
BIOGRAPHICAL SKETCH

NAME ATHANASIOS TSOUKALAS	POSITION TITLE POSTDOCTORAL RESEARCH ASSOCIATE		
	Department of Computer Science and UC Davis Genome Center Tagkopoulos Lab, Rm. 5312, University of California, Davis Davis, California, 95616 Office (530) 2191813 email:atsoukalas@ucdavis.edu		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
University of Patras , Patras, Greece. Diploma in Electrical and Computer Engineering. Concentration: Microprocessors and microelectronics	Diploma	2002	Electrical and Computer Engineering
University of Patras , Patras, Greece. Ph.D. in Electrical and Computer Engineering. Concentration: Control theory, optimization and automation	Ph.D.	2012	Electrical Engineering/ Microrobotics & control
University of California , Davis, USA Postdoctoral research associate. Integrative Synthetic Biology laboratory Department of Computer Science and UC Davis Genome Center		2012-2014	Postdoctoral training in Biological Networks/ Computational Biology/ Systems Biology/ Decision Support Systems

A. Personal Statement

I have academic and industrial experience in bioinformatics, control/decision support systems, optimization techniques and robotics. As a Design Lead for Fleet management system implementation for the European Commission project INNACT-RWG 2002-3, entitled "Development of an advanced technological system for treatment of emergency medical incidents" i was responsible for the integration of GPS devices with fleet management software through the provided network.

My Ph.D. studies were focused on the modeling and control of micromanipulators for obstacle avoidance in an unstructured Environment without the use of sensors.

During my postdoctoral studies i have been trained in computational biology and biological network analysis with application in a wide variety of organisms (Achaea, bacteria, plants, endothelial human brain cells). I also had the opportunity to apply my knowledge in Decision Support Systems (DSS) to an actual clinical environment with valuable feedback from experts on Sepsis treatment.

B. Positions and Employment:

Postdoctoral Research Associate, UC Davis Genome Center (2012-2014)

Advisor: Prof. Ilias Tagkopoulos, Computer Science and Genome Center, UC Davis

- Computational biology and biological network analysis. Expert user of R/Bioconductor.
- Decision Support Systems with application in Sepsis treatment, MDP/POMDP design.
- Project lead for "Bacteria Wars", an educational strategy game.
- Design of the front end of SBROME synthetic biology web editor.

Research Assistant, ECE department, University of Patras, Greece (2002 – 2012)

Advisor: Prof. Antony Tzes, Department of Electrical and Computer Engineering, University of Patras and Polytechnic Institute (now NYU)

- Graduate student in the Control and Automation laboratory at the Department of Electrical and Computer Engineering, University of Patras
- Designer of a visualization suite for the program MANET Intercommunication for Robotic Applications for Lunar Exploration (MIRACLE) project of the European Space Commission (2005-2006).
- Participated in the design team of the EPEAEK project Greek Ministry of Education, entitled "E-learning infrastructure for engineering education" (2004-2005)
- Software designer for intercommunication of distributed systems in the European IST project IST-2001-38314-COLUMBUS, entitled "Design of Embedded Controllers for Safety Critical Systems" (2003 - 2004)
- Design Lead for Fleet management system implementation for the European Commission project INNACT-RWG 2002-3, entitled "Development of an advanced technological system for treatment of emergency medical incidents". Integration of GPS devices, fleet management software, network programming, in the Patras Rio Hospital (2002 - 2003)

Greek Army Forces, Research and Technology Division (2008 – 2010)

Freelancer Software Engineer (2002 – 2014)

- Project lead for "The Fable of Tetra", a role playing game targeting PC/XBLA/PSN and WP7/iOS platforms, using Kinect and High-resolution multi-touch.
- Expert-level programming in C++/C#, VB, Java, database management, server-side applications, Unity3D.

Architectural and CAD design, Patras, Greece (1996 – 2002)

- Specialized solutions for urban planning
- Expert user of professional packages such as Matlab, Mathematica, AutoCAD, AutoLISP, AutoFine, 4M ADAPT, FCALC and illustration/3D modeling suites (Maya, 3D Studio, Corel Draw)
- Submitted and successfully completed more than 100 architectural permits for residential and commercial buildings

C. Peer-reviewed publications

Journal publications

1. Taylor-Teeple M., **Tsoukalas A.**, Turco G., Tagkopoulos I. and Brady SM., "Environmental, Developmental and Genotype-Dependent Regulation of Xylem Cell Specification and Secondary Cell Wall Biosynthesis in Arabidopsis thaliana", under revision, Nature
2. Aung H.H.[†], **Tsoukalas A.**[†], Rutledge J.C., Tagkopoulos I., "A systems biology analysis of brain microvascular endothelial cell lipotoxicity", BMC Systems Biology, 8:80, 2014
3. L.Huynh, **A.Tsoukalas**, M.Koppe, I.Tagkopoulos, "SBROME: A Scalable Optimization and Module Matching Framework for Automated Biosystems Design", ACS Synthetic Biology, vol 2, no 5, pp 263-273 2013
4. **A.Tsoukalas**, A.Tzes, "Modelling and Control of Hyper-Redundant Micromanipulators for Obstacle Avoidance in an Unstructured Environment", submitted revisions, Journal of Intelligent & Robotic Systems, 2013.
5. **A.Tsoukalas**, A.Tzes, "Modelling and adaptive control of nanowire-driven micromanipulators", Journal of Intelligent and Robotic Systems, vol 62, no. 3 - 4, pp. 419 - 450, 2011
6. Carrera J., Estrela R., Luo J., Rai N., **Tsoukalas A.**, Tagkopoulos I. "An integrative, multi-scale genome-scale model reveals the phenotypic landscape of Escherichia coli", Molecular Systems Biology, vol 10, no 7, 2014
7. **Tsoukalas A.**, Albertson T., Tagkopoulos I., "From Data to Optimal Decision Making: A Data-driven, Probabilistic Machine Learning Approach to Decision Support for Patients with Sepsis", Under review, JMIR Medical Informatics.

Conference publications

1. Y.Koveos, A. Panousopoulou, E. Kolyvas, V. Reppa, K. Koutroumpas, **A.Tsoukalas**, A.Tzes, "An Integrated Power Aware System for Robotic-based Lunar Exploration", In Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems, Paper TuC6.2, pp. 827-832, San Diego, CA, U.S.A, 2007
2. **A.Tsoukalas**, A. Tzes, "Modeling and Adaptive Control of Tendon Driven Micromanipulators in the Presence of Van-der-Waals Forces", Proceedings of IMECE2004, 2004 ASME Internatinal Mechanical Engineering Congress and RD and D Expo, Anaheim, California, USA, 2004
3. **A.Tsoukalas**, A. Tzes A. Skleros, "Modeling and Adaptive Control of Robotic Micromanipulators in the Presence of Van-der-Waals Forces", 12th Mediterranean Conference on Control and Automation MED'04, 2004

D. Teaching experience

- **Guest Lecturer**, ECS 124: Theory and Practice of Bioinformatics, UC Davis, Fall 2012
- **Instructor**: Automation systems laboratory, University of Patras (2004 - 2006)
Course: Automatic Control Systems.
- **Teaching Assistant**: Automation systems laboratory, University of Patras (2003)
Course: Robotics lab.

E. Activities

- Graduate student representative to the academic senate, University of Patras.
- Program Committee member and reviewer for conferences in the Robotics and Automation field (IEEE International Conference on Industrial Technology-ICIT 2012, IEEE International Conference of Electronics, Circuits, and Systems-ICECS 2011).
- Languages: Greek(native), English.