

## Konstantinos P. Ferentinos

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### Education

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**PhD, Cornell University, Ithaca, NY, USA** 1999 – 2002

*Major: Dept. of Biological & Environmental Engineering (advisor: Prof. L.D. Albright)*

*Minor: Dept. of Computer Science*

*Topics: Hydroponics, Artificial Intelligence, Neural Networks, Genetic Algorithms*

**Master of Science (MS), Cornell University, Ithaca, NY, USA** 1997 – 1999

*Major: Dept. of Agricultural & Biological Engineering*

*Minor: Agricultural Engineering*

*Topics: Controlled Environment Agriculture, Hydroponics, Artificial Intelligence*

**BSc/MSc (5-year degree), Agricultural University of Athens, Athens, Greece** 1992 – 1997

*Major: Dept. of Agricultural Engineering*

*Minor: Sector of Agricultural Constructions & Machinery*

*Topics: Automations in Agriculture, Controlled Environment Agriculture*

### Research Interests

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Artificial intelligence, optimization, machine learning, wireless sensor networks, information systems in biosystems engineering.

### Research / Academic Positions

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**Senior Researcher** August 2020 - present

Dept. of Agricultural Engineering

Institute of Soil & Water Resources

Hellenic Agricultural Organization “Dimitra”, Athens, Greece

**Associate Editor** February 2021 - present

Biosystems Engineering (Elsevier)

**Researcher (Grade C)** December 2016 - July 2020

Dept. of Agricultural Engineering

Institute of Soil & Water Resources

Hellenic Agricultural Organization “Dimitra”, Athens, Greece

**Adjunct Assoc. Professor** February 2020 - August 2020

Lab. of Informatics

Dept. of Agricultural Economics and Development

Agricultural University of Athens, Athens, Greece

**Research Associate** February 2014 - October 2015

Dept. of Mathematics

University of Athens, Athens, Greece

- Research Associate** September 2013 - August 2015  
Dept. of Agricultural Science  
University of Thessaly, Volos, Greece
- Research Associate** January 2011 - August 2013  
Lab. of Informatics  
Agricultural University of Athens, Athens, Greece
- Adjunct Assistant Professor** October 2010 - August 2013  
Dept. of Informatics in Administration & Economics  
Dept. of Informatics and Telecommunication Technology  
Technological Institute of the Ionian Islands, Lefkada, Greece
- Adjunct Lecturer** October 2008 - February 2010  
Lab. of Informatics  
Agricultural University of Athens, Athens, Greece
- Adjunct Lecturer** February 2005 - August 2011  
Dept. of Mathematics  
University of Athens, Athens, Greece  
& Spring 2017 semester
- Postdoctoral Researcher** January 2005 - April 2007  
Lab. of Informatics  
Agricultural University of Athens, Athens, Greece
- Postdoctoral Researcher** August 2003 - June 2004  
Dept. of Biological & Environmental Engineering  
Cornell University, Ithaca, NY, USA

## Publications

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	SCI	Scopus	Google scholar
<b>Citations</b>	1986	3148	4720
<b>h-index</b>	16	20	26

## Refereed Journal Papers

- [J.31] Argyriou, A.V., N. Tektonidis, E. Alevizos, **K.P. Ferentinos**, N.N. Kourgialas, M.M. Mathioudakis. 2024. Precision farming multimodal technologies using optical sensors for the detection of Citrus tristeza virus endemics. *Sustainability*, 16, 5748. <https://doi.org/10.3390/su16135748>.
- [J.30] Pristouris K, H. Nakos, Y. Stavrakas, K.I. Kotsopoulos, T. Alexandridis, M.S. Barda, **K.P. Ferentinos**. 2021. An integrated system for urban parks touring and management. *Urban Science*, vol. 5(4), 91.
- [J.29] **Ferentinos, K.P.**, Y. Stavrakas, H. Nakos, K. Pristouris, M.S. Barda. 2020. Initial design and features of an augmented reality system for urban park touring and management. *International Journal of Computer Theory and Engineering*, vol. 12(5), pp. 106-112.
- [J.28] Cass, A., G.P. Petropoulos, **K.P. Ferentinos**, A. Pavlides, P.K. Srivastava. 2019. Exploring the synergy between Landsat and ASAR towards thematic mapping accuracy of optical EO data. *Applied Geomatics*, vol. 11(3), pp. 277-288.
- [J.27] Amos, C., G.P. Petropoulos, **K.P. Ferentinos**. 2019. Determining the use of Sentinel-2A MSI for wildfire burning and severity detection. *International Journal of Remote Sensing*, vol. 40(3), pp. 905-930.
- [J.26] Brown, A.R., G.P. Petropoulos, **K.P. Ferentinos**. 2018. Appraisal of the Sentinel-1 & 2 use in a large-scale wildfire assessment: A case study from Portugal's fires of 2017. *Applied Geography*, vol. 100, pp. 78-89.
- [J.25] Petropoulos, G.P., P.K. Srivastava, **K.P. Ferentinos**, D. Hristopoulos. 2020. Evaluating the capabilities of optical/TIR imaging sensing systems for quantifying soil water content. *Geocarto International*, vol. 35(5), pp. 494-511.

- [J.24] Colson, D., G.P. Petropoulos, **K.P. Ferentinos**. 2018. Exploring the potential of Sentinels-1 & 2 of the Copernicus mission in support of rapid and cost-effective wildfire assessment. *International Journal of Applied Earth Observations and Geoinformation*, vol. 73, pp. 262-276.
- [J.23] Whyte, A., **K.P. Ferentinos**, G.P. Petropoulos. 2018. A new synergistic approach for monitoring wetlands using Sentinels -1 and 2 data with object-based machine learning algorithms. *Environmental Modelling and Software*, vol. 104, pp. 40-54.
- [J.22] **Ferentinos, K.P.** 2018. Deep learning models for plant disease detection and diagnosis. *Computers and Electronics in Agriculture*, vol. 145, pp. 311-318.
- [J.21] Elvanidi, A., N. Katsoulas, **K.P. Ferentinos**, T. Bartzanas, C. Kittas. 2018. Hyperspectral machine vision as a tool for water stress severity assessment in soilless tomato crop. *Biosystems Engineering*, vol. 165, pp. 25-35.
- [J.20] Li, L., J. Li, H. Wang, T. Georgieva, **K.P. Ferentinos**, K.G. Arvanitis, N.A. Sigrimis. 2018 Sustainable energy management of solar greenhouses using open weather data on MACQU platform. *International Journal of Agricultural & Biological Engineering*, vol. 11(1), pp. 74-82.
- [J.19] Li, J., L. Li, H. Wang, **K.P. Ferentinos**, M. Li, N. Sigrimis. 2017. Proactive energy management of solar greenhouses with risk assessment to enhance smart specialisation in China. *Biosystems Engineering*, vol. 155, pp. 10-22.
- [J.18] Elvanidi, A., N. Katsoulas, T. Bartzanas, **K.P. Ferentinos**, C. Kittas. 2017. Crop water status assessment in controlled environment using crop reflectance and temperature measurements. *Precision Agriculture*, vol. 18, doi:10.1007/s11119-016-9492-3.
- [J.17] **Ferentinos, K.P.**, N. Katsoulas, A. Tzounis, T. Bartzanas, C. Kittas. 2017. Wireless sensor networks for greenhouse climate and plant condition assessment. *Biosystems Engineering*, vol. 153, pp. 70-81.
- [J.16] Katsoulas, N, A. Elvanidi, **K.P. Ferentinos**, M. Kacira, T. Bartzanas, C. Kittas. 2016. Crop reflectance monitoring as a tool for water stress detection in greenhouses: A review. *Biosystems Engineering*, vol. 151, pp. 374-398.
- [J.15] Katsoulas, N., K. Peponakis, **K.P. Ferentinos**, C. Kittas. 2015. Calibration of a growth model for tomato seedlings (TOMSEED) based on heuristic optimisation. *Biosystems Engineering*, vol. 140, pp. 34-47.
- [J.14] **Ferentinos, K.P.**, C.P. Yialouris, P. Blouchos, G. Moschopoulou, S. Kintzios. 2013. Pesticide residue screening using a novel artificial neural network combined with a bioelectric cellular biosensor. *BioMed Research International*, vol. 2013, art. no. 813519.
- [J.13] **Ferentinos, K.P.**, and T.A. Tsiligiridis. 2010. A memetic algorithm for optimal dynamic design of wireless sensor networks. *Computer Communications*, vol. 33(2), pp. 250-258.
- [J.12] Glezakos, T.J., T.A. Tsiligiridis, L.S. Iliadis, C.P. Yialouris, F.P. Maris, **K.P. Ferentinos**. 2009. Feature extraction for time series data: an artificial neural network evolutionary training model for the management of mountainous watersheds. *Neurocomputing*, vol. 73, pp. 49-59.
- [J.11] Maliappis, M.T., **K.P. Ferentinos**, H.C. Passam, A.B. Sideridis. 2008. GIMS: a web-based greenhouse intelligent management system. *World Journal of Agricultural Sciences*, vol. 4(5), pp. 640-647.
- [J.10] **Ferentinos, K.P.**, and T.A. Tsiligiridis. 2007. Adaptive design optimization of wireless sensor networks using genetic algorithms. *Computer Networks*, vol. 51(4), pp. 1031-1051.
- [J.9] **Ferentinos, K.P.** 2005. Biological engineering applications of feedforward neural networks designed and parameterized by genetic algorithms. *Neural Networks*, vol. 18(7), pp. 934-950.
- [J.8] **Ferentinos, K.P.** and L.D. Albright. 2005. Optimal design of plant lighting system by genetic algorithms. *Engineering Applications of Artificial Intelligence*, vol. 18(4), pp. 473-484.
- [J.7] **Ferentinos, K.P.** and L.D. Albright. 2003. Fault detection and diagnosis in deep-trough hydroponics using intelligent computational tools. *Biosystems Engineering*, vol. 84(1), pp. 13-30.
- [J.6] **Ferentinos, K.P.**, L.D. Albright, B. Selman. 2003. Neural network-based detection of mechanical, sensor and biological faults in deep-trough hydroponics. *Computers and Electronics in Agriculture*, special issue on Artificial Intelligence in Agriculture, vol. 40(1-3), pp. 65-85.
- [J.5] **Ferentinos, K.P.** and L.D. Albright. 2002. Predictive neural network modeling of pH and electrical conductivity in deep-trough hydroponics. *Transactions of the ASAE*, vol. 45(6), pp. 2007-2015.
- [J.4] **Ferentinos, K.P.**, K.G. Arvanitis, N. Sigrimis. 2002. Heuristic optimization methods for motion planning of autonomous agricultural vehicles. *Journal of Global Optimization*, vol. 23, pp. 155-170.
- [J.3] Sigrimis, N., K.G. Arvanitis, G.D. Pasgianos, **K.P. Ferentinos**. 2002. Computer integrated management and intelligent control of greenhouses. *Environment Control in Biology*, vol. 40(1), pp. 39-53 (invited paper).
- [J.2] Sigrimis, N., K.G. Arvanitis, G.D. Pasgianos, **K. Ferentinos**. 2001. Hydroponics water management using adaptive scheduling with an on-line optimiser. *Computers and Electronics in Agriculture*, vol. 31(1), pp. 31-46.
- [J.1] **Ferentinos, K.P.**, L.D. Albright, D.V. Ramani. 2000. Optimal light integral and carbon dioxide concentration combinations for lettuce in ventilated greenhouses. *Journal of Agricultural Engineering Research*, vol. 77(3), pp. 309-315.

## Refereed International Conference Papers

[Conference acceptance rates included where available]

- [C.51] **Ferentinos, K.P.**, and M.S. Barda. 2021. A deep learning plants identification model for augmented reality touring in urban parks. 5<sup>th</sup> International Conference of the International Commission of Agricultural and Biosystems Engineering (CIGR), May 11-14, Québec City, Canada.
- [C.50] **Ferentinos, K.P.**, Y. Stavrakas, H. Nakos, K. Pristouris, M.S. Barda. 2019. Initial design and features of an augmented reality system for urban park touring and management. 12<sup>th</sup> International Conference on Computer Science and Information Technology (ICCSIT 2019), Dec. 18-20, Barcelona, Spain.
- [C.49] **Ferentinos, K.P.**, M. Barda, D. Damer. 2019. An image-based deep learning model for cannabis diseases, nutrient deficiencies and pests identification. In: Moura Oliveira P., Novais P., Reis L. (eds) Progress in Artificial Intelligence. EPIA 2019. *Lecture Notes in Computer Science*, vol. 11804, Springer.
- [C.48] Katsoulas, N., A. Elvanidi, T. Bartzanas, **K.P. Ferentinos**, C. Kittas. 2016. Sensing of reflectance for water stress detection in greenhouses. ISHS Symposium "Sensing Plant Water Status - Methods and Applications in Horticultural Science", October 5-7, Berlin, Germany.
- [C.47] Elvanidi, A., N. Katsoulas, T. Bartzanas, **K.P. Ferentinos**, C. Kittas. 2016. Assessment of crop water status by means of crop reflectance. 3<sup>rd</sup> International Symposium on Organic Greenhouse Horticulture (OGH 2016), April 11-14, Izmir, Turkey.
- [C.46] Katsoulas, N., **K.P. Ferentinos**, A. Tzounis, T. Bartzanas, C. Kittas. 2015. Spatially distributed greenhouse climate control based on wireless sensor network measurements. *Acta Horticulturae*, vol. 1154. (5<sup>th</sup> Symposium on Applications of Modelling as an Innovative Technology in the Horticultural Supply Chain (Model-IT), October 11-14, Wageningen, The Netherlands).
- [C.45] Katsoulas, N., **K.P. Ferentinos**, A. Tzounis, T. Bartzanas, C. Kittas. 2015. Operation reliability of wireless sensor networks in greenhouse conditions. *Acta Horticulturae*, vol. 1170, pp. 867-874 (2017). (International Symposium on New Technologies and Management in Greenhouses (GreenSys 2015), July 19-23, Evora, Portugal).
- [C.44] Kittas, C., A. Elvanidi, **K.P. Ferentinos**, T. Bartzanas, N. Katsoulas. 2015. Crop temperature measurements for crop water status identification in greenhouses. *International Symposium on New Technologies and Management in Greenhouses (GreenSys 2015)*, July 19-23, Evora, Portugal.
- [C.43] Bartzanas, T., N. Katsoulas, A. Elvanidi, **K.P. Ferentinos**, C. Kittas. 2015. Remote sensing for crop water stress detection in greenhouses. 10<sup>th</sup> European Conference on Precision Agriculture, July 12-16, Volcani Center, Israel.
- [C.42] Katsoulas, N., A. Elvanidi, **K.P. Ferentinos**, T. Bartzanas, C. Kittas. 2014. Calibration of a hyperspectral imaging system for greenhouse plant water stress detection. *Acta Horticulturae*, vol. 1142, pp. 119-126. (6<sup>th</sup> Balkan Symposium on Vegetables and Potatoes, September 29 – October 2, Zagreb, Croatia).
- [C.41] Katsoulas, N., A. Elvanidi, **K.P. Ferentinos**, T. Bartzanas, C. Kittas. 2014. A hyperspectral imaging system for plant stress detection: calibration and preliminary results. 25<sup>th</sup> International Scientific – Experts Congress on Agriculture and Food Industry, September 25-27, Cesme-Izmir, Turkey.
- [C.40] **Ferentinos, K.P.**, N. Katsoulas, A. Tzounis, C. Kittas, T. Bartzanas. 2015. A climate control methodology based on wireless sensor networks in greenhouses. *Acta Horticulturae*, vol. 1107, pp. 75-82. (29<sup>th</sup> International Horticultural Congress (IHC2014), August 17-22, Brisbane, Australia. DOI: 10.17660/ActaHortic.2015.1107.9)
- [C.39] Kittas, C., A. Elvanidi, N. Katsoulas, **K.P. Ferentinos**, T. Bartzanas. 2016. Reflectance indices for the detection of water stress in greenhouse tomato (*Solanum lycopersicum*). *Acta Horticulturae*, vol. 1112, pp. 63-70 (29<sup>th</sup> International Horticultural Congress (IHC2014), August 17-22, 2014, Brisbane, Australia).
- [C.38] **Ferentinos, K.P.**, C.P. Yialouris, P. Blouchos, G. Moschopoulou, V. Tsourou, K. Kintzios. 2012. The use of artificial neural networks as a component of a cell-based biosensor device for the detection of pesticides. *Procedia Engineering (Proceedings Eurosenors XXVI)*, vol. 47, pp. 989-992.
- [C.37] Maliappis, M.T. and **K.P. Ferentinos**. 2008. Evaluation methodology of a web-based greenhouse intelligent management system. 4<sup>th</sup> International Conference on Information Technology & Innovations in Bio and Earth Sciences, September 18-20, Athens, Greece.
- [C.36] **Ferentinos, K.P.**, N. Trigoni, S. Nittel. 2008. Impact of drifter deployment on the quality of ocean sensing. *Advances in Geosensor Networks, Lecture Notes in Computer Science*, vol. 4540, pp. 9-24, Springer.
- [C.35] **Ferentinos, K.P.**, T.A. Tsiligiridis. 2007. A memetic algorithm for dynamic design of wireless sensor networks. *IEEE Congress on Evolutionary Computation (CEC'07), special session on Memetic Algorithms*, September 25-28, Singapore. (**Special session acceptance rate: 25%**)
- [C.34] Glezakos, T.J., T. Tsiligiridis, L. Iliadis, C.P. Yialouris, F. Maris, **K.P. Ferentinos**. 2007. Feature extraction for time series data: an artificial neural network evolutionary training model for the management of mountainous watersheds. 10<sup>th</sup> Int'l Conf. on Engineering Applications of Neural Networks, August 29-31, Thessaloniki, Greece.
- [C.33] Nittel, S., N. Trigoni, **K.P. Ferentinos**, F. Neville, A. Nural, N. Pettigrew. 2007. A drift-tolerant model for data management in ocean sensor networks. *Proceedings of the 6<sup>th</sup> ACM International Workshop on Data Engineering for Wireless and Mobile Access (ACM MobiDE 2007)*, June 10, Beijing, China, pp. 49-58. (**Conference acceptance rate: 32%**)

- [C.32] Kaloudis, S., T. Glezakos, **K.P. Ferentinos**, T.A. Tsiligiridis, C.P. Yialouris. 2006. Feedforward neural network modeling of fir taper in natural forests of Greece. *International Conference on Sustainable Management and Development of Mountainous and Island Areas*, September 29 – October 1, Naxos, Greece, pp. 166-172.
- [C.31] Pontikakos, C., **K.P. Ferentinos**, T.A. Tsiligiridis, A.B. Sideridis. 2006. Natural ventilation efficiency in a twin-span greenhouse using 3D computational fluid dynamics. *3<sup>rd</sup> International Conference on Information and Communication Technologies in Agriculture (HAICTA 2006)*, September 20-23, Volos, Greece.
- [C.30] **Ferentinos, K.P.**, T.A. Tsiligiridis. 2006. Energy-saving design adaptation of wireless sensor networks with solar rechargeable batteries. *8<sup>th</sup> International Conference on Precision Agriculture*, July 23-26, Minneapolis, MN, U.S.A.
- [C.29] Maliappis, M.T., **K.P. Ferentinos**, H.C. Passam, A.B. Sideridis, T.A. Tsiligiridis. 2006. A web-based intelligent decision support system for low-technology greenhouses. *4<sup>th</sup> World Congress on Computers in Agriculture*, July 24-26, Orlando, Florida, U.S.A.
- [C.28] **Ferentinos, K.P.**, T.A. Tsiligiridis. 2006. Heuristic dynamic clustering in wireless sensor networks for environmental sensing. *15<sup>th</sup> IST Mobile & Wireless Communications Summit*, June 4-8, Myconos, Greece.
- [C.27] **Ferentinos, K.P.**, T.A. Tsiligiridis. 2005. Heuristic design and energy conservation of wireless sensor networks for precision agriculture. *International Congress on Information Technologies in Agriculture, Food and Environment (ITAFE'05)*, 12-14 October, Adana, Turkey.
- [C.26] Pontikakos, C., **K.P. Ferentinos**, T.A. Tsiligiridis. 2005. Web-based estimation model of natural ventilation efficiency in greenhouses using 3D computational fluid dynamics. *International Congress on Information Technologies in Agriculture, Food and Environment (ITAFE'05)*, 12-14 October, Adana, Turkey.
- [C.25] **Ferentinos, K.P.**, T.A. Tsiligiridis. 2005. Evolutionary energy management and design of wireless sensor networks. *2<sup>nd</sup> IEEE Conference on Sensor and Ad Hoc Communications and Networks (IEEE SECON 2005)*, 26-29 September, Santa Clara, CA, USA. (**Conference acceptance rate: 27%**)
- [C.24] **Ferentinos, K.P.**, T.A. Tsiligiridis, K.G. Arvanitis. 2005. Energy optimization of wireless sensor networks for environmental measurements. *Proceedings of the IEEE International Conference on Computational Intelligence for Measurement Systems and Applications (IEEE CIMSA'05)*, 20-22 July, Giardini-Naxos, Sicily, Italy, pp. 250-255. (**Conference acceptance rate: 60%**)
- [C.23] **Ferentinos, K.P.**, K.G. Arvanitis, D. Lambrou, A. Anastasiou, N. Sigrimis. 2004. A multi-agent system with SMS capabilities for integrated production in greenhouse hydroponics. *2004 CIGR International Conference*, 11-14 October, Beijing, China.
- [C.22] Anastasiou, A., **K.P. Ferentinos**, K.G. Arvanitis, N. Sigrimis. 2004. A DSS tool as a virtual measurement system for closed hydroponic system management. *2004 CIGR International Conference*, 11-14 October, Beijing, China.
- [C.21] **Ferentinos, K.P.**, K.G. Arvanitis, I.Z. Stellas, N. Sigrimis. 2004. Biologically inspired algorithms for PID tuning in greenhouse environment control. *AgEng2004 International Conference, Workshop on Intelligent Technology for Bioproduction Systems*, 12-16 September, Leuven, Belgium.
- [C.20] **Ferentinos, K.P.**, K.G. Arvanitis, D. Lambrou, A. Anastasiou, N. Sigrimis. 2004. A multi-agent system for integrated production in greenhouse hydroponics. *Acta Horticulturae*, vol. 691, pp. 381-388. *AgEng2004 International Conference, Workshop on Sustainable Greenhouse Systems (GreenSys2004)*, 12-16 September, Leuven, Belgium.
- [C.19] Anastasiou, A., **K.P. Ferentinos**, K.G. Arvanitis, N. Sigrimis, D. Savvas. 2004. DSS-Hortimed for on-line management of hydroponic systems. *Acta Horticulturae*, vol. 691, pp. 267-274. (*AgEng2004 International Conference, Workshop on Sustainable Greenhouse Systems (GreenSys2004)*, 12-16 September, Leuven, Belgium).
- [C.18] **Ferentinos, K.P.**, L.D. Albright, K.G. Arvanitis. 2004. Neural network based self-inspected plant production system. *International Congress on Mechatronics*, 7-9 July, Prague, Czech Republic.
- [C.17] **Ferentinos, K.P.**, A. Anastasiou, G.D. Pasgianos, K.G. Arvanitis, N. Sigrimis. 2003. A Decision Support System as a tool to optimal water management in soilless cultures under saline conditions. *Acta Horticulturae*, vol. 609, pp. 289-296. (*International ISHS Symposium on Managing Greenhouse Crops in Saline Environment*, Pisa, Italy).
- [C.16] **Ferentinos, K.P.**, K.G. Arvanitis, G.E. Stavroulakis. 2003. Neural Network Model of Hydroponics Constructed by a Genetic Algorithm System. *Computational Management Science Conference, Mini Workshop in Agricultural, Biological and Environmental Science Modelling*, Chania, Crete, Greece, 27-30 May.
- [C.15] Sigrimis, N., K.G. Arvanitis, **K.P. Ferentinos**. 2002. MACQU: An Open SCADA System for Intelligent Management and Control of Greenhouses. *XVth CIGR/ASAE World Congress, Paper No. 023033*, Chicago, USA.
- [C.14] Sigrimis, N., K.G. Arvanitis, **K.P. Ferentinos**, A. Anastasiou. 2002. An Intelligent Noninteracting Technique for Climate Control of Greenhouses. *15<sup>th</sup> IFAC World Congress*, Barcelona, Spain, 21-26 July.
- [C.13] **Ferentinos, K.P.**, K.G. Arvanitis, G.D. Pasgianos, N.A. Sigrimis. 2001. A Comparison of Intelligent Computational Algorithms for Path Planning. *5<sup>th</sup> International Conference on Hellenic European Research on Computer Mathematics and its Applications (HERCMA 2001)*, Athens, Greece, 20-22 September.
- [C.12] Sigrimis, N., **K.P. Ferentinos**, K.G. Arvanitis, A. Anastasiou. 2001. A Comparison of Optimal Greenhouse Heating Setpoint Generation Algorithms for Energy Conservation. *Intelligent Control for Agricultural Applications 2001: A Proceedings Volume from the 2<sup>nd</sup> IFAC/CIGR Workshop*, Bali, Indonesia, 22-24 August, pp. 61-66.

- [C.11] **Ferentinos, K.P.**, L.D. Albright, B. Selman. 2001. Neural Network Based Fault Detection in Hydroponic Systems. *Preprints of the 4<sup>th</sup> IFAC International Workshop on Artificial Intelligence in Agriculture (AIA'2001)*, Budapest, Hungary, 6-8 June, pp. 37-42.
- [C.10] Sigrimis, N., K.G. Arvanitis, **K.P. Ferentinos**, A. Anastasiou, G. Pasgianos. 2000. Adaptive Scheduling for Hydroponics Water Management. *Preprints of the XIV Memorial CIGR World Congress*, Tsukuba, Japan, November 28 – December 1, CD-ROM Volume, pp. 1744-1749.
- [C.9] Sigrimis, N., K.G. Arvanitis, G. Pasgianos, A. Anastasiou, **K.P. Ferentinos**. 2000. Supervisory Control Tools for a Virtual Greenhouse. *Preprints of the XIV Memorial CIGR World Congress*, Tsukuba, Japan, November 28 – December 1, CD-ROM Volume, pp. 990-995.
- [C.8] **Ferentinos, K.P.**, K.G. Arvanitis, K. Kyriakopoulos, N. Sigrimis. 2000. Heuristic Motion Planning for Autonomous Agricultural Vehicles. *Proceedings of the 2nd IFAC/CIGR International Workshop on Bio-Robotics, Information Technology and Intelligent Control for Bioproduction Systems (Bio-Robotics II)*, Sakai, Osaka, Japan, 25-26 November, pp. 322-327.
- [C.7] Arvanitis, K.G., N.A. Sigrimis, K.J. Kyriakopoulos, **K.P. Ferentinos**. 2000. A Nonlinear Restricted State Feedback Control Strategy for Over-Actuated Robot Manipulators. *Proceedings of the 2nd IFAC/CIGR International Workshop on Bio-Robotics, Information Technology and Intelligent Control for Bioproduction Systems (Bio-Robotics II)*, Sakai, Osaka, Japan, 25-26 November, pp. 101-106.
- [C.6] Sigrimis, N., K.G. Arvanitis, G. Pasgianos, A. Anastasiou, **K.P. Ferentinos**. 2000. New Ways to Production Management and Supervisory Control: A Virtual Greenhouse. *Preprints of the IFAC Symposium on Manufacturing, Modeling, Management and Control (MIM 2000)*, vol. 1, Patras, Greece, 12-14 July, pp. 529-536.
- [C.5] **Ferentinos, K.P.**, L.D. Albright, N.R. Scott. 2000. Modeling pH and Electrical Conductivity in Hydroponics using Artificial Neural Networks. *Preprints of the IFAC International Conference on Modelling and Control in Agriculture, Horticulture and Post-Harvest Processing (Agricontrol 2000)*, Wageningen, the Netherlands, 10-12 July, pp. 364-369.
- [C.4] Sigrimis, N., K.G. Arvanitis, G. Pasgianos, A. Anastasiou, **K.P. Ferentinos**, 2000. New Ways on Supervisory Control: a Virtual Greenhouse: to train, to control and to manage. *Preprints of the IFAC International Conference on Modelling and Control in Agriculture, Horticulture and Post-Harvest Processing (Agricontrol 2000)*, Wageningen, the Netherlands, 10-12 July, pp. 212-217.
- [C.3] Sigrimis, N., K.G. Arvanitis, G. Pasgianos, A. Anastasiou, **K.P. Ferentinos**. 2000. A Virtual Greenhouse for Training, Control and Management. *EurAgEng Conference on Agricultural Engineering (AgEng2000)*, Warwick, UK, 2-7 July, Paper 00-AE-022, Book of Abstracts, pp. 57-58.
- [C.2] Rerras, N., A. Anastasiou, **K. Ferentinos**, N. Sigrimis. 1998. An Adaptive Optimizer for Process Control. In Sigrimis N. and P. Groumpos (Eds) *Proceedings of 1<sup>st</sup> IFAC Workshop on Control Applications and Ergonomics in Agriculture*. Athens, Greece, June 15-17, by Pergamon, pp. 189-194.
- [C.1] Sigrimis, N., A. Anastasiou, **N. Ferentinos**, N. Rerras. 1997. Field Experiments with an Intelligent Leaf Sensor. *Mathematical and Control Applications in Agriculture and Horticulture: a proceedings volume from the 3rd IFAC Workshop*, Hannover, Germany, 9/28-10/2. Edited by A. Munack and H.-J. Tantau, Pergamon, pp. 255-259.

## Patents

- [P.1] L.D. Albright, **K.P. Ferentinos**, I. Seginer, D.S. de Villiers & J.W. Ho., 2007. “Systems and methods for providing optimal light-CO<sub>2</sub> combinations for plant production”, USA, **Patent No.: US 7,184,846 B2**, Feb. 27, 2007.
- [P.2] L.D. Albright, **K.P. Ferentinos**, I. Seginer, D.S. de Villiers & J.W. Ho., 2009. “Methods for providing optimal light-CO<sub>2</sub> combinations for plant production”, USA, **Patent No.: US 7,502,655 B2**, Mar. 10, 2009.

## Book Chapters

- [B.1] **Ferentinos, K.P.**, I.K. Kookos, K.G. Arvanitis, and N.A. Sigrimis. 2006. From Production to the User – Quality Issues for Agricultural Product Chains. **Chapter 8.2 of the CIGR Handbook of Agricultural Engineering, Vol. VI: Information Technology**, pp. 480-500, Axel Munack (ed.), St. Joseph, Michigan, USA.
- [B.2] **Ferentinos, K.P.**, K.G. Arvanitis, and N.A. Sigrimis. 2006. Communication Issues and Internet Use – Internet Use in Agriculture, Remote Service and Maintenance; E-commerce, E-business, E-consulting, E-support. **Chapter 7.2 of the CIGR Handbook of Agricultural Engineering, Vol. VI: Information Technology**, pp. 453-464, Axel Munack (ed.), St. Joseph, Michigan, USA.
- [B.3] **Ferentinos, K.P.**, K.G. Arvanitis, H.J. Tantau, and N.A. Sigrimis. 2006. Precision Agriculture – Special Aspects of IT for Greenhouse Cultivation. **Chapter 5.8 of the CIGR Handbook of Agricultural Engineering, Vol. 6: Information Technology**, pp. 294-312, Axel Munack (ed.), St. Joseph, Michigan, USA.
- [B.4] Yialouris, C.P., and **K.P. Ferentinos**. 2017. Time-series processing for portable biosensors and mobile platforms for automated pattern recognition. Chapter in: **Portable biosensors and Point-of-Care systems**, IET (in press).
- [B.5] Piromalis, D., K.G. Arvanitis, P. Papageorgas, **K.P. Ferentinos**. 2017. Smart precision lighting for urban and landscape closed controlled horticultural environments. **Chapter 6 in: “Urban Horticulture”**, Dilip Nandwani (ed.), Springer, Switzerland.

- [B.6] Amos, C., **K.P. Ferentinos**, G.P. Petropoulos, P.K. Srivastava. 2020. Assessing the Use of Sentinel-2 in Burnt Area Cartography: Findings from a Case Study in Spain. Chapter 11 in: P.K. Srivastava (ed.), *Techniques for Disaster Risk Management and Mitigation*, First edition, pp. 141-150, John Wiley & Sons.
- [B.7] Stippa, S.R., **K.P. Ferentinos**, G.P. Petropoulos. 2020. An Exploration of the Panther Mountain Crater Impact Using Spatial Data and GIS Spatial Correlation Analysis Techniques. *Techniques for Disaster Risk Management and Mitigation*, pp.111-123, John Wiley & Sons.

## Theses

- [T.1] K.P. Ferentinos, 2002. *Neural Network Fault Detection and Diagnosis in Deep-Trough Hydroponic Systems*. PhD Dissertation, Cornell University Libraries, Ithaca, NY, 195 p.
- [T.2] K.P. Ferentinos, 1999. *Artificial Neural Network Modeling of pH and Electrical Conductivity of Hydroponic Systems*. MS Thesis, Cornell University Libraries, Ithaca, NY, 97 p.
- [T.3] K.P. Ferentinos, 1997. *Development of a 'Fog System' Model Using an Optimization Technique*, BSc/MSc Thesis, Dept. of Agricultural Engineering, Agricultural University of Athens, Greece (in Greek).

## Teaching Experience

University	Position	Duration	Courses
<b>National &amp; Kapodistrian University of Athens</b> Dept. of Mathematics	Adjunct Lecturer & Adjunct Assoc. Prof. (ΠΔ 407)	<b>11 semesters</b> (2005-2011 & Spr. 2017)	- Computer Science I (MATLAB, Python) - Computer Science II (Java) - Programming Languages (Java) - Computational Science & Technology
	Researcher	<b>3 semesters</b> (2014-2016)	- Computational Complexity - Design & Analysis of Algorithms
<b>Agricultural Univ. of Athens</b> Informatics Laboratory	Adjunct Lecturer (ΠΔ 407)	<b>5 semesters</b> (2008-2010)	- Introduction to Computer Science
	Adjunct Assoc. Professor (ΠΔ 407)	<b>1 semester</b> (2019-2020)	- Computer Programming & Applications (Python)
<b>Cornell University</b> Dept. of Bio. & Env. Eng.	Postdoctoral Researcher	<b>2 semesters</b> (2003-2004)	- Introduction to Computing (Java) - Biologically Inspired Optimization (post-graduate)
<b>Technological Institute of the Ionian Islands</b> - Dept. of Informatics in Administration & Economics - Dept. of Informatics and Telecommunication Tech.	Adjunct Asst. Prof.	<b>5 semesters</b> (2010-2013)	- Object-Oriented Programming (C++) - Advanced Programming (Java) - Introduction to Algorithms - Introduction to Algorithms and Programming (C) - Programming II (C++) - Introduction to Computer Science

## Research Experience

### A. Positions:

#### 2016 – present: Senior Researcher (2020 – present), Researcher (2016 – 2020)

Hellenic Agricultural Organization – Dimitra, Dept. of Ag. Engineering

*Research areas:* Smart agriculture, computational intelligence, machine learning, wireless sensor networks, GIS

#### 2014 – 2015: Research Fellow

University of Athens, Dept. of Mathematics

*Research areas:* Complexity of algorithms, optimization, modelling, computational intelligence

#### 2013 – 2015: Postdoctoral Fellow

University of Thessaly, Dept. of Agriculture

*Research areas:* Intelligent control, wireless sensor networks, environmental control

#### 2002 – 2013: Research Fellow

Agricultural University of Athens, Lab. of Informatics

*Research areas:* Neural networks, pattern recognition, biosensors, wireless sensor networks

#### 2003 – 2004: Postdoctoral Fellow

Cornell University, Dept. of Ag & Bio Engineering

*Research areas:* Computational intelligence, controlled environment agriculture

## B. Projects (as a Researcher at H.A.O. “Dimitra”):

**Project PI:** “VR-Park: Augmented reality system for the promotion and touring of urban parks”. Funded by EU and Greek resources (Operational Programme Competitiveness, Entrepreneurship and Innovation 2014-2020 (EPAnEK)). Total budget: 761 K€ / Principal partner budget: 208 K€. Duration: 24 months (9/2018 – 9/2020).

**Project PI:** “WeeDetect - Intelligent system for weed identification and spraying necessity assessment through biodiversity indices”. Action 2 of sub-measures 16.1-16.5 “Cooperation for environmental projects, environmental practices and actions for climate change” of regional and national scope of the Rural Development Programme (RDP) 2014-2020. Budget: 288 K€ / Principal partner budget: 103 K€. Duration: 34 months (2/2023 - 8/2025).

**Partner leader:** “PPP exposure models for 3D orchards considering spraying technologies in Southern Europe” EFSA call: GP/EFSA/ENCO/2020/03 - Partnering grants Budget: 183 K€ / Partner budget: 29 K€. Duration: 24 months (10/2021-10/2023).

**Partner leader:** “Weedetective – Smart mobile application for automatic weeds detection”. Funded by EU and Greek resources (Operational Programme Competitiveness, Entrepreneurship and Innovation 2014-2020 (EPAnEK)). Total budget: 193 K€ / Partner budget: 74.4 K€. Duration: 30 months (2020 – 2023).

**Partner leader:** “Innovative solutions for the sustainable and environmentally friendly plant protection of Greek fruit and vegetables in the Europe of the future” (InnoPP) (project code: TAEDR-0535675). Greece 2.0 - National Recovery and Resilience Plan, Action: 'Flagship actions in interdisciplinary scientific areas of special interest for the connection to the productive fabric'. Budget: 4.9 M€ / Partner budget: 700 K€. Duration: 28 months (2023-2025).

**Member of research team:** “Green\_BioHeat – Utilization of by-products from biogas plants for greenhouse heating and production of high value-added agricultural products with reduced environmental footprint”. Funded by EU and Greek resources (Operational Programme Competitiveness, Entrepreneurship and Innovation 2014-2020 (EPAnEK)). Total budget: 399 K€ / Partner budget: 74.4 K€. Duration: 30 months (2020 – 2023).

**Member of research team:** “FARMADSS – Development of an innovative support system for cotton production with the use of satellite remote sensing, IoT sensors and advanced agricultural models”. Funded by EU and Greek resources (Operational Programme Competitiveness, Entrepreneurship and Innovation 2014-2020 (EPAnEK)). Total budget: 250 K€ / Partner budget: 24.8 K€. Duration: 30 months (2020 – 2023).

## Professional Activities

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### A. Reviewer / editor:

#### **Editor or Guest editor in Journals:**

- **Associate Editor:** Biosystems Engineering (Elsevier): 2021 – present.
- **Co-Editor:** “AMA, Agricultural Mechanization in Asia, Africa and Latin America”, ISSN 0084-5841: 2018 – present.
- **Guest editor:** Special issue “Computational Intelligence in Agriculture and Natural Resources”, “Inventions” journal (MDPI): 2019.

#### **Reviewer for the following journals:**

- *Algorithms (MDPI)* [2 reviews]
- *Applied Computational Intelligence and Soft Computing (Hindawi)*
- *Applied Engineering in Agriculture (American Society of Ag. & Bio. Engineers)* [2 reviews]
- *Applied Numerical Mathematics (Elsevier)* [2 reviews]
- *Biosystems Engineering (Elsevier)* [19 reviews]
- *Chemical Product and Process Modeling (The Berkeley Electronic Press)*
- *CIGR Ejournal (Commission Internationale du Génie Rural)*
- *Computer Networks (Elsevier)*



- *Computers and Electronics in Agriculture (Elsevier)* [14 reviews]
- *Ecological Informatics (Elsevier)*
- *Energies (MDPI)*
- *Energy and Buildings (Elsevier)*
- *Engineering Structures (Elsevier)*
- *Environmental Modelling and Software (Elsevier)*
- *Frontiers in Plant Science* [2 reviews]
- *IEEE Transactions on Evolutionary Computation (IEEE)*
- *Information Sciences (Elsevier)*
- *International Journal of Applied Earth Observation and Geoinformation (Elsevier)*
- *International Journal of Chemical Engineering (Hindawi)*
- *International Journal of Distributed Sensor Networks*
- *International Journal of Intelligent Computing and Cybernetics*
- *International Journal of Modelling, Identification and Control (Inderscience)*
- *International Journal of Remote Sensing and Remote Sensing Letters*
- *International Journal on Sensor Networks (Inderscience)*
- *Journal of AI and Data Mining*
- *Journal of Systems and Software (Elsevier)* [2 reviews]
- *Memetic Computation (Springer)*
- *Modeling, Identification and Control (DOAJ)*
- *Neural Computing & Applications (Springer)*
- *PLOS One (Public Library of Science)*
- *Polish Journal of Environmental Studies*
- *Remote Sensing (MDPI)*
- *Scientific Reports (Nature Publishing Group)*
- *Sensors (MDPI)*
- *Soft Computing (Elsevier)*
- *The Computer Journal (Oxford Journals)*
- *Transactions of the ASABE (American Society of Ag. & Bio. Engineers)* [3 reviews]
- *Wireless Personal Communications (Springer)*

**Reviewer for the following conferences:**

- - 11<sup>th</sup> Annual Mediterranean Ad Hoc Networking Workshop (2012)
- - IEEE CCECE-2010 (23<sup>rd</sup> Canadian Conf. On Electrical & Computer Engineering)
- - 3<sup>rd</sup> Int'l Conf. on Geosensor Networks 2009
- - 4<sup>th</sup> IEEE/ACM DCOSS-2008
- - ICC 2007 Wireless Communications Symposium
- - IEEE MASS-2006
- - 16<sup>th</sup> IFAC World Congress 2005
- - Several CIGR, ASABE, EurAgEng conferences

**B. Conference Committees / Chairs:**

**Member of program committees:**

- 19<sup>th</sup> EPIA Conference on Artificial Intelligence (EPIA2019) (Thematic track: Artificial Intelligence and IoT in Agriculture (AIoTA)), September 2019
- 4<sup>th</sup> International Conference on Geosensor Networks, July 2011
- Int'l Conference on Intelligent Networking and Collaborative Systems (INCoS 2010)
- Int'l Conference on Intelligent Networking and Collaborative Systems (INCoS 2009)
- 3<sup>rd</sup> International Conference on Geosensor Networks, July 2009
- 4<sup>th</sup> IEEE/ACM International Conference on Distributed Computing in Sensor Systems (DCOSS), June 2008

**Member of organizing committees:**

- AgEng2024, 1-4 July 2024, Athens, Greece
- 10<sup>th</sup> Greek Conference of “Hellenic Society of Agricultural Engineers” (2017)

**Chair:**

- Chair: Session “*Neural Networks*” at 4<sup>th</sup> International Conference on Artificial Intelligence in Agriculture”, Budapest, Hungary (June 2001)
- Chair, AgEng2024 conference, 1-4 July 2024, Athens, Greece
- Co-chair: Session “*Engineering Technology*” at 8<sup>th</sup> International Conference on Precision Agriculture”, Minneapolis, Minnesota, USA (July 2006)
- Co-chair: Session “*Innovation and New Technologies*” at 10<sup>th</sup> Greek Conference of “Hellenic Society of Agricultural Engineers” (September 2017).