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ELEFTHERIA TZAMALI

Education

1-1-2005 - 02-12-2010

PhD, Department of **Computer Science**, University of Crete, Greece.

Title: "Computational study of the metabolic diversity of the bacterium Escherichia coli".

Supervision: Prof. Ioannis G. Tollis, Dr. Martin Reczko and Dr. Panayiota Poirazi. Laboratory: Computational Biology, IMBB & Biomedical Informatics, ICS, FORTH

6-10-2004 - 2005

Fulfillment of the basic knowledge requirements for the granting of a PhD, Department of Computer Science, University of Crete, Greece.

1998 – 1999

Master of Science (with Merit) in Information Processing & Neural Networks, Department of Mathematics, King's College London, UK.

Thesis title: "Motion Detection using a hierarchical Bayesian Network. Analysis of Crowd images".

Supervision: Dr. Mark Plumbley. Laboratory: Computer Vision & Robotics, King's College London.

1993 - 1998

1st degree in **Physics (Very Good)**, University of Crete, Greece.
Specialization (Very Good) in Atomic-Molecular Physics and Laser

Last year's project title: **"**Holographic Storage Information and New Holographic, Optical materials".

Supervision: Dr. S. Mailis, Dr. N. Vainos and Prof. K. Fotakis. Laboratory: Applied, Non-Linear Optics and Information Processing**,** IESL, FORTH.

Research experience

1/2/2011 – today

Laboratory of Computational Medicine, Institute of Computer Science (ICS), FORTH.

Collaborating Researcher (Postdoctoral fellow) with a focus on cancer metabolism and multi-scale models for cancer growth.

1/7/2004 – 31/8/2005

Laboratory of Lasers for the preservation of Cultural Heritage, Institute of Electronic Structure & Laser (IESL), FORTH.

My work involved multi-spectral analysis, spectral-line matching as well as holographic fringe pattern analysis and classification.

1/1/2000 – 30/6/2004 Laboratory of Computer Vision and Robotics, Institute of Computer Science (ICS), FORTH.

My work involved the development of image processing techniques (such as geometric transforms, morphological operators, motion detection, tracking, template matching) for the accomplishment of the following research projects:

- Prediction of congestion and incidents in Real-time, for intelligent Incident Management and Emergency (PRIME). (2000-2002)
- Interpreting and understanding Activities of Expert operations for teaching and education (ActiPret). (2002-2004)

1997 – 1998 Applied, Non-linear Optics and Information Processing laboratory, Institute of Electronic Structure & Laser (IESL), FORTH.

During the last year's undergraduate project I had also the opportunity to be involved in the following subjects:

- Two-stage photorefractive image amplification
- Non steady state photo electromotive force induced by dynamic gratings in photoconductors
- Photorefractive-index gratings formed by femto-second pulses (~200fs) in $BaTiO_3$ crystal
- Imaging through scattering media with holographic techniques
- Double exposure holographic interferometry for non-destructive measurements of small deformations of objects

Honors-Awards

1993 - 1994 Distinction, Undergraduate Scholarship (Hellenic Foundation for Academic Scholarships).

1994 -1995 Distinction, Undergraduate Scholarship (Hellenic Foundation for Academic Scholarships).

Teaching experience

2006 -2009 Teaching assistant in the following courses that were held in the Computer Science Department at the University of Crete:

CS118-Discrete Mathematics, Teacher: G. Georgakopoulos

CS150-Programming, Teacher: D. Kotzinos

CS240-Data Structures, Teacher: I. G. Tollis

CS482-Algorithms in Bioinformatics, Teachers: I. Tsamardinos, M. Reczko

CS577-Machine Learning, Teacher: I. Tsamardinos

Language Skills

English - Michigan Proficiency, Greek - native speaker.

Programming Skills	FORTRAN, C/C++, MATLAB.	
Research Interests	Computational Systems Biology, Network Biology, Mathematical Oncology. Metabolic Modeling, Bacterial Diversity, Microbial Communities, Ecology, and Evolution, Synthetic Ecology, Microbial Metabolic Engineering, Cancer growth modeling, Cancer metabolism, Multi-scale cancer modeling. Constraint-based modeling and Spatiotemporal models, Structural and Dynamical inference, Machine Learning techniques, Graphs and Games.	
Seminar participation	**March-May 2012**	Successfully completed, with distinction, the Stanford's free online offering course on Game Theory.
	30 – 31/10/2008	Participating in Enabling Grids for E-science, EGEE-III, Heraklion, Crete, Greece.
Summer school participation	**22/6 – 2/7/2009**	International School of **Biological Magnetic Resonance, Biophysics & Structure** to Counter Threats and Challenges, Erice, Sicily.
	27/8 - 5/9/2007	Otto Warburg International Summer School and Workshop on **"Computational Systems Biology"**, Berlin, Germany.
	25 - 29/7/2007	Workshop on **"Computational Biology"**, MedILS, Split, Croatia
	5 - 13/9/1998	Summer School of **"Advances in Lasers & Applications"**, SUSSP 52, University of St. Andrews, Scotland, UK. *Poster* Presentation: "The Dynamic of Holographic Recording in InO_x films".
	July 1996, '97, '98	8_{th}, 9_{th} and 10_{th} Summer School of **"Advanced physics",** University of Crete, Greece.
Reviewer for	Biotechnology and Bioengineering journal	

Publications

1. Sakkalis, V., Sfakianakis, S.G., **Tzamali, E.**, Marias, K., Stamatakos, G.S., Misichroni, F., Ouzounoglou, E., Kolokotroni, E., Dionysiou, D.D., Johnson, D., McKeever, S., & Graf, N. "Web-Based Workflow Planning Platform Supporting the Design and Execution of Complex Multiscale Cancer Models", IEEE Journal of Biomedical and Health Informatics (2014).
2. **E. Tzamali**, R. Favicchio, A. Roniotis, G. Tzedakis, G. Grekas, J. Ripoll, K. Marias, G. Zacharakis, and V. Sakkalis, "Employing in-vivo Molecular Imaging in Simulating and Validating Tumor Growth", 35th IEEE-EMBS, Engineering in Medicine and Biology Society (EMBC 2013).
3. **E. Tzamali**, V. Sakkalis, and K. Marias, "The effects of near optimal growth solutions in genome-scale human cancer metabolic model," in Proc. IEEE BIBE 2013, Larnaca, Cyprus, 2012, pp. 626-631.
4. **E. Tzamali**, P. Poirazi, I. G.Tollis, M. Reczko, "A computational exploration of bacterial polymorphism identifying metabolic interactions and growth-efficient strain communities", BMC Systems Biology, 5:167, 2011.

5. **E. Tzamali**, P. Poirazi, I. G.Tollis, M. Reczko, "Computational identification of bacterial communities", *International Journal of Biological and Life Sciences*, 1(4):185-191, 2009.
6. **E. Tzamali**, M. Reczko, "The benefit of cooperation: Identifying growth efficient interacting strains of Escherichia coli using metabolic flux balance models", *8th IEEE International conference on bioinformatics and bioengineering,* GREECE, 2008.
7. **E. Tzamali**, D. Anglos, "A Parametric Linear Correlation Method for the Analysis of LIBS Spectral Data", Lasers in the Conservation of Artworks, Springer proceedings in physics, 116, 377-382, 2007.
8. **E. Tzamali**, G. Akoumianakis, A. Argyros, and Y. J. Stephanedes, "Improved Design for Vision-Based Incident Detection in Transportation Systems Using Real-Time View Transformations", J. Transp. Eng. Volume 132, Issue 11, pp. 837-844, 2006.
9. C. Grivas, S. Mailis, R.W. Eason, **E. Tzamali**, N.A. Vainos, "Holographic recording mechanisms of gratings in indium oxide films using 325 nm helium-cadmium laser irradiation", Appl. Physics A 74, 457-465, 2002.
10. S. Mailis, **E. Tzamali**, N. A Vainos, V. V. Kulikov, and I. A. Sokolov, "Non-steady-state photocurrents and holographic recording in indium oxide thin films", CLEO/EUROPE-EQEC 1998, paper CThH63, Glasgow, Scotland UK, 14-18 September 1998.
11. K. Moshovis, E. Gagaoudakis, E. Chatzitheodoridis, G. Kiriakidis, S. Mailis, **E. Tzamali**, N. A. Vainos and H. Fritzsche, "Study of the ambient optical recording dynamics on sputtered indium oxide thin films", Appl. Physics A 66, (6), 65-4, 1998.
12. V. Tornari, S. Mailis, L. Boutsikaris, D. Fantidou, **E. Tzamali** and N. A. Vainos, "Double-exposure holographic interferometry of weakly illuminated objects using image amplification in photorefractive media", *3rd International Workshop in Optical Metrology- September 199*8, Akademie Verlag, Series in Optical Metrology, pp.98-1 07, Bremen, Germany, 1998.

Book chapters

1. **Eleftheria Tzamali**, Panayiota Poirazi and Martin Reczko, "Methods for Dynamical Inference in Intracellular Networks", Bioinformatics for Systems Biology, Humana Press, 28, 541-561, 2008.
2. Maria Manioudaki, **Eleftheria Tzamali**, Martin Reczko, Panayiota Poirazi, "Methods for structural inference and functional module identification in intracellular networks", Bioinformatics for Systems Biology, Humana Press, 27, 517-540, 2008.

Poster presentations

1. **E. Tzamali**, P. Poirazi, I. G. Tollis, M. Reczko, "Computational study of the metabolic diversity of the bacterium *E. coli*", 2nd Annual Conference of the Greek National Initiative "Mikrobiokosmos", Athens, Greece, December 11-13, 2009.
2. **E. Tzamali**, S. Mailis, A. Ikiades, C. Kalpouzos, N. A. Vainos, V. V. Kulikov, and I. A. Sokolov, "Characterization of indium oxide thin film holographic recorders by non-steady-state photocurrents", 5th Int. Conf. On Optics Within Life Sciences-OWLS V: "Biomedicine and Culture in the Era of Modern Optics and Lasers", Heraklion, Greece, 13-16 October 1998.
3. V. Tornari, **E. Tzamali**, D. Fantidou, N. A. Vainos, G. Betzos and P. Mitkas, "Dynamic holographic image amplification and projection: the key to optical interfacing", 5th Int. Conf. On Optics Within Life Sciences-OWLS V: "Biomedicine and Culture in the Era of Modern Optics and Lasers", Heraklion, Greece, 13-16 October, 1998.