PERSONAL INFORMATION

Nikolaos Mellios

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Gender Male | Date of birth 20/04/1982 | Nationality Greek

WORK EXPERIENCE

December 2013 – to present

Research Associate

a) Hydrology and Aquatic Systems Analysis Laboratory, Department of Civil Engineering, University of Thessaly, Pedion Areos, 38334, Volos, Greece
Supervisor: Professor Chrysi Laspidou

1. Participation in the Research Program: **"*Low-Cost Innovative technology for Water Quality Monitoring and Water Resources Management for Urban and Rural Water Systems in India —LOTUS"*,** funded by the European Commission as part of the program: **Horizon 2020 EU-India. (**https://www.lotus-india.eu/**)**

   Responsibilities: a) Groundwater modelling in case studies of India, b) Monitoring critical qualitative parameters through an innovative multi-sensor which is being developed as part of the project aimed at implementation in Indian areas.

   Leasing Contract by the Research Committee, University of Thessaly, 01/07/2019 – 31/12/2019.

2. Participation in the Research Program: **"*Sustainable Integrated Management for the Nexus of water-land-food-energy-climate for a resource-efficient Europe—SIM4NEXUS"*,** funded by the European Commission as part of the program **Horizon 2020 Water-2b.** (https://www.sim4nexus.eu/)

   Responsibilities: a) Design and exploration of the interfaces between the components of the Nexus, namely water, land use, food, energy and climate; b) Search and collection of data concerning the Nexus components from ELSTAT, Eurostat etc., as well as from thematic models produced by the project partners (meteorological, energy, financial, etc., c) Crop recording per River Basin District (RBD) and calculation of irrigation needs based on crop type and irrigation system, d) Development of a system dynamics model (SDM) in Stella software environment, for Greece, at RBD level, e) Writing project deliverables.

   Leasing Contract by the Research Committee, University of Thessaly, 08/02/2017 – 12/07/2019.

3. Participation in the Research Program: **"*Integrated Support System for Efficient Water Usage and Resources Management (ISS-EWATUS)"*,** funded by the EU 7th Framework Programme, Specific programme Cooperation Information and Communication Technologies. (http://www.issewatus.eu/)

   Responsibilities: Data processing and modeling for the development of a spatio-temporal water simulation tool in Skiathos, Greece and in Sosnowiec, Poland.

   Leasing Contract by the Centre for Research and Technology Hellas (CERTH), 01/01/2015 – 31/01/2017.

4. Participation in the Research Program: **"*Development of an Integrated System for the Water Resources Quality and Quantity Monitoring and Management of Agricultural Watersheds Under Climate Change Conditions. Application to Lake Karla Watershed (HYDROMENTOR)"*,** General Secretariat for Research and Technology. National Action "Cooperation". (http://www.hydromentor.uth.gr/)

   Responsibilities: a) Simulation of Lake Karla under climate change scenarios through PCLake model. b) Prediction of Lake's trophic state at the end of the short-term period 2030-2050 for three different climate change scenarios. c) Prediction of Lake's trophic state at the end of the

long-term period 2080-2100 for three different climate change scenarios.

Subsidiary participation in the program, January 2014 – June 2015.

5. Participation in the Research Program: "*Mathematical Modeling of Microcystis aeruginosa as a Key-Player in Lakes Under Reconstruction (LAKEREMAKE)*", funded by the Hellenic General Secretariat for Research and Technology, program ARISTEIA II. (http://www.lakeremake.uth.gr/)

   Responsibilities: a) Mathematical Modeling of Lake Karla via PCLake software package. b) Determination of nutrient flows and abiotic environment of Lake Karla. c) Microcystin Aeruginosa dynamics modeling. d) Experimental measurements of hepatotoxic microcystins and mathematical modeling. e) Adjust CAEDYM model on the conditions of Lake Karla. f) Develop the practical guide-manual concerning microcystins removal methods using absorbent nanoscale sustances. g) Contribution to writing the work deliverables of the program.

   Leasing Contract by the Research Committee, University of Thessaly, 01/04/2014 – 31/12/2014.

b) Traffic, Transportation and Logistics Laboratory - TTLog, Department of Civil Engineering, University of Thessaly, Pedion Areos, 38334, Volos, Greece.
Supervisor: Associate Professor Eftihia Nathanail.

1. Participation in the Research Program: *"Enhancing Excellence and Innovation Capacity in Sustainable Transport Interchanges —ALLIANCE"*, funded by the European Commission as part of the program: **Horizon 2020. (**http://alliance-project.eu/**)**

   Responsibilities: Transport Systems Modelling.

   Leasing Contract by the Research Committee, University of Thessaly, 01/11/2018 – 31/12/2018.

c) Centre for Research and Technology Hellas (CERTH), 6th km Charilaou-Thermi Rd, P.O. Box 60361, GR 57001 Thermi, Thessaloniki
Supervisor: Professor Chrysi Laspidou

1. Participation in the Research Program: **"*Integrated Support System for Efficient Water Usage and Resources Management (ISS-EWATUS)*"**, funded by the EU 7th Framework Programme, Specific programme Cooperation Information and Communication Technologies. (http://www.issewatus.eu/)

   Responsibilities: Data processing and modeling for the development of a spatio-temporal water simulation tool in Skiathos, Greece and in Sosnowiec, Poland.

   Leasing Contract by the Centre for Research and Technology Hellas (CERTH), 01/01/2015 – 31/01/2017.

March 2015 – May 2019   **Providing Consulting Services**
Municipal Water and Sewerage Company of Skiathos (DEYAS)
Supervisor: Ioannis Sarris, director

1. Worked on designing and creating an Internet of Things — ioT data control and management system.

   Leasing Contract by the Municipal Water and Sewerage Company of Skiathos (DEYAS), 08/11/2018 – 08/05/2019.

2. Worked under the research program: **"Holistic Surface Water and Groundwater Management for Sustainable Cities—Water4Cities"**, funded by the European Commission as part of the program: Horizon 2020 Marie Skłodowska-Curie Research and Innovation Staff Exchanges (RISE). (http://www.water4cities.eu/)

   Responsibilities: a) Real-time monitoring of urban water resources by installing sensors measuring critical qualitative parameters, b) Developing seamless data transfer techniques, c) Designing optimum data visualization, d) Developing of a decision making system for optimal water management and minimization of the environmental impact.

   Leasing Contract by the Municipal Water and Sewerage Company of Skiathos (DEYAS), 02/10/2017 – 28/02/2019.

3. Worked under the research program: **"*Integrated Support System for Efficient Water Usage*

and Resources Management (ISS-EWATUS)", funded by the EU 7th Framework Programme, Specific programme Cooperation Information and Communication Technologies. (http://www.issewatus.eu/)

Responsibilities: a) Selection of sensors and installation within Water Distribution Systems (WDS). b) Design, selection and installation of water consumption sensors at households c) Development of a water consumption practice model d) Development of spatio-temporal water distribution model. e) Development of the integrated Decision Support System (DSS) at urban level. f) Plan of the validation and evaluation process. g) Indicators for measurement of impact. h) Participation in writing the work deliverables concerning the development of the DSS for effective water use at household level and development of the integrated DSS at urban level.

Leasing Contract by the Municipal Water and Sewerage Company of Skiathos (DEYAS), 23/03/2015 – 25/08/2017.

Sep. 2014 – Dec. 2015	**Teaching Assistant**

Department of Civil Engineering, University of Thessaly, Pedion Areos, 38334, Volos, Greece

• Undergraduate Program of Civil Engineering Department. Teaching course: "Chemistry for Engineers".

• Undergraduate Program of Civil Engineering Department. Teaching course: "Chemistry and Water Treatment".

EDUCATION

Dec. 2013 – to present	**Doctor of Philosophy candidate (PhD cand.)**

Department of Civil Engineering, University of Thessaly, Pedion Areos, 38334, Volos, Greece

• Research field: Sustainability of Sensitive Water resources.

• Ph.D. Dissertation Title: Mathematical Modeling of cyanobacteria and toxins: Application in Lake Karla

Oct. 2011 – Nov. 2013	**Master of Science in Applied Engineering and Systems' Simulation**

Department of Civil Engineering, University of Thessaly, Pedion Areos, 38334, Volos, Greece

• Research field: Analysis and simulation of hydraulic and water resource systems

• MSc Thesis: Mathematical Modeling and Simulation of the "New" Lake Karla with the PCLake Software: Hydrology, Water Balance, Quality and Ecology.

Sep. 2002 – July 2011	**5-year Diploma in Environmental Engineering**

Department of Environmental Engineering, Technical University of Crete, Chania, Greece

• Bachelor Thesis: Control of odors in Sewage Water Treatment of Chania using activated carbon/oxidants (Purafil).

European Education Programs	**3rd EINS summer school: From Smart Cities to Engaged Citizens**, Volos, July 13 – 20, 2014.

• Topic: Investigation of an interdisciplinary approach on the design of ICT tools and urban interventions that can support a range of local citizen initiatives in contemporary cities.

Istanbul Qualitative Lectures (ISTQL), Istanbul University, Istanbul, Turkey, July 6 – 11, 2015.

• Topic: Data Mining with R.

PERSONAL SKILLS

Mother tongue	Greek

Other languages	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
	Proficiency Michigan (ECPE) επίπεδο C2				
German	B2	B2	B2	B2	B2
	Goethe Institut Zertifikat επίπεδο B2				

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

Computer skills	
	• **Microsoft Office** Suite (Technical University of Crete certificate)
	• Mathematical Package **Matlab**
	• Mathematical Shallow Lakes simulation model **PCLake**
	• Advanced three-dimensional Groundwater Simulation Model **GMS-Modflow**
	• Hydrological Runoff Simulation Package **UTHBAL**
	• Hydrologic Engineering Center's River Analysis System **HEC-RAS**
	• Software application for 2D and 3D Computer-Aided Design **AutoCAD**
	• Water Distribution Analysis and Design Software **WaterCAD**
	• Water Distribution Piping Systems modeling software **EPANET**
	• Statistical Analysis software package **SPSS**
	• Geographic information systems software package **ArcGIS**
	• Machine learning and data visualization software package **Orange**
	• Programming language **R**

Military Service   Accomplished in the Marine forces

Driving licence   Category B

ADDITIONAL INFORMATION

Publications in Scientific Journals

1. Kenda, K., **Mellios, N.**, Senožetnik, M., Pergar, P., (2019). Architecture for Stream Mining in Water Management, submitted for publication in *Frontiers* on 25/02/2019 and is still under review.

2. Laspidou, C. S**., Mellios, N.**, & Kofinas, D. (2019). Towards Ranking the Water–Energy–Food–Land Use–Climate Nexus Interlinkages for Building a Nexus Conceptual Model with a Heuristic Algorithm. *Water*, *11*(2), 306.

3. **Mellios, N**., Koopman, J., & Laspidou, C. (2018). Virtual Crop Water Export Analysis: The Case of Greece at River Basin District Level. *Geosciences*, *8*(5), 161.

4. Laspidou, C., Kofinas, D., **Mellios, N**., Latinopoulos, D., and Papadimitriou, T. (2017). Investigation of factors affecting the trophic state of a shallow Mediterranean reconstructed lake. *Ecological Engineering*, *103*, 154-163.

5. **Mellios, N.,** T. Papadimitriou and C.S. Laspidou (2016). Predictive modelling of microcystin concentrations in a hypertrophic lake, by means of Adaptive Neuro Fuzzy Inference System (ANFIS), *European Water, 55,* 91-103.

6. Kopasakis, K., C.S. Laspidou, M. Spiliotopoulos, D. Kofinas and **N. Mellios** (2016). Numerical Investigation of Wind Driven Circulation and Horizontal Dispersion in the Surface Layer of a Re-flooded Shallow Lake, Environmental Processes, 3(3), pp. 693-710.

7. **Mellios, N.,** D. Kofinas and C.S. Laspidou (2015). Water management as a key component in urban planning of the future cities, Aeihoros, 22: 105-119.

8. **Mellios, N.,** D. Kofinas and C.S. Laspidou (2015). Mathematical Modelling of Trophic State and Nutrient Flows of Lake Karla using the PCLake Model, Environmental Processes, 2(1), pp. 85-100.

9. Kofinas, D., **N. Mellios,** E. Papageorgiou and C.S. Laspidou (2014). Urban Water Demand Forecasting for the Island of Skiathos. Procedia Engineering, 89, pp. 1023-1030.

Conference proceedings with peer review

10. K. Kenda, J. Peternelj, D. Kofinas, **N. Mellios** and M. Senoţetnik (2019). Usage of incremental learning in the dynamic water systems, Cemepe and Secotox conference proceedings 2019.

11. S. Rizou, K. Kenda, M. Senozetnik, P. D. Ritsos, S. Mansoor, D. Kofinas, E. Datsika, C. Papadopoulou, P. Pergar and **N. Mellios**, (2019). Water4Cities data collection, analysis and visualization tools supporting smart water management scenarios, Cemepe and Secotox conference proceedings 2019.

12. Klemen, K., S. Rizou, **N. Mellios**, D. Kofinas, P.D. Ritsos, C.S. Laspidou (2018). Smart Water Management for Cities, Fragile Earth at SIGKDD 2018, London, United Kingdom.

13. Laspidou, C. S., Kofinas, D. T., **Mellios, N.** K., & Witmer, M. (2018). Modelling the Water-Energy-Food-Land Use-Climate Nexus: The Nexus Tree Approach. In *Multidisciplinary Digital Publishing Institute Proceedings* (Vol. 2, No. 11, p. 617).

14. Rizou, S., Kenda, K., Kofinas, D., **Mellios, N.**, Pergar, P., Ritsos, P. D., ... & Spyropoulou, A. (2018). Water4Cities: An ICT Platform Enabling Holistic Surface Water and Groundwater Management for Sustainable Cities. In *Multidisciplinary Digital Publishing Institute Proceedings* (Vol. 2, No. 11, p. 695).

15. Kofinas, D., E. Papageorgiou, C.S. Laspidou, **N. Mellios** and K.N. Kokkinos (2016). Daily

multivariate forecasting of water demand in a touristic island with the use of artificial neural network and adaptive neuro-fuzzy inference system, 2016 International Workshop on Cyber-Physical Systems for Smart Water Networks (CySWater), Vienna, Austria, 11th April, 2016.

16. Papadimitriou, T., **N. Mellios**, D. Kofinas, C.S. Laspidou and K. Kormas (2015). Monitoring Indicators of Microcystins in a Newly Re-Constructed Mediterranean Lake., Proceedings of the EYE-EEDYP-EYS Conference: Integrated water resources management in the new era, Athens, Greece, December 10-12, 2015.

17. **Mellios, N.,** D. Kofinas, E. Papageorgiou and C.S. Laspidou (2015). A Multivariate Analysis of the Daily Water Demand of Skiathos Island, Greece, Implementing the Artificial Neuro-Fuzzy Inference System, Proceedings of the 36th IAHR World Congress Conference, Hague, Netherlands, June 28-July 3, 2015.

18. Latinopoulos, D., I. Kagalou, **N. Mellios**, D. Kofinas, T. Papadimitriou, S. Mimis and C.S. Laspidou (2015). What ifs In Lake Karla, Proceedings of the 9th World Congress of EWRA "Water Resources Management in a Changing World: Challenges and Oportunities Conference, Istanbul, Turkey, June 10-13, 2015.

19. Kopasakis, K., C.S. Laspidou, M. Spiliotopoulos, D. Kofinas and **N. Mellios** (2015). 3D Numerical Modelling of Wind Driven Circulation and Horizontal Dispersion in a Reconstructed Shallow Lake. Proceedings of the 9th World Congress of EWRA "Water Resources Management in a Changing World: Challenges and Oportunities Conference, Istanbul, Turkey, June 10-13, 2015.

20. Kofinas, D., **N. Mellios** and C.S. Laspidou (2015). Spatial and Temporal Disaggregation of Water Demand and Leakage of the Water Distribution Network in Skiathos, Greece. Proceedings of the 2nd International Electronic Conference on Sensors and Applications, November 15-30, 2015.

21. **Mellios, N.,** D. Kofinas and C.S. Laspidou (2014). Mathematical modeling of trophic state of Lake Karla using the PCLake model, PREXII Skiathos - 12th International Conference on Protection & Restoration of the Environment, Skiathos, Greece, 29 June-3 July, 2014.

Conference proceedings with abstract review

22. Laspidou, C.S., **N., Mellios** (2019). "Modeling the Water-Energy-Food-Land Use-Climate Nexus: the Greek Case Study". International Conference of the System Dynamics Society, Albuquerque, New Mexico, July 21-25, 2019.

23. **Mellios, N.**, T. Papadimitriou (2015). "Mathematical modeling of cyanobacteria: Lake Karla". 2nd Environmental Conference of Thessaly, Skiathos, Greece, September 26-28, 2015.

24. Laspidou C., K. Kormas, I. Kagalou, A. Loukas, K. Kopasakis, Th. Papadimitriou, **N. Mellios,** D. Kofinas, D. Latinopoulos, M. Spiliotopoulos, L. Vasiliades, K. Kokkinos, S. Mimis (2015). "Mathematical modelling of Microcystis aeruginosa as a Key-player in Lakes under Reconstruction—the LAKEREMAKE project, Fifth International Conference of Environmental Management, Engineering, Planning and Economics (CEMEPE) and to the SECOTOX Conference, Mykonos, Greece, June 14-18, 2015.