

# **Dr. Anastasios L. Kesidis**

## **Short Curriculum Vitae**

### **I. SPECIALIZATION**

Digital Image Processing and Pattern Recognition with emphasis on Document and Geospatial Data Processing

### **II. EDUCATION**

- |      |  |
|------|--|
| 2001 | PhD Degree, Department of Electrical and Computer Engineering, Democritus University of Thrace, Xanthi, Greece     |
| 1995 | Diploma Degree, Department of Electrical and Computer Engineering, Democritus University of Thrace, Xanthi, Greece |

### **III. ACADEMIC POSITIONS**

- |              |  |
|--------------|--|
| 2023-present | Professor<br>Department of Surveying and Geoinformatics Engineering<br>University of West Attica, Greece   |
| 2016-2023    | Associate Professor<br>Department of Surveying and Geoinformatics Engineering<br>University of West Attica, Greece   |
| 2010-2016    | Assistant Professor<br>Department of Civil Engineering and Surveying & Geoinformatics Engineering<br>Technological Educational Institution of Athens, Greece |

### **IV. RESEARCH AND PROFESSIONAL POSITIONS**

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|-----------|--|
| 2005-2010 | Research Scientist<br>National Centre for Scientific Research "Demokritos"<br>Athens, Greece |
| 2002-2005 | Project Manager<br>Business Systems International  |

Athens, Greece  
2000-2002 Postdoctoral Research Fellow  
Centre for Vision, Speech and Signal Processing  
University of Surrey, UK

## V. TEACHING

- **Remote sensing and Machine Learning** (2021-present)  
Master's Programme, Department of Informatics  
University of West Attica (co-teaching)
- **Artificial Intelligence and Machine Learning** (2021-present)  
Master's Programme, Department of Informatics  
University of West Attica (co-teaching)
- **Image Processing and Analysis** (2020-present)  
Master's Programme, Department of Informatics  
University of West Attica (co-teaching)
- **Artificial Intelligence** (2020-present)  
Department of Surveying and Geoinformatics Engineering  
University of West Attica
- **Data mining** (2020-present)  
Master's Programme, Department of Informatics  
University of West Attica (co-teaching)
- **Introduction to Digital Image Processing** (2019-present)  
Department of Surveying and Geoinformatics Engineering  
University of West Attica
- **Programming Techniques & Algorithms** (2019-present)  
Department of Surveying and Geoinformatics Engineering  
University of West Attica
- **Digital Image Processing** (2016-present)  
Master's Programme, Department of Surveying and Geoinformatics Engineering  
University of West Attica
- **Numerical Methods** (2014-present)  
Department of Surveying and Geoinformatics Engineering  
University of West Attica
- **Database Programming** (2014-present)  
Department of Surveying and Geoinformatics Engineering  
University of West Attica
- **Pattern Recognition** (2013-2020)

Master's Programme, Department of Informatics  
University of West Attica

- **Introduction to Image Processing** (2010-present)  
Master's Programme, Department of Informatics  
University of West Attica (co-teaching)
- **Artificial Intelligence** (2010-2012)  
Master's Programme, Department of Informatics  
Technological Educational Institution of Athens (co-teaching)
- **Programming Applications** (2008-2014)  
Department of Civil Engineering and Surveying & Geoinformatics Engineering  
Technological Educational Institution of Athens
- **Programming & Informatics** (2004-2019)  
Department of Surveying and Geoinformatics Engineering  
University of West Attica

## VI. PUBLICATIONS

A. L. Kesidis and N. Papamarkos, "On the inverse Hough transform," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 21, no. 12, pp. 1329–1343, 1999.

A. Kesidis and N. Papamarkos, "On the inverse Hough transform and its application for edge detection and filtering," in *Proceedings of the International Conference on Computational Intelligence for Modeling Control and Automation, CIMCA*, 1999, vol. 99, pp. 48–53.

A. L. Kesidis and N. Papamarkos, "A window-based inverse Hough transform," *Pattern Recognition*, vol. 33, no. 6, pp. 1105–1117, 2000.

A. L. Kesidis and N. Papamarkos, "On the gray-scale inverse Hough transform," *Image and Vision Computing*, vol. 18, no. 8, pp. 607–618, 2000.

A. L. Kesidis and N. Papamarkos, "A gray-scale inverse Hough transform algorithm," in *2000 IEEE International Symposium on Circuits and Systems (ISCAS)*, 2000, vol. 5, pp. 297–300.

A. L. Kesidis and N. Papamarkos, "A window-based gray-scale inverse Hough transform algorithm and its applications on gray-scale line filtering," in *Proceedings 2001 International Conference on Image Processing (Cat. No. 01CH37205)*, 2001, vol. 3, pp. 154–157.

A. Kesidis and N. Papamarkos, "Exact reconstruction of gray-scale images from projections," in *Recent Trends in Multimedia Information Processing*, 2002, pp. 317–321.

A. Kesidis and N. Papamarkos, "Exact image reconstruction using a limited number of projection samples," in ***Proceedings of the 3rd International Symposium on Image and Signal Processing and Analysis***, 2003, vol. 1, pp. 465–470.

S. Perantonis, B. Gatos, K. Ntzios, I. Pratikakis, I. Vrettaros, A. Drigas, C. Emmanouilidis, A. Kesidis, D. Kalomirakis, "A system for processing and recognition of old Greek manuscripts(the D-SCRIBE project).," ***WSEAS Transactions on Computers***, vol. 3, no. 6, pp. 2049–2057, 2004.

A. L. Kesidis and N. Papamarkos, "Grayscale image reconstruction from projections with linear noise response," in ***IEEE Workshop on Signal Processing Systems Design and Implementation, 2005.***, 2005, pp. 347–352.

B. Gatos, I. Pratikakis, A. L. Kesidis, and S. Perantonis, "Efficient off-line cursive handwriting word recognition," in ***10<sup>th</sup> International Workshop on Frontiers in Handwriting Recognition (IWFHR)***, 2006.

A. L. Kesidis and N. Papamarkos, "Exact Grayscale Image Reconstruction from Projections," ***International Journal of Pattern Recognition and Artificial Intelligence***, vol. 20, no. 05, pp. 711–725, 2006.

A. L. Kesidis and B. Gatos, "A robust image watermarking technique based on spectrum analysis and pseudorandom sequences.," in ***Proceedings of the 2<sup>nd</sup> International Conference on Computer Vision Theory and Applications (Volume 1)***, 2007, pp. 121–126.

N. Stamatopoulos, B. Gatos, and A. Kesidis, "Automatic borders detection of camera document images," in ***2nd International Workshop on Camera-Based Document Analysis and Recognition, Curitiba, Brazil***, pp. 71–78, 2007.

A. L. Kesidis, "Limited Angle Image Reconstruction Using Four High Resolution Projection Axes at Co-Prime Ratio View Angles.," in ***Proceedings of the 3<sup>rd</sup> International Conference on Computer Vision Theory and Applications (Volume 1)***, 2008, pp. 50–57.

A. L. Kesidis and N. Papamarkos, "Exact image reconstruction from a limited number of projections," ***Journal of Visual Communication and Image Representation***, vol. 19, no. 5, pp. 285–298, 2008.

T. Konidaris, B. Gatos, S. J. Perantonis, and A. Kesidis, "Keyword matching in historical machine-printed documents using synthetic data, word portions and dynamic time warping," in ***The 8<sup>th</sup> IAPR International Workshop on Document Analysis Systems***, 2008, pp. 539–545.

D. I. Kosmopoulos, P. Antonakaki, K. Valasoulis, A. Kesidis, and S. Perantonis, "Human behavior classification using multiple views," in ***Hellenic Conference on Artificial Intelligence***, 2008, pp. 123–134.

D. Kosmopoulos, A. Kesidis, P. Antonakaki, K. Valasoulis, and S. J. Perantonis, "SemVeillance System: Tracking and behavior recognition under occlusions," in ***18th European Conference on Artificial Intelligence***, 2008.

A. Kesidis, E. Galiotou, B. Gatos, A. Lampropoulos, I. Pratikakis, I. Manoleous, A. Ralli, "Accessing the content of greek historical documents," in ***Proceedings of The 3<sup>rd</sup> Workshop on Analytics for Noisy Unstructured Text Data***, 2009, pp. 55–62.

A. L. Kesidis and D. I. Kosmopoulos, "Robust Occlusion Handling with Multiple Cameras using a Homography Constraint.," in ***Proceedings of the 4<sup>th</sup> International Conference on Computer Vision Theory and Applications (Volume 2)***, 2009, pp. 560–565.

B. Gatos, A. L. Kesidis, and A. Papandreou, "Adaptive zoning features for character and word recognition," in ***2011 International Conference on Document Analysis and Recognition***, 2011, pp. 1160–1164.

A. L. Kesidis, E. Galiotou, B. Gatos, and I. Pratikakis, "A word spotting framework for historical machine-printed documents," ***International Journal on Document Analysis and Recognition (IJ DAR)***, vol. 14, no. 2, pp. 131–144, 2011.

A. L. Kesidis and B. Gatos, "Efficient cut-off threshold estimation for word spotting applications," in ***2011 International Conference on Document Analysis and Recognition***, 2011, pp. 279–283.

G. Louloudis, A. L. Kesidis, and B. Gatos, "Efficient word retrieval using a multiple ranking combination scheme," in ***10th IAPR International Workshop on Document Analysis Systems***, 2012, pp. 379–383.

P. Giampouras, E. Charou, and A. Kesidis, "Artificial Neural Network Approach for Land Cover Classification of Fused Hyperspectral and Lidar Data," in ***IFIP International Conference on Artificial Intelligence Applications and Innovations***, 2013, pp. 255–261.

A. Kesidis and D. Karatzas, "Logo and trademark recognition," in ***Handbook of Document Image Processing and Recognition***, 2014, pp. 591–646.

A. L. Kesidis, N. Vassilas, T. Tsenoglou, and D. Ghazanfarpour, "Experimental sensitivity investigation of mean-shift variants to bandwidth parameters for 3D buildings reconstruction," in ***9th International Symposium on Image and Signal Processing and Analysis (ISPA)***, 2015, pp. 114–119.

E. Spyrou, A. Kesidis, P. Kolliopoulos, T. Tsenoglou, E. Bratsolis, S. Gyftakis, E. Charou, N. Vassilas, "Comparative study of visual feature extraction methods for building retrieval on urban databases," in ***6th International Conference on Information, Intelligence, Systems and Applications (IISA)***, 2015, pp. 1–6.

T. Konidaris, A. L. Kesidis, and B. Gatos, "A segmentation-free word spotting method for historical printed documents," ***Pattern Analysis and Applications***, vol. 19, no. 4, pp. 963–976, 2016.

G. Papadopoulos, N. Vassilas, and A. Kesidis, "Convolutional Neural Network for Detection of Building Contours Using Multisource Spatial Data," in ***International Conference on Engineering Applications of Neural Networks***, 2019, pp. 335–346.

E. N. Zois, D. Tsourounis, I. Theodorakopoulos, A. L. Kesidis, and G. Economou, "A comprehensive study of sparse representation techniques for offline signature

verification," *IEEE Transactions on Biometrics, Behavior, and Identity Science*, vol. 1, no. 1, pp. 68–81, 2019.

A. L. Kesidis and B. Gatos, "Providing Access to Old Greek Documents Using Keyword Spotting Techniques," in *Visual Computing for Cultural Heritage*, Springer, Cham, 2020, pp. 85–102.

N. Merlemis, A. Kesidis, and I. Sianoudis, "Measurement of laser beam spatial profile by laser scanning," *European Journal of Physics*, 2020.

V. Krassanakis and A. L. Kesidis, "MatMouse: A Mouse Movements Tracking and Analysis Toolbox for Visual Search Experiments," *Multimodal Technol. Interact.* 2020, 4, 83.

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C. Xydas, A. L. Kesidis, K. Kalogeropoulos, and A. Tsatsaris, "Buildings Extraction from Historical Topographic Maps via a Deep Convolution Neural Network", *Proceedings of the 17th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications*, p. 485-492, 2022.

A. L. Kesidis, V. Krassanakis, N. Merlemis and L.-M. Misthos, "A multipurpose patch creation tool for efficient exploration of digital cartographic products", *European Cartographic Conference*, 5, 56, 2022.

Λ.-Μ. Μισθός, Β. Κρασανάκης και Α. Κεσίδης, "Αποτιμώντας το Ορεινό Τοπίο: Νέες Μέθοδοι, Τεχνικές & Τεχνολογίες", *10ο Συνέδριο του ΕΜΠ και του ΜΕΚΔΕ-ΕΜΠ*, p. 779-791, 2022.

N. Merlemis, A. L. Kesidis, L.-M. Misthos, E. Zekou, E. Drakaki, and V. Krassanakis, "Quantifying visual heterogeneity of paper maps using diffuse reflectance spectroscopy", *European Cartographic Conference*, 5, 60, 2022.

I. Lazarou, A. L. Kesidis, G. Hloupis, and A. Tsatsaris, "Panic Detection Using Machine Learning and Real-Time Biometric and Spatiotemporal Data", *ISPRS International Journal of Geo-Information*, vol. 11, no. 11, 552, 2022.

A. L. Kesidis, V. Krassanakis, L.-M. Misthos and N. Merlemis, "patchIT: a multipurpose patch creation tool for image processing applications", *Multimodal Technologies and Interaction*, vol. 6, no. 12, p. 111, 2022.

I. Lazarou, A. L. Kesidis and A. Tsatsaris, "Real-time Monitoring of Crowd Panic based on Biometric and Spatiotemporal Data", *International Conference on Computer Vision, Theory and Applications*, 2023.

V. Zelios, P. Mastorocostas, G. Kandilogiannakis, A. Kesidis, P. Tselenti, and A. Voulodimos, "Deep Learning Electric Load Forecasting for the Greek Power System," *27th International Conference on Circuits, Systems, Communications and Computers*, pp. 1–6, Jul. 2023.

G. Matidis, B. Gatos, A. L. Kesidis, and P. Kaddas, "Detecting Text on Historical Maps by Selecting Best Candidates of Deep Neural Networks Output", **Document Analysis and Recognition - ICDAR 2023**, pp. 358–367, 2023.

L.-M. Misthos, V. Krassanakis, N. Merlemis, and A. L. Kesidis, "Modeling the Visual Landscape: A Review on Approaches, Methods and Techniques" **Sensors**, vol. 23, no. 19, p. 8135, 2023.

I. Lazarou, A. Kesidis, and A. Tsatsaris, "Real-Time Detection and Mapping of Crowd Panic Emergencies," **Proceedings of the 19th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications**, pp. 485–491, 2024.

N. Merlemis, E. Drakaki, E. Zekou, G. Ninos, and A. L. Kesidis, "Laser induced fluorescence and machine learning: a novel approach to microplastic identification," **Applied Physics B**, vol. 130, no. 9, 2024.

M. Viore, A. L. Kesidis, and V. Krassanakis, "Deep learning for map generalization: Experimenting with coastline data at different map scales," **European Cartographic Conference**, vol. 7, pp. 180, 2024.

N. Merlemis, A. Kesidis, L.-M. Misthos, and V. Krassanakis, "Leveraging machine learning and spectroscopic techniques towards estimating paper map scale levels," **European Cartographic Conference**, vol. 7, pp. 104, 2024.

## VII. INTERNATIONAL PATENTS

- MEASUREMENT OF MITOTIC ACTIVITY, **European Patent EP1579375**, 2006  
Guittet; Christelle (FR), Ducksbury; Paul Gerard (GB), M., Petrou; Maria (GB), Kesidis; Anastasios (GR), Cipolla; Roberto (GB), Varga; Margaret (GB)
- HISTOLOGICAL ASSESSMENT, **United States Patent 7079675**, 2006  
Hamer; Michael J (GB), Petrou; Maria (GB), Kesidis; Anastasios (GR), Varga; Margaret (GB)
- HISTOLOGICAL ASSESSMENT OF NUCLEAR PLEOMORPHISM, **European Patent EP1579366**, 2007  
Petrou; Maria (GB), Kesidis; Anastasios (GR), Varga; Margaret (GB), Ducksbury; Paul Gerard (GB)
- MEASUREMENT OF MITOTIC ACTIVITY, **United States Patent 7577280**, 2009  
Guittet; Christelle (FR), Ducksbury; Paul Gerard (GB), M., Petrou; Maria (GB), Kesidis; Anastasios (GR), Cipolla; Roberto (GB), Varga; Margaret (GB)
- METHOD, APPARATUS AND COMPUTER PROGRAM FOR MEASUREMENT OF MITOTIC ACTIVITY, **European Patent EP1760634**, 2009  
Varga; Margaret (GB), Guittet; Christelle (FR), Ducksbury; Paul Gerard (GB), Petrou; Maria (GB), Kesidis; Anastasios (GR), Cipolla; Roberto (GB)

- HISTOLOGICAL ASSESMENT OF NUCLEAR PLEOMORPHISM, *United States Patent 7616790*, 2009  
Petrou; Maria (GB), Kesidis; Anastasios (GR), Varga; Margaret (GB), Ducksbury; Paul Gerard (GB)

## VIII. REVIEW BOARDS

- **International Journals**

Electronic Letters

Signal Processing

Journal of Mathematical Imaging and Vision

Advances in Multimedia

Research Letters in Signal Processing

Journal of Electronic Imaging

Applied Sciences

International Journal on Document Analysis and Recognition

IEEE Transactions on Image Processing

Pattern Recognition

Artificial Intelligence Review

- **International Conferences**

Int. Conf. on Computer Vision Theory and Applications (VISAPP)

Int. Conf. on Computer Vision Systems (ICVS)

Int. Conf. on Pattern Recognition (ICPR)

IEEE Conference on Games (CoG)

Int. Conf. on Document Analysis and Retrieval (ICDAR)

Int. Conf. on Systems, Signals and Image Processing (IWSSIP)

Int. Workshop on Document Analysis Systems (DAS)

Int. Conf. on Frontiers in Handwriting Recognition (ICFHR)