

Spiros V. Georgakopoulos

Personal Data

Data of birth November 28, 1987 Birthplace Argos, Greece Citizenship Greek

Education

- 2019 2022 **Postdoctoral**, *Department of Computer Science and Biomedical Informatics*, University of Thessaly, Lamia.
 - Title Compressing Convolutional Neural Networks for Real-Time Image Processing on Embedded and Mobile Devices
- 2013 2019 **PhD**, Department of Computer Science and Biomedical Informatics, University of Thessaly, Lamia.

Thesis

Title Computational Intelligence Methods for Ambient Intelligence Environments

- Supervisor Plagianakos Vassilis, Professor of Department of Computer Science and Biomedical Informatics, University of Thessaly
- Description The goal of thesis is the study, the design and implementation of methods and techniques to combine various signals and devices and with the usage of clustering and classification methods provide a favorable and safer environment to the users.
- 2010 2013 Master of Science "Mathematics and Contemporary Application", Department of Mathematics University of Patras, Patra.
 -Specialise Computational Mathematics and Computational Intelligent Master Thesis

Title Face Recognition from Images

- Supervisor Kotsiantis Sotiris, Lecture of Department of Mathematics University of Patras
- 2005 2010 **Diploma of Mathematician**, *Department of Mathematics University of Patras*, Patra.

-Specialise Computational Mathematics and Informatics

Work Experience

- 2022 Now Assistant Professor at the Department of Mathematics, University of Thessaly, Greece.
- 2021 2022 Math Teacher, High School (Public Sector), Greece.

2019 – 2020 Consultant to the President of Hellenic National Organization for the Provision of Health Services (E.O.P.Y.Y.), *Greece*.

	Teaching Experiment
2022 – Now	Assistant Professor, University of Thessaly - Department of Mathematics, Lamia.
Autumn Semester	- Optimization Theory (2022 - 2024) - Programming Language I (2022 - 2024) - Bayesian Statistics (2023 - 2024)
Spring Semester	- Numerical Analysis (2022 - 2023) - Programming Language II (2022 - 2023)
2019 – 2022	Instructor , <i>University of Thessaly - Department of Mathematics</i> , Lamia. Associate Lecturer
Autumn Semester	- Programming Language I (2019 - 2022)
Spring Semester	- Programming Language II (2019 - 2022) - Pattern Recognition (2021 - 2022)
2011 – 2012	Teacher Assistant, Department of Mathematics, University of Patras, Patra.
Autumn Semester	- Numerical Analysis I - Interval Analysis
Spring Semester	- Basic Principles of Programming
2014 – 2017	Instructor , <i>School of PEdagogical and Technological Education</i> , ASPETE, Educational Training Annual Program.
Autumn Semester	- Technology in Education - Multimedia
Spring Semester	- Educational Software and Applications
2014 - 2017	Teacher Assistant , <i>Department of Computer Science and Biomedical Informatics</i> , University of Thessaly, Lamia.
Spring Semester	- Data Mining & Knowledge Discovery
2016 – 2017	Teacher Assistant , <i>Department of Computer Science and Biomedical Informatics</i> , University of Thessaly, Lamia.
Spring Semester	- Pattern Recognition

Research Projects

- 2023 2024 National Strategic Reference Framework (NSRF) Research Funding Program: "BioOnChip". Development of a bronchoscopic biopsies-on-chip (BioOnChip) platform for immunotherapy drug screening in non-small cell lung cancer , *Greece*, Researcher.
- 2022 2025 **Procure4Health: Healthcare Innovation Procurement Network, "EU H2020"**, *Greece*, Deputy Principal Investigator.

- 2022 2023 HSmartBPM: Smart Hypertension and Blood Pressure Monitoring Solution for essential care and preventio (Private Founding), *Greece*, Deputy Principal Investigator.
- 2021 2023 National Strategic Reference Framework (NSRF) Research Funding Program: "PrescIT". Smart and Personalized platform for electronic prescription, *Greece*, Researcher.
 - 2021 Development of a Statistical Machine Learning Toolbox for Integrating Medical Date Bases (Private Founding), *Greece*, Researcher.
- 2019 2021 National Strategic Reference Framework (NSRF) Research Funding Program: "SISEI". Smart Infotainment System with Emotional Intelligence, *Greece*, Researcher.
- 2019 2021 National Strategic Reference Framework (NSRF) Research Funding Program: "SmartDelivery". Smart Delivery Routing System in Urban Environment, *Greece*, Researcher.
- 2019 2020 Consultant to the President of Hellenic National Organization for the Provision of Health Services (E.O.P.Y.Y.), *Greece*.
- 2018 2019 National Strategic Reference Framework (NSRF) Research Funding Program: "EDVM 34". Big Graph Mining for Deciphering Disease Mechanisms, *Greece*, Researcher, Scholarship.
 - 2018 **Design and implementation of Deep Learning models in Greek military hospitals to analyze medical images for abnormalities detection**, *Greece*, Centre of Information Technology Support of the Hellenic Army (KEPYES), Machine Learning Engineer.
- 2017 2019 **CrowdHEALTH Collective wisdom driving public health policies EU H2020**, *Greece*, Researcher.
- 2014 2015 National Strategic Reference Framework (NSRF) Research Funding Program: "Thalis". Interdisciplinary Research in Affective Computing for Biological Activity Recognition in Assistive Environments, *Greece*, Researcher.

Languages

GreekNativeEnglishGoodMichigan Certificate of Competency in English

Computer Skills

OS Linux family, Microsoft Windows Tools Caffe, OpenCV, Weka, Protege, Imagej, Maple, Mathematica Programming Language Document editor Microsoft Office suite, LATEX Databases MySQL manager

Scientific Interest

- Data mining from images
- Numerical Analysis
- Ontologies Semantic Web

Achievements - Scholarships - Others

- Participant as Mentor in HackCoronaGreece. A Hackathon for inventing solutions that related with emergency situations due to COVID-19, 7/4/2020 - 13/4/2020.
- Partial scholarship for the paper "A Novel Adaptive Learning Rate Algorithm for Convolutional Neural Network Training" by a Hellenic Artificial Intelligence Society (ETNN)
- Research Visitor at the University of Helsinki, Department of Computer Science, on research group 'Information, Complexity and Learning', 6/6/2015 - 19/6/2015.
- Participation in International Workshop "BONSAI: Bringing Organizations and National Societies in Artificial Intelligence". Representing Hellenic Association for Artificial Intelligence (EETN)

Reviewer on Journals

- Information Sciences
- IEEE Access
- Neural Computing and Applications
- o IEEE Transactions on Industrial Informatics
- o IEEE Journal of Biomedical and Health Informatics
- Annual Reviews in Control
- o IEEE Transactions on Neural Networks and Learning Systems

Reviewer on International Conferences

- o IEEE Congress on Evolutionary Computation (CEC)
- IEEE World Congress on Computational Intelligence (WCCI)

Program Committee Member

- International Conference on Artificial Intelligence Applications and Innovations (AIAI)
- International Conference on Engineering Applications of Neural Networks (EANN)
- IEEE International Conference on Big Data, Workshop Advances in High Dimensional (AdHD)
- International Symposium on INnovations in Intelligent SysTems and Applications (INISTA)

Refereed Journal Publications

[1] Giorgos Skoufos, Panos Kakoulidis, Spyros Tastsoglou, Elissavet Zacharopoulou, Vasiliki Kotsira, Marios Miliotis, Galatea Mavromati, Dimitris Grigoriadis, Maria Zioga, Angeliki Velli, Ioanna Koutou, Dimitra Karagkouni, Steve Stavropoulos, Filippos S Kardaras, Anna Lifousi, Eustathia Vavalou, Armen Ovsepian, Anargyros Skoulakis, Sotiris K Tasoulis, **Spiros V Georgakopoulos**, Vassilis P Plagianakos, and Artemis G Hatzigeorgiou. TarBase-v9.0 extends experimentally supported miRNA-gene interactions to cell-types and virally encoded miRNAs. *Nucleic Acids Research*, page gkad1071, 11 2023.

- [2] Ioannis A. Nellas, Sotiris K. Tasoulis, Spiros V. Georgakopoulos, and Vassilis P. Plagianakos. Two phase cooperative learning for supervised dimensionality reduction. *Pattern Recognition*, page 109871, 2023.
- [3] Panagiotis C. Theocharopoulos, Anastasia Tsoukala, Spiros V. Georgakopoulos, Sotiris K. Tasoulis, and Vassilis P. Plagianakos. Analysing sentiment change detection of covid-19 tweets. *Neural Computing and Applications*, May 2023.
- [4] Petros Barmpas, Sotiris Tasoulis, Aristidis G. Vrahatis, Spiros V. Georgakopoulos, Panagiotis Anagnostou, Matthew Prina, José Luis Ayuso-Mateos, Jerome Bickenbach, Ivet Bayes, Martin Bobak, Francisco Félix Caballero, Somnath Chatterji, Laia Egea-Cortés, Esther García-Esquinas, Matilde Leonardi, Seppo Koskinen, Ilona Koupil, Andrzej Pajak, Martin Prince, Warren Sanderson, Sergei Scherbov, Abdonas Tamosiunas, Aleksander Galas, Josep Maria Haro, Albert Sanchez-Niubo, Vassilis P. Plagianakos, and Demosthenes Panagiotakos. A divisive hierarchical clustering methodology for enhancing the ensemble prediction power in large scale population studies : the athlos project. *Health Information Science and Systems*, 10(1), 2022.
- [5] Panagiotis Anagnostou, Sotiris Tasoulis, Aristidis G. Vrahatis, Spiros Georgakopoulos, Matthew Prina, José Luis Ayuso-Mateos, Jerome Bickenbach, Ivet Bayes, Francisco Félix Caballero, Laia Egea-Cortés, Esther García-Esquinas, Matilde Leonardi, Sergei Scherbov, Abdonas Tamosiunas, Aleksander Galas, Josep Maria Haro, Albert Sanchez-Niubo, Vassilis Plagianakos, and Demosthenes Panagiotakos. Enhancing the human health status prediction: the athlos project. Applied Artificial Intelligence, 2021,in press.
- [6] Aristidis G. Vrahatis, Sotiris K. Tasoulis, Spiros V. Georgakopoulos, and Vassilis P. Plagianakos. Ensemble classification through random projections for single-cell rna-seq data. *Information*, 11(11), 2020.
- [7] Georgios I. Mallis, Aristidis G. Vrahatis, Vassilis P. Plagianakos, Spiros V. Georgakopoulos, Sotiris K. Tasoulis and Ilias G. Maglogiannis. Change detection and convolution neural networks for fall recognition. *Neural Computing and Applications*, 32:17245–17258, June 2020.
- [8] Alice Vassiliou, Christina Georgakopoulou, Alexandra Papageorgiou, Spiros Georgakopoulos, Spiros Goulas, Theodors Paschalis, Panagiotis Paterakis, Parisis Gallos, Dimos Kyriazis, and Vassilis Plagianakos. Health in all policy making utilizing big data. Acta Informatica Medica, 28:65–70, 1 2020.
- [9] S. V. Georgakopoulos, K. Kottari, K. Delibasis, V. P. Plagianakos, and I. Maglogiannis. Improving the performance of convolutional neural network for skin image classification using the response of image analysis filters. *Neural Computing and Applications*, 31(6):1805–1822, June 2019.
- [10] D. K. lakovidis, S. V. Georgakopoulos, M. Vasilakakis, A. Koulaouzidis, and V. P. Plagianakos. Detecting and locating gastrointestinal anomalies using deep learning and iterative cluster unification. *IEEE Transactions on Medical Imaging*, 37(10):2196–2210, Oct 2018.
- [11] S.V. Georgakopoulos, K. Kottari, K. Delibasis, V.P. Plagianakos, and I. Maglogiannis. Pose recognition using convolutional neural networks on omni-directional images. *Neurocomputing*, 280:23 – 31, 2018.
- [12] Konstantinos K. Delibasis, Spiros V. Georgakopoulos, Konstantina Kottari, Vassilis P. Plagianakos, and Ilias Maglogiannis. Geodesically-corrected zernike descriptors for pose recognition in omni-directional images. *Integrated Computer-Aided Engineering*, 23(2):185–199, 2016.
- [13] I. Maglogiannis, S.V. Georgakopoulos, S.K. Tasoulis, and V.P. Plagianakos. A software tool for the automatic detection and quantification of fibrotic tissues in microscopy images. *Information Sciences*, 308:125 – 139, 2015.

Refereed Conference Publications

- Panagiotis C. Theocharopoulos, Panagiotis Anagnostou, Anastasia Tsoukala, Spiros V. Georgakopoulos, Sotiris K. Tasoulis, and Vassilis P. Plagianakos. Detection of fake generated scientific abstracts. In 2023 IEEE Ninth International Conference on Big Data Computing Service and Applications (BigDataService), pages 33–39, 2023.
- [2] Spiros V. Georgakopoulos, Sotiris K. Tasoulis, Aristidis G. Vrahatis, Serafeim Moustakidis, Dimitrios E. Tsaopoulos, and Vassilis P. Plagianakos. Deep hybrid learning for anomaly detection in behavioral monitoring. In 2022 International Joint Conference on Neural Networks (IJCNN), pages 1–9, 2022
- [3] Panagiotis C. Theocharopoulos, Anastasia Tsoukala, Spiros V. Georgakopoulos, Sotiris K. Tasoulis, and Vassilis P. Plagianakos. Text analysis of covid-19 tweets. In Lazaros Iliadis, Chrisina Jayne, Anastasios Tefas, and Elias Pimenidis, editors, *Engineering Applications of Neural Networks*, pages 517–528, Cham, 2022. Springer International Publishing.
- [4] S. V. Georgakopoulos, P. Gallos, and V. P. Plagianakos. Using big data analytics to detect fraud in healthcare provision. In 2020 IEEE 5th Middle East and Africa Conference on Biomedical Engineering (MECBME), pages 1–3, 2020.
- [5] **Spiros Georgakopoulos**, Parisis Gallos, and Vassilis Plagianakos. How to extract and explore big data for fraud detection in the healthcare sector: The eopyy case study. *Studies in health technology and informatics*, 270:1307—1308, June 2020.
- [6] K. Delibasis, S. V. Georgakopoulos, S. K. Tasoulis, I. Maglogiannis, and V. P. Plagianakos. On image prefiltering for skin lesion characterization utilizing deep transfer learning. In Lazaros Iliadis, Plamen Parvanov Angelov, Chrisina Jayne, and Elias Pimenidis, editors, Proceedings of the 21st EANN (Engineering Applications of Neural Networks) 2020 Conference, pages 377–388, Cham, 2020. Springer International Publishing.
- [7] Sotiris K. Tasoulis, Georgios I. Mallis, Spiros V. Georgakopoulos, Aristidis G. Vrahatis, Vassilis P. Plagianakos, and Ilias G. Maglogiannis. Deep learning and change detection for fall recognition. In John Macintyre, Lazaros Iliadis, Ilias Maglogiannis, and Chrisina Jayne, editors, *Engineering Applications of Neural Networks*, pages 262–273, Cham, 2019. Springer International Publishing.
- [8] A. G. Vrahatis, G. N. Dimitrakopoulos, S. K. Tasoulis, S. V. Georgakopoulos, and V. P. Plagianakos. Single-cell regulatory network inference and clustering from high-dimensional sequencing data. In 2019 IEEE International Conference on Big Data (Big Data), pages 2782–2789, Dec 2019.
- [9] S. V. Georgakopoulos and V. P. Plagianakos. Efficient learning rate adaptation for convolutional neural network training. In 2019 International Joint Conference on Neural Networks (IJCNN), pages 1–8, July 2019.
- [10] Spiros V. Georgakopoulos, Sotiris K. Tasoulis, Aristidis G. Vrahatis, and Vassilis P. Plagianakos. Convolutional neural networks for twitter text toxicity analysis. In Luca Oneto, Nicolò Navarin, Alessandro Sperduti, and Davide Anguita, editors, *Recent Advances in Big Data and Deep Learning*, pages 370–379, Cham, 2020. Springer International Publishing.
- [11] S. K. Tasoulis, A. G. Vrahatis, S. V. Georgakopoulos, and V. P. Plagianakos. Biomedical data ensemble classification using random projections. In 2018 IEEE International Conference on Big Data (Big Data), pages 166–172, Dec 2018.
- [12] S. K. Tasoulis, A. G. Vrahatis, S. V. Georgakopoulos, and V. P. Plagianakos. Visualizing high-dimensional single-cell rna-sequencing data through multiple random projections. In 2018 IEEE International Conference on Big Data (Big Data), pages 5448–5450, Dec 2018.
- [13] S. K. Tasoulis, A. G. Vrahatis, S. V. Georgakopoulos, and V. P. Plagianakos. Real time sentiment change detection of twitter data streams. In 2018 Innovations in Intelligent Systems and Applications (INISTA), pages 1–6, July 2018.

- [14] Spiros V. Georgakopoulos, Sotiris K. Tasoulis, Aristidis G. Vrahatis, and Vassilis P. Plagianakos. Convolutional neural networks for toxic comment classification. In *Proceedings of the 10th Hellenic Conference on Artificial Intelligence*, SETN '18, pages 35:1–35:6, New York, NY, USA, 2018. ACM.
- [15] K. Delibasis, Ilias Maglogiannis, S. Georgakopoulos, K. Kottari, and V. Plagianakos. Assessing image analysis filters as augmented input to convolutional neural networks for image classification. In Artificial Neural Networks and Machine Learning – International Conference on Artificial Neural Networks (ICANN) 2018, pages 188–196, Cham, 2018. Springer International Publishing.
- [16] S. V. Georgakopoulos, K. Kottari, K. Delibasis, V. P. Plagianakos, and I. Maglogiannis. Detection of malignant melanomas in dermoscopic images using convolutional neural network with transfer learning. In Engineering Applications of Neural Networks: 18th International Conference, EANN 2017, Athens, Greece, August 25–27, 2017, Proceedings, pages 404–414, Cham, 2017. Springer International Publishing.
- [17] S. V. Georgakopoulos and V. P. Plagianakos. A novel adaptive learning rate algorithm for convolutional neural network training. In *Engineering Applications of Neural Networks: 18th International Conference, EANN 2017, Athens, Greece, August 25–27, 2017, Proceedings*, pages 327–336, Cham, 2017. Springer International Publishing.
- [18] S. V. Georgakopoulos, D. K. lakovidis, M. Vasilakakis, V. P. Plagianakos, and A. Koulaouzidis. Weakly-supervised convolutional learning for detection of inflammatory gastrointestinal lesions. In 2016 IEEE International Conference on Imaging Systems and Techniques (IST), pages 510– 514, Oct 2016.
- [19] Spiros V. Georgakopoulos, Konstantina Kottari, Kostas Delibasis, Vassilis P. Plagianakos, and Ilias Maglogiannis. Convolutional neural networks for pose recognition in binary omnidirectional images. In Artificial Intelligence Applications and Innovations - 12th IFIP WG 12.5 International Conference and Workshops, AIAI 2016, Thessaloniki, Greece, September 16-18, 2016, Proceedings, pages 106–116, 2016.
- [20] Spiros V. Georgakopoulos, Sotiris K. Tasoulis, and Vassilis P. Plagianakos. Efficient change detection for high dimensional data streams. In 2015 IEEE International Conference on Big Data, Big Data 2015, Santa Clara, CA, USA, October 29 - November 1, 2015, pages 2219–2222, 2015.
- [21] S.V. Georgakopoulos, S.K. Tasoulis, I. Maglogiannis, and V.P. Plagianakos. On-line fall detection via mobile accelerometer data. In Richard Chbeir, Yannis Manolopoulos, Ilias Maglogiannis, and Reda Alhajj, editors, *Artificial Intelligence Applications and Innovations*, volume 458 of *IFIP Advances in Information and Communication Technology*, pages 103–112. Springer International Publishing, 2015.
- [22] K.K. Delibasis, Spiros Georgakopoulos, Vassilis Plagianakos, and Ilias Maglogiannis. Calculation of complex zernike moments with geodesic correction for pose recognition in omnidirectional images. In Lazaros Iliadis, Ilias Maglogiannis, and Harris Papadopoulos, editors, *Artificial Intelligence Applications and Innovations*, volume 436 of *IFIP Advances in Information and Communication Technology*, pages 375–384. Springer Berlin Heidelberg, 2014.
- [23] Spiros V. Georgakopoulos, Sotiris K. Tasoulis, Vassilis P. Plagianakos, and Ilias Maglogiannis. Artificial neural networks and principal components analysis for detection of idiopathic pulmonary fibrosis in microscopy images. In Lazaros Iliadis, Harris Papadopoulos, and Chrisina Jayne, editors, *Engineering Applications of Neural Networks*, volume 383 of *Communications in Computer and Information Science*, pages 292–301. Springer Berlin Heidelberg, 2013.

Refereed Book Chapters

 Petros Barmpas, Sotiris Tasoulis, Aristidis G. Vrahatis, Panagiotis Anagnostou, Spiros V. Georgakopoulos, Matthew Prina, José Luis Ayuso-Mateos, Jerome Bickenbach, Ivet Bayes, Martin Bobaki, Francisco Félix Caballero, Somnath Chatterji, Laia Egea-Cortés, Esther García-Esquinas, Matilde Leonardi, Seppo Koskinen, Ilona Koupil, Andrzej Pajak, Martin Prince, Warren Sanderson, Sergei Scherbov, Abdonas Tamosiunas, Aleksander Galas, Josep Maria Haro, Albert Sanchez-Niubo, Vassilis P. Plagianakos, and Demosthenes Panagiotakos. Unsupervised learning for large scale data the ATHLOS project. In Ioannis S. Triantafyllou and Mangey Ram, editors, *Statistical Modeling of Reliability Structures and Industrial Processes*, Advanced Research in Reliability and System Assurance Engineering, pages 55–76. Taylor & Francis, 2022.