

## **Service for Academic Affairs and Student Welfare**

Studies Office

Corner Athinon and Nikola Xiouta 3040, Limassol

Tel. + 357 25 002710/11 Fax + 357 25 002682

## **ANNOUNCEMENT FOR POSTGRADUATE STUDIES / DOCTORAL LEVEL**

The Cyprus University of Technology announces the opening to apply for limited positions of postgraduate studies at doctoral level that will begin in September 2017. The Departments with their doctoral positions are as follows:

### **DEPARTMENT OF ENVIRONMENTAL SCIENCE AND TECHNOLOGY.** **CYPRUS UNIVERSITY OF TECHNOLOGY**

- **One (1) post on the following topic: "Integrated Bioprocesses: Production of Succinic Acid and Bacterial Cellulose from Winery Waste"**

**Description:** The proposed thesis deals with two important environmental issues concerning the development of sustainable alternatives to the production of materials and chemicals from petrochemical processes, as well as the management and treatment of wine waste streams (WWS). The aim of the post is to demonstrate the valorization of WWS, through the development of an integrated bioprocess for the production of succinic acid and bacterial cellulose. The successful candidate will explore the potential of wine lees to form yeast extract through enzyme treatment, the hydrolysis of other WWS (such as grape pomace, stems and prunings) to form a cost-effective feedstock rich in sugars and its consequent utilisation as fermentation media for manufacturing succinic acid and bacterial cellulose.

**Qualifications:** Candidates should possess a Bachelor's and postgraduate degree of Master's level from accredited Universities in Chemical Engineering, Chemistry, Biology, Environmental Engineering or any other related field.

**Research Advisor of the post:** Michalis Koutinas, Assistant Professor, [michail.koutinas@cut.ac.cy](mailto:michail.koutinas@cut.ac.cy), website: <http://enblab.weebly.com/>

- **Announcing the opening of one (1) position for a Doctoral Candidate in the research topic: "Treatment of cyanotoxin-contaminated water with Advanced Oxidation Processes (AOPs)".**

The presence and subsequently the removal of micropollutants like pesticides, hormones, medical drugs and naturally occurring toxic metabolites (cyanotoxins) from water resources comprises a challenge for the water and wastewater industry. In order to remove micropollutants in trace concentrations from water resources chemical oxidation technologies such as ozonation and advanced oxidation processes (AOPs) are increasingly used to treat different types of source water and wastewater. The aim of this thesis is to explore the potential application of various AOPs for the removal of a group of natural

toxins produced from the toxic strains of cyanobacteria, commonly known as cyanotoxins. The study aims to determine the tested AOPs efficiency and energy demands, toxicity of end product and unveil the transformation products. This will be a collaborative project with the CYANOSOL group of the Robert Gordon University in Aberdeen, UK.

Successful candidates must possess a Bachelor's degree from an accredited University in Chemistry or Chemical Engineering and a postgraduate degree (Master level) from an accredited University in the field of Environmental Chemistry, Analytical Chemistry, Environmental Science or Environmental Engineering. The candidates must be fluent in English. Previous experience in the above-mentioned research topic will be considered as an advantage. Funding opportunities are available for exceptional candidates.

Contact Person: Dr. Maria G. Antoniou

Tel: +357 25002277

Email: [maria.antoniou@cut.ac.cy](mailto:maria.antoniou@cut.ac.cy)

## **DEPARTMENT OF HOTEL AND TOURISM MANAGEMENT**

- **One (1) post in the following research area: «Reducing the risk of fraud and corruption in local authority's finances».**

Applicants for the aforementioned post are required to hold an accredited undergraduate degree as well as an accredited postgraduate degree in Business Administration and/or Accounting and/or Law. If the candidate holds a professional qualification such as ACCA, ACA, it will be considered an advantage. Furthermore, the candidate's academic credentials must be of high standard, the candidate should possess strong analytical skills in qualitative and quantitative research and very good knowledge of computer applications which will be utilized for the literature search and review as well as for data analysis. The candidate ought to also have an excellent command of the English Language. The candidate should be able to write his/her doctoral thesis in English. Research experience in any of the above-mentioned fields of study will be considered an advantage.

**Research Adviser:** Dr. Maria Krambia-Kapardis, Associate Professor in Accounting, [maria.kapardis@cut.ac.cy](mailto:maria.kapardis@cut.ac.cy)

- **One (1) post in the following research area: «The Impact of Photography on traveller/tourist Experiences».**

Applicants for the aforementioned post are required to hold an accredited undergraduate degree as well as an accredited postgraduate masters degree in Sociology, or in, anthropology, or in, Geography. Furthermore, candidates should possess strong analytical skills in qualitative and quantitative research, excellent command of the English Language as well as very good knowledge of computer applications. Candidates should be able to deliver their doctoral dissertation in the English language. Research experience in any of the aforementioned fields of study would be considered an advantage.

**Research Advisor:** Alexis Saveriades, Assistant Professor, [alexis.saveriades@cut.ac.cy](mailto:alexis.saveriades@cut.ac.cy)

## **DEPARTMENT OF COMMERCE. FINANCE AND SHIPPING**

- **One (1) post in the topic « Operations Management with emphasis in Shipping »**

Operations Management with emphasis in Shipping studies the learning environment of fundamental knowledge and skills related to the development and application of analytical tools essential for the support of corporate decisions. This field represents one of the key elements for the efficiency of operations management, especially in the shipping industry. Candidates should possess a Bachelor's degree and a Master's level postgraduate degree in Business Management, or Economics or Shipping Economics or Operations Management or Mathematics or Statistics or Applied Mathematics or related field of study. The doctoral candidate usually receives financial support.

**Research Advisor:** Panayiotis Andreou and Neophytos Lambertides

- **One (1) post in the topic « Finance »**

Candidates should possess a Bachelor's degree and a Master's level postgraduate degree in Finance or Economics or Applied Mathematics or related field of study. The doctoral candidate usually receives financial support.

**Research Advisor:** Christodoulos Louca

- **One (1) post in the area «International Finance» or «International Financial Management»**

Candidates should possess a Bachelor's degree and/or a Master's degree from an accredited University in at least one of the following fields: Economics, Finance, Econometrics, Business Administration, Applied Statistics. Prospective doctoral students will receive financial support from the department.

**Research Advisor:** Professor Andreas Savvides

- **One (1) post in the topic «Shipping or Shipping Management or Shipping Economics or Transportation Logistics »**

Candidates should possess a Bachelor's degree and a Master's level postgraduate degree from an accredited University in Operations Research, Econometrics or Quantitative Methods or Statistics or Finance or Business Administration or Shipping or Logistics/Supply Chain Management".

**Research Advisor:** Photis Panayides

- **One (1) post in the topic «Macro-econometric models in energy markets»**

Energy markets are extremely important for the global economy and the global industrial production. Manufacturing, refining and transportation sectors are heavily exposed to price variations of crude oil and oil products along with alternative forms of energy commodities, such as the natural gas. This topic focuses on the application of macro-econometrics models in energy markets, such as the family of Vector Autoregressive models (Structural Vector Autoregressive, Time-Varying Parameter Vector Autoregressive models, etc.). Candidates should possess a Bachelor's degree and a Master's level postgraduate degree in Economics,

Statistics, Mathematics, Shipping Economics, Business Management or a related field of study. The doctoral candidate usually receives financial support.

**Research Advisor:** Christos Savva and Dimitris Tsouknidis

- **One (1) post in the topic «Financial Education - Financial Illiteracy»**

Financial education is very important for any person who interacts in the society/economy. It is necessary and it is essential for every household trying to balance the family budget, buy housing, fund the education of children or ensure a comfortable retirement among many others.

Candidates should have a Bachelor's and Master's level postgraduate degree in Finance or Economics or Management in Education or Psychology or any other related field of study. The doctoral candidate will receive financial support.

**Research Advisor:** Dr Panayiotis Andreou

## **DEPARTMENT OF COMMUNICATION AND INTERNET STUDIES**

- **Two (2) posts on the following topic: "Mobile Health (mHealth) Technologies"**

**Description:** Chronic diseases, such as cardiovascular and respiratory diseases, are a major threat to today's healthcare systems. They account for nearly 40% of mortality cases and 75% of health care costs worldwide, while researchers predict a 42 percent increase in chronic disease cases by 2023. Much of this can be prevented through an emphasis on healthy lifestyles. Obesity alone, for example, accounts for an estimated 12 percent of the health spending growth in the United States. In this new landscape of healthcare, mobile and wearable technologies, such as physical activity trackers, have recently gained substantial interest both in research and practice as they can provide many benefits, ranging from increased awareness of one's behaviors, to empowerment and responsibility taking with one's own health, as well as opportunistic engagement in desired behaviors. The candidate will join an international team which strives to understand the long-term impact mobile health technologies have on individuals' behaviors and to design and prototype new forms of such technologies. Candidates with strong methodological background in the social sciences will conduct longitudinal studies on users' engagement with the technology as well as in behavior change, while candidates with a computer science background will work on designing and building new mobile and wearable technologies for behavior change, utilizing sensors available in smartphones and smartwatches and building new ways to visualize information and inspire action towards healthy lifestyles.

**Qualifications:** Candidates must hold either an undergraduate and a postgraduate degree in Computer Science, Computer Engineering or a relevant field with interests in Human-Computer Interaction and experience in mobile development (Android/Android Wear/iOS), or hold an undergraduate and a postgraduate degree in the Social Sciences with strong methodological background. The application of each candidate should include a detailed CV along with a brief description of research interests (maximum 2 pages).

**Financial Support:** Funding may be available from a startup grant and external research funding of the Persuasive Technologies Lab (<http://persuasive.cut.ac.cy>). Moreover, depending on their field of expertise and qualifications, candidates may be offered teaching assistant positions in the department for lab-based courses.

**Research Advisor of the Post:** Evangelos Karapanos, Assistant Professor, [evangelos.karapanos@cut.ac.cy](mailto:evangelos.karapanos@cut.ac.cy)

- **One (1) post on the following topic: "Enhancing communication networks for the Internet of Things"**

**Description:** The aim of this dissertation is to analyse the various applications of ubiquitous computing in the Internet of Things and their requirements from the network communications infrastructure within both urban and rural areas. The analysis will help to identify and resolve the open issues and enhance networked communications. The work for the above subject entails carrying out high level research that produces original results that advance knowledge in the corresponding scientific field.

**Qualifications:** Candidates must hold an undergraduate degree in Computer Science, Computer Engineering, Electrical Engineering or a relevant field. The application of each candidate should include a detailed CV along with a brief description of their research interests (maximum 2 pages) written in English.

**Financial Support:** Depending on their field of expertise and qualifications, candidates may be offered teaching assistant positions in the department for lab-based courses. Moreover, funding is currently available through on-going research projects.

**Research Advisor:** Lambros Lambrinos, Assistant Professor, [lambros.lambrinos@cut.ac.cy](mailto:lambros.lambrinos@cut.ac.cy)

- **One (1) post on the following topic: "Context awareness in the Internet of Things"**

**Description:** This dissertation will study the existing and potential applications of the Internet of Things and how they interact between them, with their users and the surrounding environment (e.g. within a smart city). The study will examine both the software and hardware (e.g. mobile devices, sensors) supporting the applications in order to identify the role of context awareness and resolve the issues identified. The work for the above subject entails carrying out high level research that produces original results that advance knowledge in the corresponding scientific field.

**Qualifications:** Candidates must hold an undergraduate degree in Computer Science, Computer Engineering, Electrical Engineering or a relevant field. The application of each candidate should include a detailed CV along with a brief description of their research interests (maximum 2 pages) written in English.

**Financial Support:** Depending on their field of expertise and qualifications, candidates may be offered teaching assistant positions in the department for lab-based courses. Moreover, funding is currently available through on-going research projects.

**Research Advisor:** Lambros Lambrinos, Assistant Professor, [lambros.lambrinos@cut.ac.cy](mailto:lambros.lambrinos@cut.ac.cy)

- **One (1) post on the following topic: "Integrating the Internet of Things in smart city environments"**

**Description:** The aim of this dissertation is to examine how the Internet of Things can be applied within smart city environments. The analysis will help to enhance the use of smart city infrastructures in order to provide an improved level of services to the citizens. The work entails carrying out high level research that produces original results that advance knowledge in the corresponding scientific field. The work for the above subject entails carrying out high level research that produces original results that advance knowledge in the corresponding scientific field.

**Qualifications:** Candidates must hold an undergraduate degree in Computer Science, Computer Engineering, Electrical Engineering or a relevant field. The application of each candidate should include a detailed CV along with a brief description of their research interests (maximum 2 pages) written in English.

**Financial Support:** Depending on their field of expertise and qualifications, candidates may be offered teaching assistant positions in the department for lab-based courses. Moreover, funding is currently available through on-going research projects.

**Research Advisor:** Lambros Lambrinos, Assistant Professor, [lambros.lambrinos@cut.ac.cy](mailto:lambros.lambrinos@cut.ac.cy)

\* In exceptional cases candidates without a postgraduate degree can be admitted in the doctoral program, with a unanimous positive decision of the Departmental Council. However, this implies that a number of additional ECTS from postgraduate courses must be completed.

## **DEPARTMENT OF MULTIMEDIA AND GRAPHIC ARTS**

- **Four (4) posts in the general area of "Technology Enhanced Learning» preferably in the topics:**

**S Multimodal, interactive technologies for learning**

**S Educational Robotics**

Candidates for this post should possess:

- Postgraduate Degree of Master's level from accredited Universities in Education, Computer Science, Educational Technology or any related field
- Very good knowledge of English language.
- Ability to organize and carry out research work.
- Excellent good computer skills and ability to learn quickly.

- Beyond the requirements that the university requests to apply for the doctoral programme, your application must include (in English) a letter of interest or statement of purpose, that explains/describes why you wish to undertake the specific studies, your research objectives and other relevant information (1-2 pages).

The successful candidates will be assigned to the "Cyprus Interaction Lab" (<http://www.cyprusinteractionlab.com/>) of Cyprus University of Technology. In parallel with their studies the successful candidates may be employed in currently active research programs and will be assigned teaching-related duties at the Department of Multimedia and Graphic Arts with appropriate reimbursement. For more information about the post and employment opportunities please contact:

**Andri Ioannou, PhD**

Assistant Professor, Department of Multimedia and Graphic Arts

Cyprus University of Technology (Cyprus) | [www.cut.ac.cy](http://www.cut.ac.cy)

email: [andri.i.ioannou@cut.ac.cy](mailto:andri.i.ioannou@cut.ac.cy) tel. +357 2500 2276, +357 2500 2059

• **Two (2) posts that relate to any one of the following two broad areas:**

- S "Design for Social Change», «Design Thinking for Social Change», "Social Entrepreneurship"
- S "Design education", "Technology-enhanced learning in Art and Design"

Candidates for this post should possess:

- A Bachelor's Degree and a postgraduate Degree of Master's level from accredited Universities in Educational Research, Educational Technology, Art and Design Education or other areas that relate to design for social change.
- Ability to work independently on research projects.
- Excellent knowledge of the English language.
- Prior experience in submitting research proposals, participation in research programs and research experience related to the above topics will be considered as an advantage.

Beyond the requirements that the university requests to apply for the doctoral programme, your application must include (in English) a letter of interest or statement of purpose, that explains/describes why you wish to undertake the specific studies, your research objectives and other relevant information (2-3 pages).

The successful applicant(s) will be associated with the intervention lab: Art + Design: elearning lab - Design for social change ([www.elearningartdesign.org](http://www.elearningartdesign.org)), and will be actively involved in the activities associated with: <http://www.ipadesinhe.org>, and <http://www.worlddesigndaycyprus.org> (1-2 days per week).

In parallel to the doctoral study, the successful applicant may /e employed in related projects. In addition, he/she may /e assigned teaching duties at the Department of Multimedia and Graphic Arts, with appropriate reim/ursement.

For any queries that relate to this doctoral offer, please contact Dr. Nicos Souleles ([nicos.souleles@cut.ac.cy](mailto:nicos.souleles@cut.ac.cy))

• **One (1) post in one of the following topics:**

S "2D and 3D Face Image Processing for Biometric Security Applications"

S "Development and Evaluation of Image Analysis Algorithms for Detecting Child Pornographic Material in Internet Applications"

Candidates for this post should possess:

- Postgraduate Degree of Master's level from accredited Universities in Computer Science or Multimedia or Electronic Engineering or any related field
- Excellent computer programming skills in a high level programming language
- Ability to organize and carry out research work independently.
- Very good knowledge of English language.
- Prior e&perience in su/mitting research proposals or participating in research programs will /e considered as an additional qualification.

The successful candidates will /e assigned to the "Visual Media Computing Research La/" (<http://www.cut.ac.cy/mga/research/vmc/>). In parallel with their studies the successful candidates may /e employed in currently active research programs and will /e assigned teaching-related duties at the Department of Multimedia and Graphic Arts with appropriate reim/ursement. In addition the successful candidates may have the opportunity to carry out part of their research work a/road through sponsored e&change programs. For more information a/out the posts and employment opportunities please contact:

Andreas Lanitis  
Associate Professor  
Director, Visual Media Computing Research La/, Dept.  
of Multimedia and Graphic Arts  
[andreas.lanitis@cut.ac.cy](mailto:andreas.lanitis@cut.ac.cy) Tel: +357 25002569

• **One (1) post in the topic « Virtual and Augmented Reality and Assistive Technologies"**

Candidates for this post should possess:

- A Postgraduate Degree of Master's level from accredited Universities in Multimedia or Computer Science or any related field  
Experience in designing and implementing virtual reality applications
- Excellent computer programming skills in a high level programming language
- Ability to organize and carry out research work independently.
- Very good knowledge of English language.



- Prior experience in submitting research proposals or participating in research programs will be considered as an additional qualification.

The successful candidates will be assigned to the "Visual Media Computing Research Lab" (<http://www.cut.ac.cy/mga/research/vmc/>). In parallel with their studies the successful candidates may be employed in currently active research programs and will be assigned teaching-related duties at the Department of Multimedia and Graphic Arts with appropriate reimbursement. In addition the successful candidates may have the opportunity to carry out part of their research work abroad through sponsored exchange programs. For more information about the posts and employment opportunities please contact:

Contact/Additional Information:

Andreas Lanitis

Associate Professor

Dept. of Multimedia and Graphic Arts

[andreas.lanitis@cut.ac.cy](mailto:andreas.lanitis@cut.ac.cy)

Tel: +357 25002569

- **One (1) post in the topic «Museum Studies»**

**Qualifications:** A Bachelor's degree and a postgraduate degree of Master's level from accredited Universities in museum studies, cultural management, sociology, anthropology, or any related field. Ability to work independently on research projects. Very good knowledge of English language. Experience with qualitative and quantitative research methodologies and previous participation in research programs will be considered an advantage.

**Note:** Besides the paperwork required by the postgraduate studies office, your application should include a 2-3 pages initial research proposal related to a suggested research project and your research interests.

**Financial Support:** In parallel to studies, the successful candidate may be involved in research related projects. Also the successful candidate may be assigned teaching-related duties at the Department of Multimedia and Graphic Arts with appropriate reimbursement.

**Research Advisor of the Post:** Assistant Professor, Dr. Theopisti Stylianou-Lambert, [theopisti.stylianou@cut.ac.cy](mailto:theopisti.stylianou@cut.ac.cy)

## **DEPARTMENT OF ELECTRICAL ENGINEERING. COMPUTER ENGINEERING AND INFORMATICS**

- **One (1) post in the following topic: Statistical machine learning models for artificial and assisted creativity**

The goal of this thesis is the development of novel Statistical Machine Learning methodologies, capable of generating novel pieces of fine arts or music. Specifically, we are targeting development of machine learning techniques capable of: (i) inferring subtle patterns in large arts collections, related to the inherent characteristics that render them novel and interesting; and (ii) utilizing the so- obtained inferential outcomes to generate their own ("imaginary") data/samples of synthetic art.

To this end, we will use Deep Generative Models, trained by means of variational (Bayesian) inference or adversarial network training techniques. Alternatively, we may employ actor-critic (reinforcement) learning setups, which enjoy close ties with adversarial network training (under certain valid assumptions). In all cases, we will put emphasis on the capability of the developed models to capture strong multidimensional interdependencies, esp. the capacity of establishing episodic memory. In addition, enabling the processing and modelling procedure to focus on a dynamically variant subset of the observed data samples will be of utmost importance (i.e., top-down feedback mechanisms).

This Thesis requires knowledge of high-level programming languages (e.g. Python), as well as affinity with Data Science.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Sotiri Chatzi at [sotirios.chatzis@cut.ac.cy](mailto:sotirios.chatzis@cut.ac.cy), Phone: +357-25002041.

- **One (1) post in the following topic: Statistical machine learning models for analysis of structured data**

The goal of this thesis is the development of novel Statistical Machine Learning methodologies, capable of extracting useful inferences from structured high- dimensional data. Specifically, we aim at statistical methods that mimic the operation of the cortex, with applications to: (i) natural language processing, and learning of associations with visual experiences; (ii) social network analysis for behavioral prediction; (iii) human skill inference and mimicking, for instance in the context of video game engines.

This Thesis requires knowledge of high-level programming languages (e.g. Python), as well as affinity with Data Science.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Sotiri Chatzi at [sotirios.chatzis@cut.ac.cy](mailto:sotirios.chatzis@cut.ac.cy), Phone: +357-25002041.

- **One (1) position in the following field: New techniques for data storage and archiving of massive and complex amounts of 2D/3D/4D Cultural assets**

Cultural Heritage (CH) is an integral element of Europe and vital for the creation of a common European identity. The rapid growth of technology has led to mass digitization of cultural assets, requiring for their cost-effective preservation, documentation, protection and presentation in online digital libraries. The aim is to shed light, through technological innovation and digital media, on all aspects of cultural heritage, both tangible (books, newspapers, photographs, drawings, manuscripts, costumes, maps, objects, archaeological sites, monuments) and intangible (eg, music, performing arts, folklore, theater), as well as their semantic interrelations, and finally enhancing their added value by reusing them in the fields of education, tourism industry, advertising and art.

The proposed research will focus on (a) the study and analysis of massive and complex amounts of multimedia 3D/4D data, (b) study and analysis of data storage and archiving in multimedia digital libraries, (c) the development of innovative methodologies for harvesting of such data sets in digital libraries, taking into account object's semantic signatures, and finally, (d) the development of innovative methodologies for reuse of such complex structures from digital libraries.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Marinios Ioannides at [marinos.ioannides@cut.ac.cy](mailto:marinos.ioannides@cut.ac.cy) .

- **One (1) position in the following field: Holistic Heritage Management**

Heritage Management is a multiparametric field facing nowadays a variety of challenges. The progressive expansion of the term of Cultural Heritage (CH) has led to a type of management of it (CH), which goes beyond the conservation and restoration of cultural assets. A wide spectrum of values, a variety of involved stakeholders, multiple, even conflicting, objectives, are only some of the challenges CH is facing. Even nowadays involved authorities and stakeholders act within their own narrow spectrum without taking into consideration a number of other interrelated parameters; an attitude which not rarely results to fragmented and not so beneficial interventions. The proposed project aims to approach Heritage Management in a holistic way; As a "procedure" of management, starting from the phase of data acquisition, but also as a "result", leading to concrete actions; As an embracement not only of the lifecycle of the cultural asset, but also of the lifecycle of the human, starting at his early schooling age, since human is the provider but also the user of CH. For the achievement of this goal a continuous shift between different scientific domains, the skilful management of differentiated input and its transformation into new information and knowledge, exploitable by various sectors, becomes crucial. For this reason it is needed: a broad educational background on Arts and Culture, the tools and the methodological thinking of engineering as well as the pedagogical techniques, in order for CH to become an actual "public asset".

Required Qualifications: A BSc and MSc degree in Architecture, an MSc in the field of Cultural Heritage as well as pedagogical education. Prior research experience or specialization in Cultural Heritage and Education will be considered an advantage.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Marinios Ioannides at [marinos.ioannides@cut.ac.cy](mailto:marinos.ioannides@cut.ac.cy) .

- **One (1) position in the following field: Applying Machine Learning methods in processing Cultural Heritage assets**

Cultural Heritage is the legacy of a nation from previous generations, for which efforts are made maintain their present status but also to safeguard its future existence. Nowadays, the technological outbreak has led to the development of intelligent systems, which can actively contribute in areas like the documentation, preservation and promotion of Cultural Heritage. Machine Learning constitutes an integral part of intelligent systems as it is a category of artificial intelligence, which enables modern computer systems to "learn" to develop and adapt their function upon exposure to new data.

The proposed research will /e focused on the development of machine learning methods for their use in cultural applications. As part of the research activities will /e the study of e&isting machine learning methods (supervised, non-supervised, reinforcement) which are currently used for the classification of cultural assets over time.

**Required Qualifications:** Applicants should have a BSc and an MSc degree in Computer Science, Science of Electrical Engineering or other related field. Previous research e&perience in the study and the application of machine learning in Cultural Heritage sector will /e considered an asset.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Mlarinos Ioannides at [marinos.ioannides@cut.ac.cy](mailto:marinos.ioannides@cut.ac.cy).

- **One (1) position in the following field: Distributed Data-Driven Multiprocessing**

High-Performance Computing (HPC) is seen as the only way so solve mankind's pending /ig pro/lems that require computational capa/ility measured in terms of at least a million trillion of computations per second (ten to the power of 18), i.e., e&ascale. Such pro/lems involve reverse engineering the human /rain, creating medicine to eradicate diseases such as cancer, and simulating weather phenomena to predict climate change. This Doctoral Thesis concerns the research and development of a novel distri/uted multiprocessor architecture to address the power and concurrency challenges of future HPC/e&ascale systems. The system will /e /ased on a Hy/rid Data-Flow model, the Data-Driven Multithreading (DDM) model of e&ecution. The multiprocessor architecture will /e implemented and evaluated on a large capacity Field-Programma/le Gate Array (FPGA) and will consist of low-power and low-comple&ity non-coherent processing elements and hardware support for the DDM model. Additionally, it will incorporate a lightweight, mainly cache-/ased memory hierarchy, augmented with automated deterministic prefetching into scratchpad memories. Last, an Application Programming Interface (API) in C++ will /e implemented to allow programmers to develop DDM applications for rapid architectural prototyping and evaluation. This Doctoral Thesis will /uild upon e&isting infrastructure in terms of /oth hardware and software, and e&tensive know-how that the Research Team has /uilt over the years.

**Required Qualifications:** Candidates should possess a Bachelor's Degree and a Master's-level postgraduate degree from accredited universities in the field of Computer Science, or Electrical Engineering, or Computer Engineering with a preferred specialization in either computer architecture, distri/uted systems and networks, em/edded systems, or

related. The candidate should have 2+ years of experience in object-oriented programming and be fluent in C++ programming and/or Python, and also possess experience in parallel and distributed computing (i.e., PThreads, OpenMP and MPI). Next, the candidate should have 2+ years of working experience with hardware description languages such as VHDL or Verilog. Excellent command of the English language is a must. Any research experience with data-flow/data-driven models (e.g., TBB, OpenMPs, etc.) and command in Xilinx HDL tools (ISE or Vivado Design Suites) will be considered as an advantage.

For more information and discussion on the topic and research, potential candidates can contact Dr. Vassos Soteriou at [vassos.soteriou@cut.ac.cy](mailto:vassos.soteriou@cut.ac.cy).

- **One (1) position in the following field: Resilient Wear-Aware Computer Architectures**

Moore's Law scaling continues to yield higher transistor density with each succeeding process generation, leading to today's many-core chip multiprocessors (CMPs) with hundreds of interconnected cores or tiles. Unfortunately, deep submicron CMOS process technology is marred by increasing susceptibility to wear. Prolonged operational stress gives rise to accelerated wearout and failure due to several physical failure mechanisms, including hot-carrier injection (HCI), electro-migration (EM), and negative-bias temperature instability (NBTI). Unfortunately such wear can prove catastrophic to the reliable operation of CMPs, as various chip components may introduce errors and/or timing violations during computation and data transportation across the chip, deeming it inoperable. To avoid such detrimental effects this Doctoral Thesis will deal with the development of wearout-decelerating techniques so as to slow-down wear in CMP components and improve their resilience, including processors, memory and on-chip interconnect. Such techniques will be incorporated seamlessly into the existing CMP architecture to work online during chip operation without any intervention from the programming stack or the user. Since wear in CMOS transistors is usage-based, and correlates heavily on how workloads utilize them over time, a key drive of this Thesis will be to understand the usage patterns of applications so as to adopt appropriate wear-aware policies to them for maximum positive lifetime extending effect. As such, wear-aware policies may be based on artificial neural network techniques or algorithms which are very good in recognizing patterns and adapting to them. Other pattern recognition schemes will also be examined to further explore the design space of wear-reducing architectural-level policies. Wear-aware hardware augmentations to the base CMP architecture will be implemented using hardware description languages (e.g., VHDL) to prove their feasibility. This Doctoral Thesis will build upon existing and extensive know-how that the Research Team has developed over the years, and will utilize and substantially extend existing methods from the field of wear-aware multiprocessor architectures.

**Required Qualifications:** Candidates should possess a Bachelor's Degree and a Master's-level postgraduate degree from accredited universities in the field of Computer Science, or Computer Engineering, or Electrical Engineering with a preferred specialization in either computer architecture, distributed systems, interconnection/computer networks, embedded systems, artificial neural network architectures and algorithms, or related. The candidate should have 2+ years of experience in object-oriented programming and be fluent in C++ programming and/or Python, and also have a good command in calculus. Last, the

candidate should have 2+ years of working experience with hardware description languages such as VHDL or Verilog. Excellent command of the English language is a must. Good knowledge in using Xilinx HDL tools (ISE or Vivado Design Suites) will be considered as an advantage.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Vassos Soteriou at [vassos.soteriou@cut.ac.cy](mailto:vassos.soteriou@cut.ac.cy).

- **One (1) post in the following topic: Night Cooling Systems: Modeling and monitoring systems**

**Required Qualifications:** BSc and/or MSc in Electrical Engineering or Physics, or any other related subject. Strong mathematical background will be considered an advantage.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Paul Christodoulides at [paul.christodoulides@cut.ac.cy](mailto:paul.christodoulides@cut.ac.cy).

**One (1) post in the following topic: Heat transfer in microfluidics and their influence on microstructure optical fibers**

**Required Qualifications:** BSc and/or MSc in Electrical Engineering or Physics, or any other related subject. Strong mathematical background will be considered an advantage.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Kyriacos Kalli at [kyriacos.kalli@cut.ac.cy](mailto:kyriacos.kalli@cut.ac.cy) or Dr. Paul Christodoulides at [paul.christodoulides@cut.ac.cy](mailto:paul.christodoulides@cut.ac.cy).

- **One (1) post in the following topic: Optical Fibre Sensors for Biomedical Applications**

**Required Qualifications:** BSc and/or MSc in Electrical Engineering or Physics, or any other related subject. Strong mathematical background will be considered an advantage.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Kyriacos Kalli at [kyriacos.kalli@cut.ac.cy](mailto:kyriacos.kalli@cut.ac.cy)

**One (1) position in the following field: Event Detection, Localization and Tracking using Wireless Sensor Networks**

Wireless Sensor Networks (WSNs) are a fairly new technology that can potentially provide an interface between the physical world and computers allowing the latter to vanish into the background. They have a wide variety of applications including military sensing, infrastructure security, environment and habitat monitoring, industrial sensing, building and structure monitoring, and traffic control. The proposed research is expected to be based on ideas and techniques from a variety of different fields including Wireless Communication Systems, Computer Networks, Collaborative Signal and Information Processing and Computational Intelligence. The offered positions will concentrate on the development of

new algorithms and techniques for detecting, localizing and tracking an event. The developed algorithms should feature low computational complexity, distributed implementation and fault tolerance in order to address the limitations of WSNs in terms of energy and bandwidth and the harsh conditions of operation. The successful applicants are expected to perform real-time experiments in order to verify the performance of their algorithms using the WSN platform at the Cyprus University of Technology.

Required qualifications: BSc (required) and MSc (preferably) in Electrical Engineering and/or Computer Science. Prior research experience or specialization in related topics will be considered an advantage.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Michalis Michaelides at [michalis.michaelides@cut.ac.cy](mailto:michalis.michaelides@cut.ac.cy).

- **One (1) position in the following field: Contaminant Event Monitoring in Intelligent Buildings**

An Intelligent Building is a system that incorporates computer technology to autonomously govern and adapt the building environment in order to enhance operational and energy efficiency, cost effectiveness, improve user's comfort, productivity and safety, and increase system robustness and reliability. The dispersion of contaminants from sources (events) inside a building can compromise the indoor air quality and influence the occupants' comfort, health, productivity and safety. These events could be the result of an accident, faulty equipment or a planned attack. Under these safety-critical conditions, immediate event detection should be guaranteed and the proper actions should be taken to ensure the safety of the people. The proposed research will investigate and produce solutions for the problem of monitoring the indoor building environment against the presence of contaminant events. Distributed sensor networks have been widely used in buildings to monitor indoor environmental conditions such as air temperature, humidity and contaminant concentrations (e.g. CO, CO<sub>2</sub>). The goal of this research will be the development of methods for interpreting the real-time-collected data coming from the sensors in order to ensure the accurate and prompt identification of contaminant sources. The results can help determine appropriate control solutions such as: (i) indicating safe rescue pathways and/or refugee spaces, (ii) isolating contaminated spaces and (iii) cleaning contaminant spaces by removing sources, ventilating and filtering air.

Required qualifications: BSc (required) and MSc (preferably) in Electrical Engineering and/or Computer Science. Prior research experience or specialization in related topics will be considered an advantage.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Michalis Michaelides at [michalis.michaelides@cut.ac.cy](mailto:michalis.michaelides@cut.ac.cy).

- **One (1) position in the following field: Air Quality Monitoring in Smart Cities using Wireless Sensor Networks**

Currently, there is a lack of sufficient infrastructure for environmental monitoring, /oth spatially (in multiple points) and temporally (in regular time intervals). The proposed

wireless sensor network can constitute an economical and reliable solution to the problem of sufficient monitoring and control of the city air quality. The proposed research will focus on the development of innovative algorithms and techniques for detecting, identifying and tracking the release of pollutants in an urban environment using a wireless sensor network. More specifically, the successful candidate is expected to use signal processing and machine learning methods to analyze the collected data from the sensors in order to: (i) construct a fine-grained pollution map of the city, (ii) identify the main sources of pollution and estimate their locations, (iii) develop models for predicting the pollution levels in the near future. These results are expected to provide the necessary information for reducing the pollution levels through appropriate actions and policies, leading to a cleaner and safer city environment. The successful applicants are expected to work with real data in order to verify the performance of their algorithms using the established WSN platform at the Cyprus University of Technology.

Required qualifications: BSc (required) and MSc (preferably) in Electrical Engineering and/or Computer Science. Prior research experience or specialization in related topics will be considered an advantage.

For more information and discussion on the topic and research, potential candidates can contact Dr. Michalis Michaelides at [michalis.michaelides@cut.ac.cy](mailto:michalis.michaelides@cut.ac.cy).

- **One (1) position in the following field: Evaluation of a Magnetic Resonance Imaging (MRI) Guided Focused Ultrasound System for Prostate Ablation**

Focused ultrasound is a modality that can be used to treat various diseases in the area of oncology using thermal protocols. The thermal effects of Focused ultrasound can be monitored with excellent contrast using Magnetic resonance imaging (MRI).

The offered position will concentrate on the evaluation of an existing 4-D MR compatible robotic system. A major task is to design an agar-based prostate phantom. Simulations will be performed in order to optimize the focused ultrasound therapeutic protocols. A transducer design dedicated for prostate will be performed. The successful applicant is expected to extensively evaluate the system in the developed phantom in the laboratory setting and inside an MRI scanner. MRI sequences will be optimized in order to monitor the thermal effects of ultrasound.

Required qualifications: MSc in Electrical Engineering, or Mechanical engineering, or Physics  
For more information and discussion on the topic and research, potential candidates can contact Dr. Christakis Damianou at [christakis.damianou@cut.ac.cy](mailto:christakis.damianou@cut.ac.cy).

- **One (1) post in the following topic: Social Networks: Geometry and Dynamics**

Traditional or on-line Social Networks (e.g., Facebook, Twitter, Web of Trust, Terrorist Networks, etc.) can be mapped to geometric spaces that lie hidden beneath their observable topologies. These geometric spaces are called "hidden", as they play the role of an underlying coordinate system, not readily observable by examining the network topology. Nodes closer in the underlying space are connected in the observable network topology with higher probability.



The PhD candidate will focus in studying the properties of these underlying geometric spaces and the spatial dynamics of network nodes in these spaces. It is anticipated that important fundamental and practical questions will be addressed through this PhD thesis such as: (i) what are the laws governing the "motion" of network nodes in these spaces? (ii) Can this motion be modeled using classical mechanics laws, e.g., Newton's laws of motion or stochastic versions of it? (iii) Is this motion chaotic or can be predicted? (iv) Given that we can predict this motion, can we predict the future structure and evolution of real social networks?

This position falls under the general scientific areas of Network Science, Data Science, and Predictive Analytics. The ideal candidate should like networks. He/she should also like mathematics and statistics.

**Advisor:** Dr. Fragkiskos Papadopoulos

([http://www.cut.ac.cy/eecei/staff/f.papadopoulos/.](http://www.cut.ac.cy/eecei/staff/f.papadopoulos/)) For more information about the position and funding possibilities the interested candidates can contact directly the advisor, email: [f.papadopoulos@eecei.cut.ac.cy](mailto:f.papadopoulos@eecei.cut.ac.cy).

- **One (1) post in the following topic: Geometric Analysis and Dynamics of Brain Networks**

Mapping the structural and functional connections of the human brain is one of the great scientific challenges of the 21<sup>st</sup> century, and real data with unprecedented resolution in space and time are being made publicly available for the first time (<http://www.humanconnectome.org/>). In this context, a great deal of recent research studies *brain dynamics*; the dynamics of the functional brain connectivity, i.e., the functional connections and disconnections taking place in the brain, at rest, during various tasks, or during abnormal behaviors, such as epileptic seizures. Furthermore, it has been recently recognized that the brain's structural and functional systems have features common to other complex networks found in nature and society.

The PhD candidate will focus on: (i) data extraction and graph-theoretic analysis of brain network data from the human connectome project; (ii) mapping of these network data into different geometric spaces; (iii) studying the spatial dynamics of network nodes in these spaces; (iv) identifying laws/processes that can potentially describe these spatial dynamics; and (v) use the discovered laws to predict brain network dynamics.

This position falls under the general scientific areas of Network Science, Data Science, Brain Science, and Predictive Analytics. The ideal candidate should like networks. He/she should also like mathematics (especially statistics), and aspects of neuroscience. The research will take place in collaboration with researchers from the Department of Bioengineering at McGill University, Canada. **Advisor:** Dr. Fragkiskos Papadopoulos

([http://www.cut.ac.cy/eecei/staff/f.papadopoulos/.](http://www.cut.ac.cy/eecei/staff/f.papadopoulos/)) For more information about the position and funding possibilities the interested candidates can contact directly the advisor, email: [f.papadopoulos@eecei.cut.ac.cy](mailto:f.papadopoulos@eecei.cut.ac.cy).

- **One (1) post in the following topic: Identity and Access Control Management for the ReCRED research project**

The Software Engineer will be working on the ReCRED Horizon 2020 research project. The main goal of ReCRED is to unify under the mobile personal devices the authentication and authorization mechanisms that provide access control for online services.

In layman terms, RECREC aims at obviating the need for a user to remember many hard to guess passwords so that he can access his Google, Facebook or work accounts.

Instead, ReCRED will produce software solutions that enable the user to login to his mobile device in a usable and secure way (e.g., with a short PIN or through biometric authentication such as fingerprint scanning). Subsequently, the mobile device becomes a secure authentication gateway to online services employing state of the art cryptographic protocols for access control. Besides increased security, this approach has the additional advantage of providing user-friendly attribute-based access control, i.e., a user can prove parts of his identity, such as his age, without sacrificing his anonymity.

At the same time, ReCRED will add safeguards on the device which will continuously validate through behavioral biometrics (e.g., by analyzing the user's walk patterns) that the rightful owner of the device still has the device in his possession and this has not been stolen. In case the device is lost, the user will have the ability to restore his cryptographic credentials on a new device.

The PhD candidate will focus in studying the properties of these underlying Networked Systems, Security, Large Scale Data Processing, Cryptography, Identity Management and Mobile Computing. The PhD candidate should be able to demonstrate excellent knowledge of CS theory as well as outstanding software implementation skills.

This position falls under the general scientific areas of Networked Systems, Security, Large Scale Data Processing, Cryptography, Identity Management and Mobile Computing.

**Advisor:** Dr. Sirivianos Michael  
(<https://www.cut.ac.cy/eecei/staff/michael.sirivianos/VlanguageIdw2>)

For more information about the position the interested candidates can contact directly the advisor, email: [michael.sirivianos@cut.ac.cy](mailto:michael.sirivianos@cut.ac.cy).

- **One (1) post in the following topic: Software Reliability**

Methods, techniques, models and algorithms for studying software reliability. Software Reliability Growth Models (SRGM) based on mathematical and statistical approaches. Use of empirical data measured from real world software systems. Application of non-linear dynamics and time-series analysis for revealing the nature of software reliability in various application types (classic, web-based, mobile, etc.) Use of Computational Intelligence or/and of other sub-areas of Computer Science and Engineering for improving SRGM.

Required qualifications: BSc and/or MSc in Computer Science or Computer Engineering or Informatics or any other related field. Prior experience or specialization (i.e. during BSc or MSc in Software Engineering) will be considered as advantage.

Funding: The candidates with the appropriate qualifications can be funded as participants in research projects or as teaching assistants.

Advisor: Dr. Andreas S. Andreou, Associate Professor, [andreas.andreou@cut.ac.cy](mailto:andreas.andreou@cut.ac.cy),  
<http://www.cut.ac.cy/eecei/staff/andreas.andreou/>

- **One (1) post in the following topic: Automated Software Testing**

Methods, techniques, models and algorithms for performing software testing in an automated way, with little or no human intervention. Use of Computational Intelligence or/and of other sub-areas of Computer Science for performing black-box (specifications-based) and glass-box (source code-based) testing for classic software systems, web applications and mobile software.

Required qualifications: BSc and/or MSc in Computer Science or Computer Engineering or Informatics or any other related field. Prior experience or specialization (i.e. during BSc or MSc in Software Engineering) will be considered as advantage.

Advisor: Dr. Andreas S. Andreou, Associate Professor, [andreas.andreou@cut.ac.cy](mailto:andreas.andreou@cut.ac.cy),  
<http://www.cut.ac.cy/eecei/staff/andreas.andreou/>

- **One (1) post in the following topic: Software Engineering for the Cloud**

The research to be conducted will revolve around issues of software development for the Cloud environment. This new environment poses several restrictions to the way we usually follow to develop classic software and necessitates the study of parameters to help raising the quality of software systems. In addition, the Cloud requires elasticity and automation of the development process to speed up release times and satisfy clients' requirements for fast change. Finally, this thesis will investigate DevOps as there is strong need to bridge the two teams involved, the one that develops the software (Dev) and the one that operates (manages) it after its delivery (Ops). In this context, new life cycle models tailored to the need of the Cloud will be proposed, along with software development methodologies and techniques that will address issues like automatic detection of Service Level Agreements (SLA) violations, automatic software testing, reduction of cycle time and release time, etc. The research will utilize Computational Intelligence notions which will be combined with core software engineering subjects like Agile Processes, software testing, project management, team organization etc. This research will be supported by collaboration activities with Politecnico di Milano and University of Turin under a Horizon 2020 Twinning project that was recently awarded to our group.

Required qualifications: BSc and/or MSc in Computer Science or Computer Engineering or Informatics or any other related field. Prior experience or specialization (i.e. during BSc or MSc in Software Engineering) or any involvement with research in the past will be considered as advantage.

Advisor: Dr. Andreas S. Andreou, Associate Professor, [andreas.andreou@cut.ac.cy](mailto:andreas.andreou@cut.ac.cy),  
<http://www.cut.ac.cy/eecei/staff/andreas.andreou/>

- **One (1) post in the following topic: Automatic Resource Management for the Cloud**

This research topic will concentrate on algorithms, methods and techniques for automating certain process in the Cloud environment dealing with how resources are managed. More specifically, Computational Intelligence - CI approaches will be utilized to tackle issues and solve problems related to optimizing the way resources are managed (e.g. physical servers, virtual machines, etc.) in such a way so that clients are serviced according to their Service Level Agreements - SLA, with high quality and performance, but at the same time energy and cost preservation is taken into consideration. Fog computing will also be investigated as the paradigm that pushes processing intelligence and data down to the local area network level of network architecture and a fog node to avoid latencies.

In this context different CI models will be investigated and apply in single- and multi-objective optimization of Cloud resources. This research will be supported by collaboration activities with Politecnico di Milano and University of Tilburg under a Horizon 2020 Twinning project that was recently awarded to our group.

Required qualifications: BSc and/or MSc in Computer Science or Computer Engineering or Informatics or any other related field. Prior experience or specialization (i.e. during BSc or MSc in Software Engineering) or any involvement with research in the past will be considered as advantage.

Advisor: Dr. Andreas S. Andreou, Associate Professor, [andreas.andreou@cut.ac.cy](mailto:andreas.andreou@cut.ac.cy), <http://www.cut.ac.cy/eecei/staff/andreas.andreou/>

- **1 PhD position in either of the following 4 topics:**

#### **S Analysis and Control of Large Scale Networks**

Systems and control theory is associated with methodologies that try to optimally satisfy appropriate performance criteria for a system of interest. This has led to many tools that are in widespread use in areas such as industrial process control, military applications, as well as in biology and physics. In a continuously evolving large scale network such as the Internet and power distribution networks, many of the more conventional methodologies come, however, to a halt and need to be appropriately refined and extended. It would be, for example, unrealistic to carry out a new design whenever a new computer/router enters the internet or a new generator becomes part of a power network. For these reasons many of the existing implementations are based on ad hoc approaches with no guarantees for the entire interconnection, thus often leading to inefficient designs with disastrous effects such as congestion collapse in the Internet or blackouts in power grids.

The proposed project aims to develop systematic methodologies that are relevant for the analysis and decentralized control of large scale networks. Various benchmark examples will be used throughout this study, such as stability issues in data network protocols as well as management and control schemes in modern power systems and smart grids.

Required Qualifications: A BSc degree will be needed in Electrical Engineering or a related area such as Mathematics, Computer Science, Physics or Mechanical Engineering. Strong mathematical skills will be an advantage.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Ioannis Lestas at [ioannis.lestas@cut.ac.cy](mailto:ioannis.lestas@cut.ac.cy)

### **S Modern Power Systems and Smart Grids**

Electrical energy systems are undergoing radical transformations in order to increase efficiency. These transformations are enabled by the integration of distributed energy resources, advanced information technologies, as well as new market and regulatory policies. While the introduction of such new mechanisms and technologies opens exciting possibilities for more efficient operation of power systems, it necessarily implies a deviation from traditional methodologies, and inevitably drives current systems to their limits. The aim of this project is to address a number of important such challenges that are crucial for the operation of modern electricity networks in an efficient and secure manner, using advanced methodologies from optimization and control theory.

A significant problem within this context that will first be addressed is that of optimal power flow in a power distribution network. This is associated with finding an optimal operating point for a power system, subject to various operational constraints in the powers and voltages within the network. Throughout the project it will be investigated how this problem can be efficiently solved by means of distributed schemes that are guaranteed to converge to the optimal solution. Given the increasing complexity of modern power systems, which are continuously expanding with distributed energy resources, such distributed schemes decrease the complexity, and increase the robustness to faults, relative to a centralized implementation, while also providing a natural framework for pricing power support between regions. Related problems that will be investigated include those of voltage and frequency stability in power systems and how some recent methodologies can provide such stability guarantees in a large scale network. Finally, the problem of dynamic pricing in electricity markets will be addressed. In particular, it will be investigated how the fact that prices are usually set out on predicted demand can lead to an increase in volatility, if the underlying pricing policies are not appropriately designed.

Required Qualifications: A BSc degree will be needed in Electrical Engineering or a related area such as Mathematics, Computer Science, Physics or Mechanical Engineering.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Ioannis Lestas at [ioannis.lestas@cut.ac.cy](mailto:ioannis.lestas@cut.ac.cy)

### **S Optimization and Control in Communication Networks**

Many important problems in communication networks such as Internet congestion control, multi-path routing, power control in wireless networks aim to achieve a prescribed network performance by means of appropriate protocols. The aim of the project is to address such problems using systematic approaches from optimization and control.

Required Qualifications: A BSc degree will be needed in Electrical Engineering or a related area such as Mathematics, Computer Science, Physics or Mechanical Engineering.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Ioannis Lestas at [ioannis.lestas@cut.ac.cy](mailto:ioannis.lestas@cut.ac.cy)

### **S Advanced Mathematical Approaches in Systems and Control Theory**

This position is appropriate for a student with a background in mathematics or physics (or an engineer with theoretical interests) who would be interested in developing and making use of advanced mathematical methodologies to address important engineering problems in dynamical systems, optimization and feedback control theory.

A number of possible projects are available that are based on either deterministic or stochastic approaches. These will be appropriately formulated depending on the background of the applicant and benchmark examples will be studied within the areas of communications, power systems, and biological networks. A background in control is not a prerequisite as this will be studied as part of the project.

Required Qualifications: A BSc degree will be needed in Mathematics or Electrical Engineering or a related area such as Physics, Computer Science, or Mechanical Engineering.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Ioannis Lestas at [ioannis.lestas@cut.ac.cy](mailto:ioannis.lestas@cut.ac.cy)

- **One (1) post in the following topic: Performance Isolation in Multitenant Distributed Systems**

The consolidation of servers into private data centers as well as the popularization of cloud computing means that a single instance of software can serve hundreds of users (tenants) at the same time. This multitenancy enables cost reduction for the cloud service provider which it can pass on as savings to the tenants. However, resource sharing raises several performance concerns due to the interactions among the workloads of the various tenants. Misbehaving or high-demand tenants, for example, can overload the shared service and disrupt other well-behaved tenants, leading to unpredictable performance and violating service-level agreements (SLAs). The PhD Candidate will study the problem of performance isolation in distributed environments, develop algorithms to address the related challenges, and implement the solutions into an open-source distributed analytics platform.

**Requirements:** Undergraduate and postgraduate degrees in Computer Science or related field. The ideal candidate should enjoy working on cutting-edge systems research problems and have good software development skills. Familiarity with distributed platforms and cloud computing would be considered a plus.

**Funding:** The candidates with the appropriate qualifications can be funded as participants in funded research projects or as teaching assistants.

**Advisor:** Dr. Herodotos Herodotou, Lecturer, [herodotos.herodotou@cut.ac.cy](mailto:herodotos.herodotou@cut.ac.cy), <http://www.cut.ac.cy/eecei/staff/herodotos.herodotou/>

## **DEPARTMENT OF MECHANICAL ENGINEERING AND MATERIAL SCIENCE AND ENGINEERING**

- **One (1) position** in the Mechanical Engineering and Material Science and Engineering Department in the following topic: **Opto-electronic Devices**

The candidates should hold a Master degree. The position is open for full-time students only with excellent academic and experimental skills. The successful candidates will receive a grant as a graduate research assistant in the *European Research Council* (H2020-ERC-2014-GoG project num/er 647311) research project.

For more information, the interested candidates can contact Professor Stelios Choulis (supervisor) at (+357) 25002605, or at [stelios.choulis@cut.ac.cy](mailto:stelios.choulis@cut.ac.cy), as well as visit the website of Molecular Electronics and Photonics research unit at [www.cut.ac.cy/mep](http://www.cut.ac.cy/mep).

## **DEPARTMENT OF CIVIL ENGINEERING AND GEOMATICS**

- **One (1) post in the field of "Ubiquitous and Collaborative Positioning"**

**Description:** Development of novel positioning methodologies using heterogeneous sensor measurements and signals to enhance navigation performance in open, closed and hybrid spaces.

### **Basic Requirements:**

- Dipl. Ing. or B.Sc.+M.Sc./M.Eng. in one of the following fields: geomatic, civil, electrical or mechanical engineering, or informatics.
- Basic knowledge of positioning methodologies, navigation or Location-based Services
- Ability to program in C/C++ and MATLAB (algorithm prototyping),
- Good use of English Language

### **Desired Requirements:**

- Ability to program navigation sensors (either directly or by means of third-party software e.g. LabView),
- Ability to program smartphones and tablets,
- Development of internet applications and services,
- Programming in C# or Java or Objective-C or Swift.

**Research advisor:** Dr. Chris Danezis, Lecturer, [chris.danezis@cut.ac.cy](mailto:chris.danezis@cut.ac.cy)

- **One (1) post in the field of « Satellite Geodesy»**

### **Basic Requirements:**

- Dipl. Ing. or B.Sc.+M.Sc./M.Eng. in Geomatic or Civil Engineering with specialization in Geodesy (a mark of at least 70% is required),
- Experience in the use of geodetic equipment (i.e. GNSS receivers, digital levels etc).

- Good Knowledge of satellite positioning methodologies, and geodetic infrastructure (coordinate reference systems and frames, CORS networks etc),
- Experience in programming Matlab.

**Desired Requirements:**

- Ability to program in C/C++ or Python,
- Unix/Linux shell scripting,
- Ability to use research or commercial GNSS-processing software (e.g. Bernese GNSS, GAMIT/GLOBK, GIPSY, TEQC, Novatel GrafNet, etc.)
- Experience in Atmospheric Monitoring using GPS/GNSS techniques.

**Research advisor:** Dr. Chris Danezis, Lecturer, [chris.danezis@cut.ac.cy](mailto:chris.danezis@cut.ac.cy)

• **One (1) position in the field of "Geospatial Analytics in Engineering and the Geosciences"**

**Description:** Development of methodologies for estimating and analyzing the spatial and/or spatiotemporal distribution of geographical variables by integrating heterogeneous data using geostatistics, capitalizing on cutting- edge geoinformation and geocomputation technologies while addressing big data problems. Applications of the above methodologies to the solution of problems in engineering and the geosciences, including problems of environmental characterization and the evaluation of natural resources (conventional and renewable).

**Required Qualifications:**

- Engineering diploma or bachelor's or postgraduate degree in one of the following fields: Civil, Geomatic Engineering or Environmental Engineering, or alternatively Geography, Geosciences, (Geo)Informatics or Statistics
- Experience in applications and methodologies of Geographic Information Systems
- Ability to program in Matlab, R or Python
- Proficient use of English Language

**Desired Qualifications:**

- Experience in the implementation of research projects and applications in the field of geostatistics and spatial analysis, as well as geomatics/geoinformatics
- Experience in software development for geospatial applications and analyses
- Programming in C/C++ or Java

**Research Advisor:** Dr. Phaedon Kyriakidis, Professor, [phaedon.kyriakidis@cut.ac.cy](mailto:phaedon.kyriakidis@cut.ac.cy)



- **One (1) position in the field of "Spatial Analysis and Geoinformatics in Archaeology"**

**Description:** Harnessing cutting-edge geoinformatics technologies and geospatial methods for supporting inferences with spatial data in archaeology. Development of agent-based models and relevant simulation algorithms. Applications of spatial analysis in archaeology, including the delineation of plausible sea routes between coastal areas in the Eastern Mediterranean based on information and hypotheses regarding ancient vessel characteristics. Analysis and modeling of spatial networks in archaeology.

**Required Qualifications:**

- Engineering diploma or bachelor's or postgraduate degree in one of the following fields: Geomatic Engineering or (Geo)Informatics, or Geography, Archaeology
- Experience in applications and methodologies of Geographic Information Systems
- Proficient use of English Language

**Desired Qualifications:**

- Experience in the implementation of research projects and applications in the field of geoinformatics and spatial analysis in Archaeology
- Ability to program in Matlab, R or Python

**Research Advisor:** Dr. Phaedon Kyriakidis, Professor,  
[phaedon.kyriakidis@cut.ac.cy](mailto:phaedon.kyriakidis@cut.ac.cy)

- **One (1) position in any of the following subjects:**

**1) "Biomimetic applications in Structural Engineering"**

Candidate background Bachelor & Masters (or equivalent) in one or more of the specializations below:

Architecture / Civil Engineering / Structural Engineering / Mechanical Engineering

**2) "Biomimetic applications for energy retrofitting in the built environment"**

Candidate background Bachelor & Masters (or equivalent) in one or more of the specializations below:

Architecture / Civil Engineering / Structural Engineering / Mechanical Engineering

**3) "Investigation of Shear Buckling in long plate Girders with metal foam sandwich webs"**

Candidate background Bachelor & Masters (or equivalent) in one or more of the specializations below:

Civil Engineering / Structural Engineering / Naval Architecture / Mechanical Engineering / Aerospace Engineering / Aeronautical Engineering / Materials Engineering

**Research Advisor:** Dr. Stylianos Yiatros, Assistant Professor,  
[stylianos.yiatros@cut.ac.cy](mailto:stylianos.yiatros@cut.ac.cy)

- **One (1) post in the field of «3D recording and documentation of maritime cultural heritage»**

**Qualifications:** Candidates should hold a MSc in computer graphics, computer vision, 3D modelling, VR or AR, photogrammetry, information technology or equivalent. Strong motivation is necessary. Additional skills and qualifications, include experience in diving, data bases and archaeological excavations, scientific publications, 3D scanning. Excellent knowledge of English is a prerequisite.

**Research Advisor:** Dimitrios Skarlatos, Assistant Professor,  
[dimitrios.skarlatos@cut.ac.cy](mailto:dimitrios.skarlatos@cut.ac.cy)

- **One (1) post in the field of "Assessment of the fragility of existing buildings with degrading post-peak behavior and time-dependent loss of material strength"**

**Description:** Development of a novel methodology for the fragility assessment of existing RC buildings taking into consideration all credible failure modes under non-linear behavior both in frame elements and joints. The methodology will also examine the reduction in the fragility of these buildings prior to retrofitting with RC Infill walls

**Basic Requirements:**

- Dipl. Ing. or B.Sc.+M.Sc./M.Eng. in Civil engineering
- Basic knowledge of numerical methods for analysis of frames
- Basic knowledge of seismic design and assessment
- Ability to perform non-linear frame analysis using software tools
- Good use of English Language

**Desired Requirements:**

- Ability to perform non-linear analysis using finite element software
- Programming in MATLAB or similar package.

**Research advisor:** Dr. Nicholas Kyriakides, Lecturer, [nicholas.kyriakides@cut.ac.cy](mailto:nicholas.kyriakides@cut.ac.cy)

- **Two (2) Phd posts in the fields of 'Remote Sensing, Geo-Informatics and Earth Observation in the following fields: water resources management or natural disasters or agriculture or archaeology or design of smart systems for environmental monitoring'**

**Research Advisor:** Dr Diofantos Hadjimitsis, Professor, [d.hadjimitsis@cut.ac.cy](mailto:d.hadjimitsis@cut.ac.cy)

**One (1) post in the field of "Assessment of the dynamic and static behavior of steel fiber reinforced concrete with energy absorption and high-deformability properties "**

**Description:** Laboratory testing for the determination of the properties of steel fiber rubberized reinforced concrete related to energy absorption and deformability under impact and blast loading. The scope is to determine an optimum mix design and use it to develop applications with enhanced blast and impact properties and test the in the Large Structures Laboratory.

**Basic Requirements:**

- Dipl. Ing. or B.Sc.+M.Sc./M.Eng. in Civil engineering
- Basic knowledge of numerical methods for analysis of frames
- Basic knowledge of seismic design and assessment
- Ability to perform non-linear frame analysis using software tools
- Good use of English Language

**Desired Requirements:**

- Ability to perform non-linear analysis using finite element software
- Programming in MATLAB or similar package.

**Research advisor:** Dr. Nicholas Kyriakides, Lecturer,  
[nicholas.kyriakides@cut.ac.cy](mailto:nicholas.kyriakides@cut.ac.cy)

## **DEPARTMENT OF NURSING**

- One (1) post in the field of '**Cardiology Nursing**' in the topic: "**Management of the caregivers' needs who care of people with heart failure" and social support**

Candidates must be registered nurses with a Postgraduate degree at Master's level. Candidates need to have good computer skills (Microsoft Office, Statistical Analysis Software), as well as to have excellent Greek and English language skills and relevant clinical experience. Prior research experience, will be considered as an advantage. Information: Ekaterini Lambrinou, Assistant Professor, Email: [ekaterini.lambrinou@cut.ac.cy](mailto:ekaterini.lambrinou@cut.ac.cy)

- Two (2) posts in the field of "**Surgical Nursing and-or post-surgical rehabilitation**"

Candidates should hold an accredited Bachelor's Degree in Health Sciences (e.g. Nursing, Medicine) and a Postgraduate Degree at Master's level. Additional requirements include: very good command of English, familiarity with health research methodology and competence in statistical data analysis. Prior involvement in related research projects, scientific publications/ conference presentations as well as clinical experience will be considered an advantage.

For more information, please contact Dr Pavlos Sarafis, Assistant Professor, at [pavlos.sarafis@cut.ac.cy](mailto:pavlos.sarafis@cut.ac.cy)

- One **(1)** post in the field of "**Epidemiology**" in the topic of «**Epidemiological investigation into the prevalence of rheumatic and myoskeletal diseases in the Cypriot population**»

Candidates should hold an accredited Bachelor's Degree in Nursing, Medicine, or Health Sciences in general, and a Postgraduate Degree at Master's level, preferably in Epidemiology, Public Health, General/Family Medicine, Health Promotion, Community Nursing/ Health Care, or other related field. Very good command of the English language, familiarity with the principles of systematic review and search strategies, familiarity with the concepts and principles in Health Research Methodology, Epidemiological study design and Biostatistics, good computer skills and familiarity with statistical packages (e.g. SPSS, STATA, R) are required. Prior experience in population-based epidemiological research and/or community health needs assessment will be considered an advantage. For more information, please contact Dr. Nicos Middleton, Associate Professor, at [nicos.middleton@cut.ac.cy](mailto:nicos.middleton@cut.ac.cy).

- One **(1)** post in the field of "**Epidemiology**" in the topic of «**Health Literacy - social gradient and health behaviours**»

Candidates should hold an accredited Bachelor's Degree in Nursing, or Health Sciences and a Postgraduate Degree at Master's level, preferably in Health Promotion, Community Nursing/ Health Care, Nursing/Medical Education, Epidemiology, Public Health or other related field. Very good command of the English language, familiarity with the principles of systematic review and search strategies, familiarity with the concepts and principles in Health Research Methodology, Epidemiology and Biostatistics, good computer skills and familiarity with statistical packages (e.g. SPSS, STATA, R) are required. Prior experience in population-based research and/or community health needs assessment will be considered an advantage. For more information, please contact Dr. Christiana Nicolaou, Assistant Professor, at [c.nicolaou@cut.ac.cy](mailto:c.nicolaou@cut.ac.cy).

## **DEPARTMENT OF REHABILITATION SCIENCES**

**One (1) post in the following topic: Cognitive interventions for adolescents with neurodevelopmental (e.g., ADHD, specific learning disability) disorders.**

The goal of this thesis is to develop a cognitive-linguistic battery suitable for the assessment of domain-general cognitive functions such as attention, memory and executive functions, and language abilities in adolescence. Deficits in these areas are thought to help account for the functional impairments that adolescents with neurodevelopmental disorders display across a range of settings, including academic difficulties, behavioural problems and social isolation.

To this end, an intervention protocol for specific cognitive tasks, with the goal of increasing the underlying skills of attention, memory, and/or executive functions will be implemented using a computer-based approach. Cognitive skills will be reassessed immediately post-therapy and 3 months post-treatment to determine whether improvement took place and across which domains.

For more Information and discussion on the topic and research, potential candidates can contact Dr. Maria. Kambanaros at [maria.kambanaros@cut.ac.cy](mailto:maria.kambanaros@cut.ac.cy), Phone: +35725002098.

## **DEPARTMENT OF ENVIRONMENTAL AND PUBLIC HEALTH**

- **One (1) post in the field: Cardiovascular Epidemiology**

**Description:** Atherosclerosis is a physiological aging process but while some thickening of the arterial wall and stiffness increases physiologically with age, pathophysiological processes that lead to plaque formation and growth lead to cardiovascular events with the ensuing societal burden. With an increasingly aging society, research that sheds more light into risk factors (especially modifiable ones such as environmental) that affect this process and may add to prevention efforts for cardiovascular and public health is of particular interest.

The 1<sup>st</sup> position will focus on the study of atherosclerotic risk factors by using both existing and generating new data with the use of arterial stiffness indicators (pulse- wave velocity).

The 2<sup>nd</sup> position will focus on the study of risk factors in patients with ischemic heart disease (ST-elevation), with the use of arterial stiffness indicators and glucemic control for prognosis.

**Required Qualifications for all positions:** Applicants must hold a BSc degree in Health Sciences and an MSc degree in a relevant field.

Very good knowledge of both the Greek and English language is a requirement, as well as ease of use of statistical programs. Any work or research experience will be considered additionally.

**Research supervisor:** Dr. Andrie Panayiotou, Ass. Professor,  
[andrie.panayiotou@cut.ac.cy](mailto:andrie.panayiotou@cut.ac.cy)

- One (1) PhD position is available in the research group of the **Water and Health Laboratory** of the Cyprus International Institute for Environmental and Public Health at the Cyprus University of Technology.

The successful candidate will be trained on key thematic concepts of the exposome, i.e. the holistic representation of all those environmental, lifestyle and behavioral factors related to the development of chronic diseases with special emphasis on endocrine disorders. The study of all human exposures to harmful agents found in water, air, food or behavioral/lifestyle habits and their health effects requires the combined use of novel human biomonitoring and biostatistical methods. The successful candidate will be trained on the use of state-of-the-art human biomonitoring protocols, personal sensors and novel processing bioinformatics platforms used in metabolomics tools for better understanding of the disease process.

The Water and Health Lab team's ultimate goal is to characterize and reduce health risks associated with chronic exposures to environmental and/or occupational chemicals with emphasis on the implementation of state-of-the-art human biomonitoring and metabolomics

technologies that refine the exposure assessment in population health studies. The transition focus from disease to exposure through implementation of the exposome concept is warranted to reduce exposures that lead to disease.

Our laboratory is equipped with advanced mass spectrometers to conduct specialized analyses in human biospecimen and it is located in the old town of Limassol, just minutes away from the cosmopolitan Mediterranean seafront. The Cyprus University of Technology has been included among the Top 400-500 best universities in the world, based on the Times Higher Education World University Rankings 2016-17.

**Qualifications** -- Highly motivated candidates should possess a Bachelor and/or Master in Life Sciences or Physical Sciences or in a related discipline.

**Funding**-- The successful candidate will be offered financial support, depending on skills and funding availability.

**Advisor**-- Dr. Konstantinos C. Makris, Associate Professor of Environmental Health

**More info** -- Visit the website of our research group at

[www.cut.ac.cy/waterandhealth](http://www.cut.ac.cy/waterandhealth)

Also, please visit our Facebook link with updated information on all activities of our research team: <https://www.facebook.com/waterandhealthlab.CU/> You may also contact the laboratory director, Dr. Konstantinos C. Makris: by either phone + 357-25002398, or email at [konstantinos.makris@cut.ac.cy](mailto:konstantinos.makris@cut.ac.cy)

• **One (1) post in the field of: "Environmental and Public Health" specializing in "Obesity and Diabetes"**

**Description:** The research position will focus on the problem of obesity and diabetes and the associated risk factors, including environmental, hormonal, and lifestyle factors (such as physical activity and diet).

**Qualifications:** Interested applicants must hold an accredited Bachelor's degree and a Master's degree in a related field. Proficiency in the English language is required. Any relevant work and/or research experience will be considered as an advantage.

**Research Advisor:** Costas A. Christophi, Associate Professor,  
[costas.christophi@cut.ac.cy](mailto:costas.christophi@cut.ac.cy)