

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)**.
Present
 - CMU-MSTAP project *"Learning instructible visuo-motor agents through multimodal interactive teaching"*
- Dec 2021 – **Amazon Alexa Prize SimBot Challenge**.
Apr 2023
 - Developing 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

- 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](#)

- 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*. [IEEEExplore Link](#)
- 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)*. [Springer Link](#)

Talks / Oral Presentations

- 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.