

George Retsinas

RESEARCH SCIENTIST · ELECTRICAL AND COMPUTER ENGINEER

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Education

PH.D. IN ELECTRICAL AND COMPUTER ENGINEERING | National Technical University of Athens *Nov. 2015 - Feb. 2020*

- Thesis: "Visual Representation Learning for Document Image Recognition"
- Research Areas: Computer Vision, Machine Learning, Document Analysis
- Groups: Intelligent Robotics and Automation Laboratory of National Technical University of Athens (<https://robotics.ntua.gr/>) in conjunction with Computational Intelligence Laboratory of the NCSR "Demokritos" (<https://www.iit.demokritos.gr/el/labs/cil/>)
- Advisor: Prof. Petros Maragos (cvsp.cs.ntua.gr/maragos)

DIPLOMA/M.ENG. IN ELECTRICAL AND COMPUTER ENGINEERING | National Technical University of Athens *Sep. 2007 - Feb. 2014*

- GPA: 9.06/10
- Thesis: "Gesture Recognition of the Greek Sign Language's Alphabet using Rotation Invariants Features"
- Advisor: Prof. Petros Maragos (cvsp.cs.ntua.gr/maragos)

Work Experience

POSTDOCTORAL RESEARCHER | National Technical University of Athens *Feb. 2020 - present*

- Supervision and development of tropical geometry algorithms for neural network compression (Trogemal)
- Developed and optimized a gesture recognition system for embedded devices (BonsAPPs 1st OC)
- Designed and developed the vision system for mushroom 3D pose estimation to assist robotic grasping (EU project SoftGrip)

POSTDOCTORAL RESEARCHER | University of Ioannina *Feb. 2020 - present*

- Design algorithms for transcription/translation of Byzantine inscriptions (Bessarion)

POSTDOCTORAL RESEARCHER | Athena Research and Innovation Center *May 2022 - present*

- Supervise and design the perception modules of autonomous robotic systems (EU project PILLAR)
- Supervise the development of deep architectures for emotion recognition (EASIER)

RESEARCH ASSOCIATE | National Technical University of Athens *Jan. 2019 - Feb. 2020*

- Developed algorithms for neural network compression with emphasis on sparse networks (EU project Bonseyes)
- Developed machine learning methods for anomaly detection in wearable biosignals (e-Prevention)

RESEARCH ASSOCIATE | NCSR Demokritos *Sep. 2014 - Dec. 2018*

- Designed and implemented keyword spotting methodologies (learning-free or learning-based) for historical documents of different languages (EU project READ)
- Developed algorithms for optical character recognition in polytonic Greek documents (OldDocPro)
- Developed a system for assisting human transcription in historical documents - EU project SUCCEED in collaboration with Salford University (Manchester, United Kingdom)

Teaching Experience

TEACHING ASSISTANT | National Technical University of Athens *Sep. 2014 - Present*

Laboratory supervisor in the "Computer Vision" course, School of Electrical and Computer Engineering.

ADJUNCT PROFESSOR | National Technical University of Athens *2nd Semester of 2023*

Teaching Assistant in the "Circuit Theory" course, School of Electrical and Computer Engineering.

Skills

Programming Languages	C, C++, Python, Matlab, R	Other Tools	Linux/Unix, Bash, Git, Docker, LaTeX
ML Libraries	PyTorch, Tensorflow, Keras, Caffe	Languages	Greek (native), English (fluent)

Academic Service

Reviewer for journals/conferences/workshops: • IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR) • IEEE International Conference on Computer Vision (ICCV) • IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) • International Conference on Acoustics, Speech and Signal Processing (ICASSP) • International Conference on Image Processing (ICIP) • European Signal Processing Conference (EUSIPCO) • International Conference on Document Analysis and Recognition (ICDAR) • International Conference on Frontiers in Handwriting Recognition (ICFHR) • International Workshop on Document Analysis Systems (DAS) • Journal of Visual Communication and Image Representation, Elsevier • MDPI Sensors

Organization of Workshops & Challenges: • 1st Workshop on 3D Computer Vision and Photogrammetry, in conjunction with IEEE ICIP 2023 • 16th IAPR International Workshop on Document Analysis Systems, in conjunction with ICDAR 2024 • 1st and 2nd e-Prevention challenges, in conjunction with ICASSP 2023 and ICASSP 2024.

Honors & Awards

BEST PAPER FOR NOVELTY for the paper "Enhancing Action Recognition in Vehicle Environments with Human Pose Information", Pervasive Technologies Related to Assistive Environments (PETRA) Conference 2023

THOMAIDION AWARD FOR SCIENTIFIC PUBLICATIONS for the journal "Efficient Learning-Free Keyword Spotting", IEEE Transactions on Pattern Analysis and Machine Intelligence 2019

BEST POSTER AWARD for the paper "Keyword Spotting in Handwritten Documents using Projections of Oriented Gradients", International Workshop on Document Analysis Systems 2016

ELKE/NTUA SCHOLARSHIP 2014

COSMOTE SCHOLARSHIP 2007

Selected Publications

✉Scholar • **Total:** 3 Journals and 45 Conference Publications • **Google Scholar Metrics:** Citations: 535, h-index: 13

JOURNAL PUBLICATIONS

G. Retsinas, G. Louloudis, N. Stamatopoulos, B. Gatos, "Efficient Learning-Free Keyword Spotting", IEEE Transactions on Pattern Analysis and Machine Intelligence, 2018.

CONFERENCE PUBLICATIONS

A.G. Georgoulakis, **G. Retsinas** and P. Maragos, "Feather: An Elegant Solution to Effective DNN Sparsification", British Machine Vision Conference (BMVC), 2023.

P. P. Filntisis, **G. Retsinas**, F. Paraperas-Papantoniou, A. Katsamanis, A. Roussos and P. Maragos, "Visual Speech-Aware Perceptual 3D Facial Expression Reconstruction from Videos", IEEE Computer Society Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), 2023.

G. Retsinas, G. Sfikas, P. P. Filntisis and P. Maragos, "Newton-based Trainable Learning Rate", International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2023.

G. Retsinas, G. Sfikas and C. Nikou, "Keyword Spotting Simplified: A Segmentation-Free Approach using Character Counting and CTC re-scoring", International Conference on Document Analysis and Recognition (ICDAR), 2023.

P. Misiakos, G. Smyrnis, **G. Retsinas**, P. Maragos, "Neural Network Approximation based on Hausdorff distance of Tropical Zonotopes", International Conference on Learning Representations (ICLR), 2022.

G. Retsinas, A. Elafrou, G. Goumas and P. Maragos, "Online Weight Pruning Via Adaptive Sparsity Loss", IEEE International Conference on Image Processing (ICIP), 2021.

G. Retsinas, G. Sfikas, C. Nikou and P. Maragos, "From Seq2Seq Recognition to Handwritten Word Embeddings", British Machine Vision Conference (BMVC), 2021.

G. Retsinas, P. P. Filntisis, N. Efthymiou, E. Theodosis, A. Zlatintsi and P. Maragos, "Person Identification using Deep Convolutional Neural Networks on Short-Term Signals from Wearable Sensors", International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2020.

G. Retsinas, G. Louloudis, N. Stamatopoulos, G. Sfikas and B. Gatos, "An Alternative Deep Feature Approach to Line Level Keyword Spotting", IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2019.

G. Retsinas, N. Stamatopoulos, G. Louloudis, G. Sfikas, B. Gatos, "Nonlinear Manifold Embedding on Keyword Spotting using t-SNE", 14th International Conference on Document Analysis and Recognition (ICDAR), 2017.

G. Retsinas, G. Louloudis, N. Stamatopoulos and B. Gatos, "Keyword Spotting in Handwritten Documents using Projections of Oriented Gradients", 12th Workshop on Document Analysis Systems (DAS), 2016.