

Nikolaos Giakoumoglou

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RESEARCH INTERESTS

Computer Vision, Machine Learning, Deep Learning, Self-supervised Learning, Object Detection, Semantic Segmentation, Image Classification, Generative Models, Diffusion

EDUCATION

Imperial College London, London, United Kingdom January 2024 — Present
PhD in Electrical and Electronic Engineering, supervised by Prof. Panagiota (Tania) Stathaki

Aristotle University of Thessaloniki, Thessaloniki, Greece September 2016 — November 2021
Integrated MSc in Electrical and Computer Engineering GPA: 8.91/10.00
Thesis title: "Plaque Classification in Carotid Ultrasounds", supervised by Prof. Anastasios Ntelopoulos

2nd Experimental School of Thessaloniki, Thessaloniki, Greece September 2013 — June 2016
Awarded for academic excellence in all years by the Ministry of Education GPA: 19.6/20.0

ACADEMIC EXPERIENCE

Imperial College London, Communications and Signal Processing Group London, United Kingdom
Research Postgraduate January 2024 — Present

Centre for Research and Technology Hellas, Information Technologies Institute Thessaloniki, Greece
Research Assistant February 2022 — December 2024

PUBLICATIONS

Conference Proceedings

- [1] G. Gkogkos, N. Giakoumoglou, E. M. Pechlivani, K. Votis, and D. Tzovaras, "Artificial intelligence data model verification through distributed ledger technology," in *28th international scientific and professional Conference Information Technology 2024*, accepted for publication, 2024.
- [2] N. Giakoumoglou, G. Pediaditis, E. M. Pechlivani, and D. Tzovaras, "Deep learning-based lightweight models for bactro-cera oleae detection," in *2023 International Conference on Industry Sciences and Computer Science Innovation (ISCSI)*, accepted for publication, 2023.
- [3] A. Restas, A. Tsakiris, C. Tsotakis, *et al.*, "A collaborative AR/VR platform for social manufacturing," in *2023 International Conference on Industry Sciences and Computer Science Innovation (ISCSI)*, accepted for publication, 2023.
- [4] N. Giakoumoglou, T. Bjornfotb, D. Suarez Montes, M. Alvarez-Gil, D. Ilver, and E. M. Pechlivani, "Artificial intelligence-based flow cytometer for real-time algae monitoring," in *2023 International Conference on Industry Sciences and Computer Science Innovation (ISCSI)*, accepted for publication, 2023.
- [5] A. Galitsopoulou, E.-M. Pechlivani, S. Tsachouridis, *et al.*, "In-depth study across various disciplines of the agri-food retail chain on sufficient, safe and healthy food," in *2023 7th International Symposium on Multidisciplinary Studies and Innovative Technologies (ISMSIT)*, 2023, pp. 1–6. DOI: 10.1109/ISMSIT58785.2023.10304993.
- [6] E.-M. Pechlivani, A. Kapetanakou, S. Faliagka, N. Giakoumoglou, F. Salta, and N. Katsoulas, "A multidisciplinary in-depth systemic analysis to support European Green Deal halving pesticides use and loss of nutrients: A Greek case study," in *2023 7th International Symposium on Multidisciplinary Studies and Innovative Technologies (ISMSIT)*, 2023, pp. 1–7. DOI: 10.1109/ISMSIT58785.2023.10304887.
- [7] N. Giakoumoglou, E. M. Pechlivani, N. Katsoulas, and D. Tzovaras, "Whiteflies and black aphids detection in field vegetable crops using deep learning," in *2022 IEEE 5th International Conference on Image Processing Applications and Systems (IPAS)*, vol. Five, 2022, pp. 1–6. DOI: 10.1109/IPAS55744.2022.10052855.
- [8] E. M. Pechlivani, G. Gkogkos, N. Giakoumoglou, I. Hadjigeorgiou, and D. Tzovaras, "Towards sustainable farming: A robust decision support system's architecture for agriculture 4.0," in *2023 24th International Conference on Digital Signal Processing (DSP)*, 2023, pp. 1–5. DOI: 10.1109/DSP58604.2023.10167922.

Journal Articles

- [9] N. Giakoumoglou, E. M. Pechlivani, A. Sakelliou, C. Klaridopoulos, N. Frangakis, and D. Tzovaras, “Deep learning-based multi-spectral identification of grey mould,” *Smart Agricultural Technology*, vol. 4, p. 100 174, 2023, ISSN: 2772-3755. DOI: <https://doi.org/10.1016/j.atech.2023.100174>. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S2772375523000047>.
- [10] N. Giakoumoglou, E. M. Pechlivani, and D. Tzovaras, “Generate-paste-blend-detect: Synthetic dataset for object detection in the agriculture domain,” *Smart Agricultural Technology*, vol. 5, p. 100 258, 2023, ISSN: 2772-3755. DOI: <https://doi.org/10.1016/j.atech.2023.100258>. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S2772375523000886>.
- [11] N. Giakoumoglou, E.-M. Pechlivani, N. Frangakis, and D. Tzovaras, “Enhancing tuta absoluta detection on tomato plants: Ensemble techniques and deep learning,” *AI*, vol. 4, no. 4, pp. 996–1009, 2023, ISSN: 2673-2688. DOI: 10.3390/ai4040050. [Online]. Available: <https://www.mdpi.com/2673-2688/4/4/50>.
- [12] E. M. Pechlivani, A. Papadimitriou, S. Pemas, N. Giakoumoglou, and D. Tzovaras, “Low-cost hyperspectral imaging device for portable remote sensing,” *Instruments*, vol. 7, no. 4, 2023, ISSN: 2410-390X. DOI: 10.3390/instruments7040032. [Online]. Available: <https://www.mdpi.com/2410-390X/7/4/32>.
- [13] G. Gkogkos, P. Lourenço, E. M. Pechlivani, *et al.*, “Distributed ledger technologies for food sustainability indexing,” *Smart Agricultural Technology*, vol. 5, p. 100 312, 2023, ISSN: 2772-3755. DOI: <https://doi.org/10.1016/j.atech.2023.100312>. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S2772375523001417>.

Software

- [14] N. Giakoumoglou, *Pyfeats: Open-source software for image feature extraction*, <https://github.com/giakou4/pyfeats>, 2021.

Pre-prints

- [15] N. Giakoumoglou and T. Stathaki, *A review on discriminative self-supervised learning methods*, 2024. arXiv: 2405.04969 [cs.CV].
- [16] N. Giakoumoglou and T. Stathaki, *Invariant consistency for knowledge distillation*, 2024. arXiv: 2407.11802 [cs.CV]. [Online]. Available: <https://arxiv.org/abs/2407.11802>.
- [17] N. Giakoumoglou and T. Stathaki, *Relational representation distillation*, 2024. arXiv: 2407.12073 [cs.CV]. [Online]. Available: <https://arxiv.org/abs/2407.12073>.
- [18] N. Giakoumoglou and T. Stathaki, *SynCo: Contrastive learning with synthetic hard negatives*, 2024.

AWARDS

Scholarship for PhD

January 2024

Funded by the Electrical and Electronic Engineering department of Imperial College London

ACADEMIC SERVICE

Reviewer, Smart Agricultural Technology (SAT) Journal, Science Direct

September 2024 —Present

Reviewed manuscripts on topics related to smart agriculture, deep learning, and computer vision.

MEMBERSHIPS

Institute of Electrical and Electronics Engineers; member

April 2023 —Present

Actively participating in local chapter events and regularly reading publications.

Technical Chamber of Greece; member

February 2022 —Present

Regularly attending seminars and conferences on current technical and business affairs.

ENGLISH

IELTS (Academic): 8.0 (overall score)

November 2022

Listening: 8.5 — Reading: 9.0 — Speaking: 7.0 — Writing: 7.0

SKILLS

- **Programming:** Python, MATLAB
- **Software:** PyTorch, TensorFlow, Keras, OpenCV