



**TECHNICAL
UNIVERSITY
OF CRETE**

In the spotlight

Awards & Distinctions

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Prof. Markos Papageorgiou, Distinguished Lecturer at the University of Toronto
Canada, February 2018



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In March 2016, the External Evaluation Committee of the Hellenic Quality Assurance & Accreditation Agency (HQA) [www.hqaa.gr] evaluated the Technical University of Crete at the highest possible rank: **“Worthy of Merit”**. *“Research is a core mission of the Institution and as a result, TUC delivers scientific output of high calibre and volume. In terms of research publications, TUC is one of the most productive research institutions in Greece and compares very favorably with peer institutions in Europe and North America. The number of grant-funded projects has more than doubled since 2012.”* With these words, the HQA External Evaluation Report for the Technical University of Crete confirms the high-level research produced by TUC.

In addition, in the ShanghaiRanking's [www.shanghairanking.com] Global Ranking of Academic Subjects for the year 2017, the Technical University of Crete, ranked 151-200 in the subject of Civil Engineering and 31st in the list of the world's best universities for Oil, Gas, and Petroleum Engineering, according to the results of the CEOWORLD magazine university rankings.

This booklet describes selected international distinctions of our institution during the year of 2018, beginning with the most recent ones.

Minos Garofalakis has been selected as a Fellow of ACM



Professor Minos Garofalakis of the School of Electrical and Computer Engineering has been named **ACM Fellow** by the **Association for Computing Machinery (ACM)**, the world's largest and most prestigious association of computing professionals. Following his selection as **ACM Senior Member** in 2009 and **ACM Distinguished Member** in 2011, he is now among the **ACM Fellows** who comprise just 1% of ACM's worldwide membership. This highly prestigious honor is given for his contributions to data processing and analytics, particularly data streaming, approximation and uncertainty.

Selection of ACM members as Fellows is based on professional experience, as well as significant achievements in the computing field. For the year of 2018, ACM **has named 56 ACM Fellows** for significant contributions in various technological areas including augmented reality, algorithmic game theory, data mining, computer architecture, mobile networks, robotics, systems security, and Internet applications. The accomplishments of the 2018 ACM Fellows underpin the technologies that define the digital age and greatly impact our professional and personal lives.

Election of Professor Evangelos Gidarakos as President of the International Organization IWWG



Prof. Evangelos Gidarakos (School of Environmental Engineering) was unanimously elected **President of the [International Scientific Organization IWWG](#) - International Waste Working Group** for the period **2021-2022**, among several distinguished colleagues from all over the world. This election also requires being vice-presidency for the period 2019-2020, during the **[International Scientific Conference VENICE 2018 - ENERGY FROM BIOMASS AND WASTE](#)**. After a ten year collaboration of the **Laboratory of Toxic and Hazardous Waste Management** with IWWG and the co-organization of six successful international scientific conferences at the seat of TUC, the 18 members of the IWWG's managing board acknowledged the contribution made so far by Prof. Evangelos Gidarakos on the field of waste management, as well as his ability to further develop the actions of IWWG.

International Awards and Distinctions for DSSL



Four new international awards and distinctions for the **[Dynamic Systems and Simulation Laboratory of TUC](#)**, the first two of which are in the context of the ERC Advanced Grant (2013-1018) TRAMAN21:

- **Prof. Markos Papageorgiou** and the **TRAMAN21 Team** received the **2018 Outstanding ITS Application Award** from the **[IEEE Intelligent Transportation Systems Society](#)** for their contributions to "**Vehicle Automation and Communication Systems and Applications**". The project **[TRAMAN21](#)** was completed at DSSL and was funded by an **ERC Advanced Grant (2013-1018)**. The award was presented to Assoc. Prof. Ioannis Papamichail during the award ceremony of the **[21st IEEE International Conference on Intelligent Transportation Systems, Maui, Hawaii, USA, November 4-7, 2018](#)**.

- [Dr. Maria Kontorinaki](#), a former PhD student within TRAMAN21 and now a Lecturer at the University of Malta, received the **2nd Prize for the Best PhD Dissertation Award 2018** from the IEEE Intelligent Transportation Systems Society for her doctoral dissertation "**Advanced Nonlinear Control Concepts for Freeway Traffic Networks**". The award was presented at the same conference as above.
- [Dr. Anahita Jamshidnejad](#) (Delft University of Technology, Netherlands) received the **1st Prize for the Best PhD Dissertation Award 2018** from the IEEE Intelligent Transportation Systems Society. Dr. Jamshidnejad visited DSSL for two months during her doctoral studies and Prof. Markos Papageorgiou was a co-supervisor of her doctoral thesis.
- [Prof. Markos Papageorgiou](#) was selected to become an **IEEE Life Fellow** from January 1, 2019.

Professor Markos Papageorgiou was awarded the title of Tsinghua Distinguished Visiting Professor

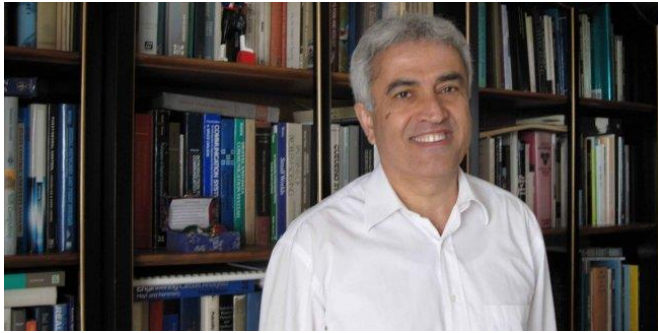


On September 27, 2018, [Professor Markos Papageorgiou](#) was awarded the title of [Tsinghua Distinguished Visiting Professor](#), for a period of three years (2018-2021) in recognition of his academic contribution.

The appointment ceremony was held in the Department of Civil Engineering at [Tsinghua University](#). The ceremony started with a welcome speech by Jianping WU, Director of Tsinghua-Cambridge-MIT Future Transport Centre. He briefly introduced Professor Markos Papageorgiou and his brilliant achievements. On behalf of the School of Civil Engineering, Professor Keifei Li, Vice Dean of the School, awarded Markos Papageorgiou the certificate of Distinguished Visiting Professor. Over 30 university staff and students witnessed the ceremony. Following the ceremony, Professor Papageorgiou delivered a talk entitled "**Traffic Management for the 21st Century**".

Tsinghua Distinguished Visiting Professor is an academic honorary title, which is awarded to top professors and scholars worldwide who have a high international reputation and can play an important role in talent training, scientific and academic research for Tsinghua.

Yannis A. Phillis was elected as a Fellow of the European Academy of Sciences EurASc



Yannis A. Phillis, Emeritus Professor and former Rector at the Technical University of Crete, was elected as a **Fellow of the European Academy of Sciences** (EurASc). The **European Academy of Sciences** is a non-profit, non-governmental, independent organization and a fully independent international association of distinguished scholars that aims to recognize and elect to its membership the best European scientists with a vision for Europe as a whole, transcending national borders both in elections and in actions, and with the aims of strengthening European science and scientific cooperation and of utilizing the expertise of its members in advising other European bodies in the betterment of European research, technological application and social development.

Contribution of TUC to the IPCC Special Report on global warming of 1.5°C



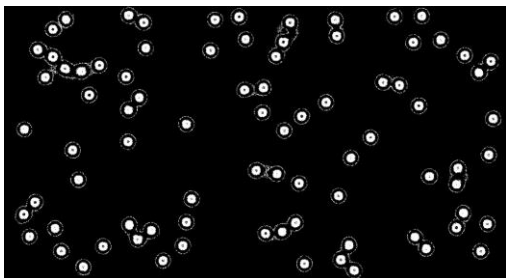
The Laboratory of Water Resources Management and Coastal Engineering of the School of Environmental Engineering contributed significant research results to the **Special Report on Global Warming of 1.5°C**. The Lab director **Prof. Ioannis Tsanis** and the research associates **Aristides Koutroulis**, **Manolis Grillakis**, **Konstantinos Seiradakis**, **Ioannis Daliakopoulos**, **Lamprini Papadimitriou** and **Ioanna Panagea**, co-authored a number of peer-reviewed papers addressing the issue of 1.5°C global warming. Some of these were cited in the Intergovernmental Panel on Climate Change (IPCC) Special Report. The most important contribution is **Figure 3.15 of chapter 3 (page 45) along with the corresponding text on changes in surface run-off of major global river basins**. It was a key reference of the Special Report for the "Runoff and fluvial flooding" chapter. These findings are included in the following published study, which studied hydrological changes, among other impacts, on a global scale:

- Betts, R.A., Alfieri, L., Bradshaw, C., Caesar, J., Feyen, L., Friedlingstein, P., Gohar, L., **Koutroulis, A.**, Lewis, K., Morfopoulos, C., **Papadimitriou, L.**, Richardson, K.J., **Tsanis, I.**, Wyser, K., 2018. [Changes in climate extremes, fresh water availability and vulnerability to food insecurity projected at 1.5°C and 2°C global warming with a higher-resolution global climate model](#). Philos. Trans. R. Soc. A Math. Phys. Eng. Sci. 376.

In addition to this work, the following studies, published by members of the Water Resources Management and Coastal Engineering Laboratory, were cited in the Special Report.

- **Koutroulis, A.G., I.K. Tsanis, I.N. Daliakopoulos**, and D. Jacob, 2013: [Impact of climate change on water resources status: A case study for Crete Island, Greece](#). Journal of Hydrology, 479, 146-158.
- **Grillakis, M.G., A.G. Koutroulis, K.D. Seiradakis**, and I.K. Tsanis, 2016: [Implications of 2°C global warming in European summer tourism](#). Climate Services, 1, 30-38.
- **Grillakis, M.G., A.G. Koutroulis, I.N. Daliakopoulos**, and I.K. Tsanis, 2017: [A method to preserve trends in quantile mapping bias correction of climate modeled temperature](#). Earth System Dynamics, 8, 889- 900.
- **Daliakopoulos, I.N., Panagea, I.S., Tsanis, I.K., Grillakis, M.G., Koutroulis, A.G.**, Hessel, R., Mayor, A.G., Ritsema, C.J., 2017: [Yield Response of Mediterranean Rangelands under a Changing Climate. Land Degradation & Development](#), 28(7), 1962-1972.
- Jacob, D., Kotova, L., Teichmann, C., Sobolowski, S.P., Vautard, R., Donnelly, C., **Koutroulis, A.G., Grillakis, M.G., Tsanis, I.K.**, Damm, A., Sakalli, A., van Vliet, M.T.H., 2018. [Climate Impacts in Europe Under +1.5°C Global Warming. Earth's Future](#).

Distinction in Xilinx Open Hardware 2018 design competition



Nikolaos Kyparissas, undergraduate ECE student, participated in the [Xilinx Open Hardware 2018 design competition](#) with his project: [“A Parallel Framework for Simulating Cellular Automata on FPGA Logic”](#) under the guidance of **Professor Apostolos Dollas** and reached finalist status in the competition, with the corresponding recognition in the official competition web site.

This entry placed in the top 5 in the undergraduate and graduate student’s category, where two awards were given. There were almost 100 entries to the competition and the participants were PhD, Master’s or Bachelor’s students.

The main contribution of this work is that with the use of FPGA technology one can simulate large cellular automata, with rules up to 21X21 (whereas typically these are 3X3 or 5X5) on large grids, with very realistic results on the modelling of physical processes, and at a 40-50 times speedup vs. highly optimized code on a recent generation multi-core general-purpose processor. The illustration is from one such model, in which atoms get attracted to each other during simulation to become molecules.

Professor Ioannis Tsanis, Invited Speaker at Tsinghua University



Professor Ioannis Tsanis has been invited as an expert speaker in the Department of **Civil Engineering of Tsinghua University** and delivered a talk entitled **"Climate Change Impact on Water Resources and Hydrometeorological Extremes"** in June 2018. He was also invited to participate in the Inaugural meeting of the **"Sky River Project" Research Network**.

Professor Ioannis Tsanis was also invited to be a member of the Scientific Advisory Committee of the **"Joint International Workshop on Global Water Cycle and Sky River 2018"**. This international workshop was chaired by Tsinghua University, Qinghai University, Chinese Academy of Meteorological Sciences, Institute of Atmospheric Physics, Chinese Academy of Sciences, boosting the "Sky River Project" International Research Network at the same time, with support from the Ministry of Science and Technology of China, China Science and Technology Exchange Center, the Administrative Center for China's Agenda 21, and the State Key Laboratory of Hydrosience and Engineering of Tsinghua University.

Golden Prize for the European Research Project BEWEXMIN



The **European Research Project BEWEXMIN** was awarded the **golden prize** from Poland's business and economic magazine 'Investment Market' ('Rynek Inwestycji'), for its significant contribution to resolve problems of the mining industry. BEWEXMIN is funded by the European Commission (Research Fund for Coal and Steel) and mining companies. It aims to develop methods to improve the performance of bucket wheel excavators working in difficult mining conditions including hard rock formations with excessive cutting resistance. BEWEXMIN has 9 partners from EU (3 universities, 3 research institutes and 3 companies). TUC participates in BEWEXMIN with, **Prof. Michalis Galetakis**, scientific coordinator of the project and Director of the Research Unit "Quality Control-Health and Safety in Mining", and **Prof. Antonios Vafidis**, Director of the "Applied Geophysics" Laboratory. The research team includes collaborators of the above TUC laboratories: A. Vassiliou, A. Soultana, V. Deligiorgis, G. Kritikakis, N. Economou, N. Andronikidis.

Invited Talk at the United Nations Committee on the Peaceful Uses of Outer Space/COPUOS 2018



On June 27, 2018, **Konstantinos-Alketas Oungrinis**, Associate Professor at the School of Architecture of the Technical University of Crete, and **Ioannis Baziotis**, Assistant Professor of Mineralogy and Petrology at the Agricultural University of Athens, presented the **Hellenic Academic Research Initiative for the Manned Exploration of Mars: Projects on Habitats and Analogue Rock Sites** at the **COPUOS 2018 - Committee on the Peaceful Uses of Outer Space in Vienna** - **UN Office** for Outer Space Affairs.

Best Student Paper and Presentation Award | MOCAST 2018



Michael Ouroutzoglou, undergraduate student at the School of Electrical and Computer Engineering of the Technical University of Crete, received the **Best Student Paper and Presentation Award** ("Communications" category) at the **IEEE International Conference on Modern Circuits and System Technologies for Electronics and Communications (MOCAST) 2018**, for the paper:

"Intelligent Noncoherent Sequence equals Coherent Detection: Experimental Proof in Industrial RFID", Michail Ouroutzoglou, Aggelos Bletsas and George N. Karystinos.

The Conference awards two Best Student Awards, under the Electronics and Communications categories.

Professor Georgios Christidis elected as a member of QYIM



Professor **Georgios Christidis**, has been invited and approved to be a member of the International Scientific and Technical Advisory Committee for **QING YANG Institute for Industrial Minerals** (QYIM, Anhui, China | Term: 2018.1 - 2021.12) in view of his extensive expertise in Industrial Minerals and related areas. The Qing Yang Institute for Industrial Minerals is a non-profit R&D institution dedicated to the advancement and promotion of science and technology of industrial minerals and related areas for making the world green, sustainable, and better.

Associate Professor Aggelos Bletsas, Invited Speaker at 'Hot Topics in RFID'



Aggelos Bletsas, Associate Professor at the Technical University of Crete (ECE School) was invited to deliver a talk entitled '**Batteryless, Ambiently-Powered Internet of Things That Think: An Asynchronous Message Passing Approach**', (Invited Speakers - Hot Topics in RFID session) in the context of the [IEEE RFID 2018](#) (10-12 April 2018) international conference. The Hot Topics in RFID session hosts invited talks, and the year of 2018 includes invited speaks from MIT and Boeing (HRL). IEEE RFID 2018 has curated stimulating talks on current trends in RFID and IoT.

Election of Associate Professor Georgios Chalkiadakis in the EURAMAS Board of Directors



[Associate Professor Georgios Chalkiadakis](#) was elected in March 2018 in the Board of Directors of the European Association for Multi-Agent Systems (EURAMAS). There are twelve members all experts in the area of multiagent systems serving in the Board of Directors, elected for a four-year term each. Elections to replace 6/12 Board members take place every two years via electronic vote conducted at a European level among the EURAMAS members.

EURAMAS is a non-profit organization, aiming at promoting European science and technology in the area of multiagent systems. Since its establishment, EURAMAS constitutes a representative forum for European experts within the field of multiagent systems.

TUC Alumni Spyros Blanas receives the IEEE TCDE Rising Star Award



TUC Alumni [Spyros Blanas](#) received the [IEEE TCDE Rising Star Award](#) for his contributions to high-performance database management systems. The IEEE TCDE Rising Star Award is based on an individual's whole body of work in the first five years after the PhD. The award aims to promote current database researchers as they create their career.

Spyros Blanas is an assistant professor in the Department of Computer Science and Engineering at The Ohio State University. His research interest is high-performance database systems, and his current goal is to build a database system for high-end computing facilities. He has received the Google Research Faculty award. He received his Ph.D. at the University of Wisconsin–Madison and part of his Ph.D. dissertation was commercialized in Microsoft's flagship data management product, SQL Server, as the Hekaton in-memory transaction processing engine.

A few words about IEEE TCDE:

The Technical Committee on Data Engineering (TCDE) of the IEEE Computer Society is concerned with the role of data in the design, development, management and utilization of information systems. The IEEE TCDE has established four awards, one of which is the **IEEE TCDE Rising Star Award**. The goal of these highly prestigious awards is to encourage innovative long term contributions to the field of data engineering. These awards are managed by the TCDE Awards Committee.

Assoc. Prof. Katerina Mania co-organizer of a full-day tutorial at IEEE Virtual Reality 2018



Assoc. Prof. Katerina Mania co-organized a full-day tutorial at **IEEE Virtual Reality 2018**, in March 2018, in Germany on Cutting-edge VR/AR Display Technologies (Gaze-, Accommodation-, Motion-aware and HDR-enabled). The program was as follows:

Session 1: Multi-focal displays, George-Alex Koulouris, University of Durham

Session 2: Optics in AR/VR, Kaan Aksit, NVIDIA USA

Session 3: High dynamic range in VR, Rafal Mantiuk, University of Cambridge, UK

Session 4: Gaze-aware displays, Katerina Mania, Technical University of Crete

Session 5: Motion-aware displays, Christian Richardt, University of Bath, UK

Speaker notes can be found here: <http://vrdisplays.github.io/ieeevr2018>

The IEEE Virtual Reality conference is the largest and most significant conference in Virtual and Augmented Reality in the world, usually held in the USA.

IEEE Virtual Reality 2018 web page: ieeevr.org/2018/program/tutorials.html

Dimitris Angelakis received the 2018 Google Quantum Innovation Award



Dimitris Angelakis, Associate Professor at TUC, received the 2018 **Google Quantum Innovation Award**, for his work in '**Quantum simulations**'. Quantum simulators-a kind of special-purpose quantum computer - can help future engineers produce materials with new and exotic properties and chemists to understand chemical reactions. This enticing future has just taken a step forward thanks to collaboration between Google, and TUC's Professor Angelakis' research teams based in Crete and Singapore.

The award follows joint work by Prof. Angelakis' group with Google's quantum computing team to simulate quantum complex materials on Google's quantum chip. The international team has used photons in Google's quantum chip to simulate the surprising and beautiful pattern of the 'Hofstadter butterfly', a fractal structure characterizing the behavior of electrons in strong magnetic fields. They also analyzed the conductance properties of the material in the presence of disorder and shed light to the phenomenon of many-body localization. The results, published in December 1st issue of Science, show how quantum simulators are starting to live up to their promise as powerful tools.

Prof. Angelakis received the award from his collaborator **Dr. Pedram Roushan**, a Google quantum electronics engineer, during a public talk they gave together at the [Centre for Quantum Technologies](#) in Singapore in March 2018.

Prof. Markos Papageorgiou, Distinguished Lecturer at the University of Toronto



On Feb. 1 2018, **Professor Markos Papageorgiou**, Director of the Dynamic Systems & Simulation Laboratory at the Technical University of Crete, presented a free public lecture in Toronto as part of the University of Toronto, Department of **Civil+Mineral Engineering's Distinguished Lecture series**.

Professor Papageorgiou's one-hour presentation entitled **"Traffic Management for the 21st Century"** included memorable lines such as "Intelligent vehicles may lead to dumb traffic flow" and examined possible outcomes of different future scenarios. Following his presentation, knowledgeable and articulate invited panelists shared their views and provided local context. Panelists were Teresa Di Felice, *Director, Government & Community Relations, CAA*; Stephen Erwin, *Head, Intelligent Transportation Systems, MTO*; Gregg Loane, *Manager, ITS Capital Delivery, City of Toronto*. Discussion was moderated by Baher Abdulhai, Professor and Director, Toronto Intelligent Transportation Systems Centre. Dr. Judy Farvolden, Program Director at the University of Toronto Transportation Institute, moderated the audience Q & A.

The lecture was additionally sponsored by CAA <https://www.caasco.com/>.

Professor Nicolas Kalogerakis broke the 10,000 citation level as reported in to Google Scholar



Professor Nicolas Kalogerakis (School of Environmental Engineering) broke the 10,000 citation level as reported in to Google Scholar. Prof. Kalogerakis is the Director of the [Biochemical Engineering and Environmental Biotechnology Laboratory](#) of the Technical University of Crete. He has served as Vice-President of the University Council and Department Head (twice). Prior to that he was a Professor at SUNY-Buffalo (USA) and at the University of Calgary (Canada) where he climbed quickly through all ranks. In 1997, he returned to Greece as the founding faculty member of the Environmental Engineering Dept. His area of expertise focuses on bioremediation and phytoremediation technologies for the restoration of contaminated sites; protection and restoration of the marine environment (oil spills and marine litter); novel oxygenation systems and wastewater treatment.

Prof. Kalogerakis is the 5th TUC faculty member, after Prof. Markos Papageorgiou, Prof. Minos Garofalakis, Prof. C. Zopounidis and Costas Synolakis with 10,000+ citations to his work.



Quantum Innovation Award

presented to

Dimitris G. Angelakis research group

for proposal entitled

*Quantum simulation of exotic physics in driven
quantum hardware architectures*

April 2018



Panoramic view of the Technical University of Crete Campus



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