context Learning

Programming

(Experienced) Python, Matlab / (Basic) C, Javascript (NodeJS), SQL / PyTorch

Languages

Greek (Native), English (Michigan Certificate of Proficiency in English), French (Delf B1)

Personal

Basketball, drums (self-taught), bass guitar (self-taught), ancient Greek literature, music transcription, Greek folk dancing.