Personal information form for Fellow members of EAMBES

Personal Info

Name: Konstantina S. Nikita

Gender: Female

Date and place of birth: 20 / 08 / 1963, Tripoli, Greece

Present affiliations and functions: Professor, Vice Dean, School of Electrical and Computer Engineering, National Technical University of Athens

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Short CV

1. Date and university for MSc and PhD degree(s)

1987-1990	Department of Electrical and Computer Engineering, National Technical University of Athens (Ph.D. in Biomedical Engineering)

2. Different professional affiliations with applicable periods

2005-	Professor, School of Electrical and Computer Engineering, National Technical University of Athens
2000-2005	Associate Professor, School of Electrical and Computer Engineering, National Technical University of Athens
1996-2000	Assistant Professor, School of Electrical and Computer Engineering, National Technical University of Athens
1991-1996	Researcher, Institute of Communication and Computer Systems, Athens

3. Major activities at the national and international level

Scientific Activities

- Associate editor of the IEEE Transactions on Biomedical Engineering, 2006-
- Guest editor of special issues (IEEE Transactions on Information Technology in Biomedicine, IEEE Transactions on Biomedical Engineering, Computerized Medical Imaging and Graphics, Nuclear Instruments and Methods A, Measurements Science and Technology)
- Reviewer of technical papers in several journals (IEEE Trans. MTT, IEEE Trans. EMC, Bioelectromagnetics, IEEE Trans. Nuclear Science, Bioelectromagnetics, Image and Vision Computing Journal, ACES, JEWA, JOSA, AIM, etc).
- Honorary Chair / Chair / Member of the organizing and/or technical program committee of more than 70 international conferences on bioengineering, medical imaging, computational electromagnetics etc. Selected recent conferences organization:
  - 3rd International Conference: Imaging Technologies in Biomedical Sciences (ITBS), Milos Island, Greece, September 2005, Conference Co-chair.
  - IEEE-IST 2006, Conference Co-chair
  - IEEE-IST 2007, Conference Co-chair
  - IEEE-BIBE 2008, General Chair
  - IIEE-IST 2008, Honorary Chair
  - IEEE-IST 2009, Conference Co-chair
  - IEEE-IST 2010, Honorary Chair
  - IEEE-IST 2011, Honorary Chair
  - MobiHealth 2010, Technical Program Committee Chair and Steering Committee member

- Mobihealth 2011, Conference Chair and Steering Committee member
- IEEE-ITAB 2010, Conference Co-chair
- EMBC 2009, Track Chair (Track: Algorithms for Data Mining and Data Processing, Theme 1-Biomedical Signal Processing)
- EMBC 2010, Track Chair (Track: Algorithms for Data Mining and Data Processing, Theme 1-Biomedical Signal Processing)
- EMBC 2011, Track Chair (Track: Algorithms for Data Mining and Data Processing, Theme 1-Biomedical Signal Processing)
- Mobihealth 2012, Conference Co-Chair and Steering Committee member

- Organizer and chair of 50 sessions in national and international symposia (IEEE, URSI, COMCON etc) on biomedical engineering, medical imaging, personal communications.
- Keynote / Invited speaker at more than 50 international workshops (organized by NATO, WHO, ICNIRP) and conferences (IEEE, URSI, COMCON, PIERS etc) in the field of biomedical engineering, medical informatics, electromagnetic dosimetry for mobile communication terminals, safety during exposure to electromagnetic radiation.
- Member of various working groups and teams of experts appointed by the European Commission, the Greek Ministries of Education and Health and the Cyprus Ministry of Education.
- National representative of Greece in the European projects COST 244 bis "Biomedical Effects of Electromagnetic Fields" , COST 281 "Potential Health Implications from Mobile Communication Systems", COST BM0704 "Emerging EMF Technologies and Health Risk Management".
- Project leader or technical manager of 30 European (eHealth, IST, ISIS, SMT, Telematics, ESPRIT, etc) or national (EPAN, EPET2, SYN, PENED, KESY etc) funded research projects.
- Evaluator of research proposals of the Greek General Secretariat of Research and Technology, the Greek Ministry of Health, the EC Framework Programmes, the Science Foundation Ireland, the Cyprus Foundation for Research Advancement.
- Member of the evaluation committee of members of staff at several Greek Universities
- Member of international teams of experts to evaluate educational programs in "Electrical and Computer Engineering" and "Computer Science".

Administrative Activities

- Member of the Management Board of the Research Institute of Accelerating Systems and Applications (IASA), University of Athens-National Technical University of Athens, 2009-
- Member of the Board of Directors of the Greek Atomic Energy Commission, 2008-2009.
- Member of the Board of Directors of the Hellenic National Academic Recognition and Information Center (Hellenic NARIC), 2007-2010.
- Member of the Hellenic National Council of Research and Technology, 2008-2010.
- IEEE-EMBS Greece Chapter Ambassador, Chair and Membership Development Founding Officer, 2006-
- IEEE Greece Section, Vice Chair, 2010- .
- National Technical University of Athens, School of Electrical and Computer Engineering, Chair of the Undergraduate Program Committee, 2010- .
- National Technical University of Athens, School of Electrical and Computer Engineering, Vice Dean, 2010- .

Teaching Activities

- Advisor of more than 150 Diploma (M.Sc.) Theses at the National Technical University of Athens, and in the framework of the European Programme SOCRATES (1996-1999), some of which have received various awards for outstanding performance.
- Advisor of 20 completed Ph.D. theses, some of which have received various awards for outstanding performance.
- Advisor of 12 Ph.D. theses in progress.
- Teaching of Undergraduate and Graduate Courses at the National Technical University of Athens, European Graduate Studies Programs ERASMUS and SOCRATES Intensive Program (IP).

4. Major scientific interests

- *Therapeutic and Diagnostic Techniques Based on the Use of RF Electromagnetic Fields*. Analysis of the interaction of RF electromagnetic fields with biological tissues. Design, development and clinical application of various therapeutic and diagnostic systems (hyperthermia, microwave tomography etc).
- *Applied Computational Bioelectromagnetics*. Development of efficient numerical modeling techniques (semi-analytical techniques, method of moments, method of auxiliary sources, hybrid numerical techniques) to solve complex forward and inverse electromagnetic scattering problems involving interactions with the human body.
- *Simulation of Physiological/Biological Systems*. Use of Monte Carlo methods for the simulation of tumor growth and tumor response to fractionated radiotherapy schemes. Use of mathematical models, fuzzy logic techniques, and artificial neural networks to simulate metabolic processes in the human body and to provide decision support in the treatment of metabolic diseases (diabetes mellitus). Development of appropriate control strategies to close the loop between continuous glucose monitoring devices and insulin infusion pumps for the treatment of diabetes patients.
- *Biomedical Signal/Image Processing and Analysis*. Use of advanced methodologies towards improved description and comprehension of the functional characteristics of vital human organs. Extraction and selection of features capable of estimating the physiological/ pathophysiological function of vital human organs. Development and use of modern techniques and algorithms for the analysis, synthesis and coupling of biosignals. Segmentation and fusion of medical images aquired from different imaging modalities (CT, MRI, PET, SPECT). Algorithms and tools for multi-dimensional medical data visualization. Digital signal/image processing and artificial intelligence techniques for the classification of medical data in order to provide decision support in diagnostic procedures.
- *Optimization Algorithms and Applications*. Non-linear optimization techniques and their applications in inverse scattering, image registration, treatment planning, physiological system identification etc.
- *Clinical decision support.* Efficient management, processing and analysis of epidemiological, clinical and other patient related data, and combination with appropriate clinical guidelines to support best practices in personalized prevention, diagnosis and treatment of diseases (breast cancer, neurological/neuropsychological disorders, diabetes). Hybrid network-based methods to explore relations/interactions in biological, medical and environmental data, aiming at estimating a person's risk to develop a disease (diabetes, cardiovascular disease) and providing proper advice regarding lifestyle habits.
- *Health Telematics*. Telematic cooperation between radio-oncological centers for virtual simulation and treatment planning in radio-oncology. Telematics-enabled Computer Aided Diagnosis Systems allowing collaboration and training of the users on a number of diagnostic tasks. Communication platforms allowing tele-monitoring and tele-management of patients with chronic diseases (Type 1 diabetes). Security issues in telematic exchange of medical data.
- *Neuroinformatics-Computational Neuroscience*. Analysis of brain's electrophysiological activity towards epileptic seizure detection and prediction, study of brain's connectivity patterns and intracranial source localization. Multi-level, multi-scale modeling of brain's neuronal networks (basal ganglia), to enhance understanding of pathophysiological mechanisms involved in neurological disorders (Parkinson's disease, epilepsy) and to assist therapeutic interventions (Deep Brain Stimulation).

5. Number of journal publications (full articles), total citations, Hirsch Factor and number of patents

- 2 books in Greek as author
- 4 books/edited volumes in English as editor/co-editor
- 8 special issues of international scientific journals as guest co-editor
- 118 papers in refereed international journals
- 31 chapters in books

- 256 international conference papers
- 40 technical reports
- ~1600 citations
- h=19
- 2 patents

6. Maximal 4 references to papers you find most important and relevant

Recognitions:

- 2003, Bodossakis Foundation Academic Prize for exceptional achievements in "Theory and Applications of Information Technology in Medicine".
- 1981-1986, Bakalas Foundation Fellowship
- 1985-1986, State Scholarships Foundation Fellowship
- 1991, Best paper award in the 45th Panhellenic Symposium of Medical / Surgical Society
- 1996, Best paper award in the 1st International Congress on Pancreatic Cancer
- 1998, Best paper award in the 1st Panhellenic Conference on Biomedical Technology
- 2007, IEEE Honor Award "for outstanding organization of IST 2007, Krakow, Poland"
- 2007, IEEE EMBS award as founding chair of the best new chapter (Greece chapter)
- 2008, IEEE Honor Award "for outstanding organization of IST 2008, Chania, Greece"
- 2008, IEEE Honor Award "in recognition and appreciation for valued services and contributions as a General Chair to the BIBE 2008, Athens, Greece"
