

GEORGIOS E. FAINEKOS

School of Computing, Informatics and Decision Systems Engineering, Arizona State University.

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RESEARCH INTERESTS

Cyber-Physical Systems: *Hybrid Dynamical Systems, Real Time and Embedded Systems*; **Formal Methods with applications to Control & Automation:** *Controller Synthesis, System Testing and Verification, Formal Languages and Logic*; **Robotics:** *Motion and Mission Planning, Human-Robot Interfaces*.

EDUCATION

- **University of Pennsylvania** (2004 – 2008), Philadelphia, PA, USA
Doctor of Philosophy in Computer and Information Science
Thesis: Robustness of Temporal Logic Specifications
Advisor: G. J. Pappas (UPenn) GRASP Lab
- **University of Pennsylvania** (2002 – 2004), Philadelphia, PA, USA
Master of Science in Engineering in Computer and Information Science
- **National Technical University of Athens** (1996 – 2001), Athens, Greece
Diploma (Master of Science in Engineering) in **Mechanical Engineering**; Major in Design & Control
Thesis: Ant Colony Optimization: Applications to discrete and continuous problems
Advisor: K. Giannakoglou (NTUA) Lab of Thermal Turbomachines

ACADEMIC EMPLOYMENT

- **Assistant Professor**, Aug. 2009 – up to now
Arizona State University, Tempe, USA
Appointment: School of Computing, Informatics and Decision Systems Engineering.
Director: Cyber-Physical Systems Laboratory (CPSLab)
Affiliation: NSF I/UCRC Center for Embedded Systems (CES)

PROFESSIONAL EMPLOYMENT

- **Postdoctoral Researcher**, NEC Laboratories America, Oct. 2008 – Aug. 2009, USA
Principal researcher for the project Tessa (Techniques for Embedded System and Software Assurance): see Research Experience section.
- **Mechanical Engineer**, Jet Engineering ltd, Nov. 2001 – Jul. 2002, Greece
Part of an engineering team working on the design, verification, validation and manufacturing of tank trailers and tank containers for hazardous materials. Successfully designed (using SolidWorks) three out of the four tank models of the company's current production line. Design for adherence to international standards: ADR, PrEN-13094, PrEN-14025, DIN-4100 and EN-288. Trained in verification using finite element methods and in experimental validation (data acquisition from the prototype tank vehicles).
- **Intern**, Microfluidics Laboratory, Purdue University, Aug. – Dec. 2000, USA
Part of a group of students working on the design of a manifold supporting a model (microchip) of the choroidal vasculature. Responsibilities: Design of the model in Pro Engineer; Web page development.

- **Intern**, Engines Maintenance Unit, Hellenic Aerospace Industry ltd, Mar. – Jul. 2000, Greece
Development of an automated Local Heat Treatment (LHT) unit for military engine parts. Trained on LHT processes for aerospace materials. Successfully designed and implemented in Visual Basic a software package for the control of LHT processes. Tuning of the PID controllers. Selected components and designed procedures in accordance with military specifications. Final report (in Greek) co-supervised by Dr. Freskos (HAI) and Dr. Giannakoglou (NTUA): *Local Heat Treatment Processes: Development of computer software for Control and Data Acquisition*.
- **Intern**, Current Technology ltd, 1996 – 99, Greece
Participated in various posts in summer internships in CT ltd which is specialised in the design and production of industrial automations and CNC machines. Sample projects: plasma cutting and milling CNC machines, foam cutting machines, jet-engine testing facilities.

RESEARCH ACTIVITIES

- **Assistant Professor**, Arizona State University, Aug. 2009 –, USA
Further information can be found at: <http://www.public.asu.edu/~gfaineko/research.html>.
 - **Awarded proposals** (Total amount of research funds received: **\$729,731.00**)
 - (AP1) **(PI)** *CSR: Small: Model Exploration for Cyber-Physical Systems*, Funding source: National Science Foundation (NSF), Award # 1116136, Period: Aug. 2011 - Jul. 2014, **Award: \$375,000.00**.
 - (AP2) **(PI)** *Statistical Techniques for Property Exploration of Cyber-Physical Systems*, Funding source: Center for Embedded Systems (CES) at Arizona State University (ASU), Supporting CES industry member: Toyota, Award A2.Y3.GF Period: Aug. 2011 – Jul. 2012, **Award: \$45,915.00**.
 - (AP3) **(PI)** *SHF: Small: Collaborative Research: Statistical Techniques for Verifying Temporal Properties of Embedded and Mixed-Signal Systems*, Funding source: National Science Foundation (NSF), Award # 1017074, Period: Aug. 2010 - Jul. 2013, **Award: \$239,319.00**. (Collaborative with Sriram Sankaranarayanan, University of Colorado, Total award for period Aug. 2010 - Jul. 2013: \$488,921.00)
 - (AP4) **(PI)** *Robust Testing for Reconfigurable Networked Control Systems and Mixed-Signal Systems*, Funding source: Center for Embedded Systems (CES) at Arizona State University (ASU), Supporting CES industry member: Toyota, Awards A2.Y1.GF and A2.Y2.GF.C Period: Jan. 2010 – Dec. 2011, **Award: \$69,497.00**.
- **Postdoctoral Researcher**, NEC Laboratories America, Oct. 2008 – Aug. 2009, USA
 - *Tessa: Techniques for Embedded System and Software Assurance*
Research on verification and testing of embedded systems software. Developed a framework for the robustness analysis of Simulink simulations and models using self-validated arithmetics (interval and affine arithmetic). The goal of the project was to study the robustness and correctness of Simulink simulations under system uncertainties, numerical errors and floating point rounding errors. The outcome of the project was the Matlab toolbox RobSim which can analyze continuous-time, discrete-time and mixed-signal systems.
- **Research Assistant**, GRASP Lab, University of Pennsylvania, 2002 – 2008, USA
 - *Formal Methods for Testing and Verification of Hybrid and Dynamical Systems*
Developed a theory for the robustness of temporal logic specifications over discrete and continuous time signals in metric spaces. Built a software toolbox for analyzing the robustness of temporal logic specifications over discrete time signals. Developed a framework for reasoning in continuous time using discrete time methods. Applied the theory to the analysis of continuous – discrete time systems with metric state spaces. Built a software toolbox for testing hybrid systems.
 - *Controller Design Using Temporal Logic Specifications*
Developed a framework for deriving controller specifications from temporal logic formulas. Built a toolbox that synthesizes hybrid systems from temporal logic specifications.

- *From Structured English to Path Planning for Mobile Robots*
Developed a framework for deriving hybrid controllers for path planning for mobile robots from structured English. The framework uses as intermediate formalism linear temporal logic and applies to motion planning of both dynamic and kinematic models of robots.
- *Modeling and Development of Unmanned Aerial Vehicles (UAV)*
Developed aerodynamic and structural models of the Penn UAV platform. Designed and built parts of the Penn UAV platform.
- **Research Assistant**, Lab of Thermal Turbomachines, NTUA, Jan. – Nov. 2001, Greece
 - *Inverse design of airfoils using Ant Colony Optimization algorithms*
Extended the discrete ant colony optimization algorithm to handle continuous optimization problems. Built a software toolbox for the application of the method to the problem of inverse design of airfoils.

TEACHING EXPERIENCE

- **Instructor**, Arizona State University, USA
 - CSE 355 (Fall 2011): **Introduction to Theoretical Computer Science**
 - CSE 522 (Spring 2011): **Real-time Embedded Systems**
 - CSE 355 (Fall 2010): **Introduction to Theoretical Computer Science**
 - CSE 591 (Spring 2010): **Theoretical aspects of Cyber-Physical Systems**
 - CSE 355 (Fall 2009): **Introduction to Theoretical Computer Science**
- **Teaching Assistant**, University of Pennsylvania, USA
 - CSE 110 (Spring 2004): *Introduction to Programming (in C)*, Responsibilities: recitations (3 hour lectures per week), office hours, homeworks and exams, grading
 - CSE 390/MEAM 420 (Fall 2003): *Robotics*, Responsibilities: office hours, homeworks and exams, preparation of labs (using Lego Mindstorms), grading

PUBLICATIONS

Most of my publications are available on line at <http://www.public.asu.edu/~gfaineko/papers.html>.

My own name appears in boldface. After my graduation in 2008: My students' names, i.e., the students whose thesis I supervise/ed or whose research I funded, appear in boldface and underlined. Other students that I have collaborated with appear underlined.

For citation information see <http://scholar.google.com/citations?user=WGRYgBEAAAAJ&hl=en>.

Thesis

- (Th1) **Georgios Fainekos**, Robustness of Temporal Logic Specifications, PhD Thesis, Department of Computer and Information Science, University of Pennsylvania, August 2008; Advisor: George J. Pappas; Committee: Rajeev Alur (Chair), Edmund M. Clarke (External), Insup Lee, and Oleg Sokolsky.
- (Th2) **Georgios Fainekos**, Ant Colony Optimization: Applications to discrete and continuous problems, Diploma Thesis, Department of Mechanical Engineering, National Technical University of Athens, September 2001 (in Greek); Committee: K. Giannakoglou (Chair/Advisor), K. Mathioudakis, K. Papailiou.

Editorials

- (E1) **G. E. Fainekos**, E. Goubault, S. Putot and S. Ratschan, Guest editors for the special issue on Numerical Software Verification in *Mathematics in Computer Science*, Vol. 5, N. 4, Springer
- (E2) **G. E. Fainekos**, E. Goubault, F. Ivancic and S. Sankaranarayanan, Guest editors for the special issue on Numerical Software Verification of Cyber-Physical Software Systems in *ACM Transactions on Embedded Computing Systems*, [Scheduled for publication 2012].

Refereed Journal Publications

- (J1) **G. E. Fainekos** and G. J. Pappas, Robustness of temporal logic specifications for continuous-time signals. *Theoretical Computer Science*, Elsevier, V 410, N 42, pp 4262-4291, 2009.
- (J2) **G. E. Fainekos**, A. Girard, H. Kress-Gazit and G. J. Pappas, Temporal Logic Motion Planning for Dynamic Mobile Robots. *Automatica*, Elsevier, V 45, N 2, pp 343-352, 2009.
- (J3) H. Kress-Gazit, **G. E. Fainekos** and G. J. Pappas, Temporal Logic-based Reactive Mission and Motion Planning. *IEEE Transactions on Robotics*, IEEE, V 25, N 6, pp 1370-1381, 2009.
- (J4) H. Kress-Gazit, **G. E. Fainekos** and G. J. Pappas, Translating Structured English to Robot Controllers. *Advanced Robotics*, VSP\Brill Academic Publishers, V 22, N 12, pp 1343-1359, 2008. (**Invited paper**)
- (J5) **G. E. Fainekos** and K. C. Giannakoglou, Inverse Design of Airfoils Based on a Novel Formulation of the Ant Colony Optimization Method. *Inverse Problems in Engineering*, Taylor & Francis, V 11, N 1, pp 21-38, 2003.

Refereed Conference Papers with Proceedings

- (C1) **H. Abbas** and **G. Fainekos**, Linear Hybrid System Falsification Through Local Search, In the Proc. of *Automated Technology for Verification and Analysis*, Lecture Notes in Computer Science, Vol. 6996, pp 503-510, Springer 2011
- (C2) **Y. S. R. Annapureddy**, **C. Liu**, **G. E. Fainekos** and S. Sankaranarayanan, S-TaLiRo: A Tool for Temporal Logic Falsification for Hybrid Systems, In the Proc. of *Tools and algorithms for the construction and analysis of systems*, Lecture Notes in Computer Science, Vol. 6605, pp 254-257, Springer 2011 (**28% Acceptance Rate**)
- (C3) **A. Chakarov**, S. Sankaranarayanan, and **G. Fainekos**, Combining Time and Frequency Domain Specifications For Periodic Signals, In the Proc. of *Runtime Verification*, Lecture Notes in Computer Science, Vol. [Not assigned yet], Springer 2011
- (C4) **Truong Nghiem** and **Georgios E. Fainekos**, Computing Schedules for Time-Triggered Control using Genetic Algorithms, In the *Proceedings of the 18th IFAC World Congress*, Milan, Italy, Aug. 2011
- (C5) **G. E. Fainekos**, Revising Temporal Logic Specifications for Motion Planning. In the *Proceedings of the 2011 IEEE International Conference on Robotics and Automation*, Shanghai, China, May 2011
- (C6) **Y. S. R. Annapureddy** and **G. E. Fainekos**, Ant Colonies for Temporal Logic Falsification of Hybrid Systems, In the *Proceedings of the 36th Annual Conference of IEEE Industrial Electronics*, pp. 91-96, Glendale, AZ, Nov. 2010
- (C7) **Truong Nghiem**, S. Sankaranarayanan, **G. Fainekos**, F. Ivancic, A. Gupta and G. Pappas, Monte-Carlo Techniques for Falsification of Temporal Properties of Non-Linear Systems, In the *Proceedings of the 13th ACM Conference on Hybrid Systems: Computation and Control*, Stockholm, Sweden, Apr. 2010 (**28% Acceptance Rate**)
- (C8) **G. E. Fainekos**, S. Sankaranarayanan, F. Ivancic and A. Gupta, Robustness of Model-based Simulations. *IEEE Real-Time Systems Symposium*, pp 345 - 354, Washington DC, Dec. 2009 (**21% Acceptance Rate**)

- (C9) **G. E. Fainekos** and G. J. Pappas, MTL Robust Testing and Verification for LPV Systems. In the *Proceedings of the 2009 IEEE/AACC American Control Conference*, pp 3748 - 3753, St. Louis, Missouri, June 2009
- (C10) **G. E. Fainekos** and G. J. Pappas, Robust Sampling for MITL Specifications. *In the 5th Inter. Conference on Formal Modeling and Analysis of Timed Systems*, Lecture Notes in Computer Science, Vol. 4763, pp 147-162, Springer 2007
- (C11) **G. E. Fainekos**, A. Girard and G. J. Pappas, Hierarchical Synthesis of Hybrid Controllers from Temporal Logic Specifications. *Hybrid Systems: Computation and Control*, Lecture Notes in Computer Science, Vol. 4416, pp 203-216, Springer 2007 (**25% Acceptance Rate**)
- (C12) A. A. Julius, **G. E. Fainekos**, M. Anand, I. Lee and G. J. Pappas, Robust test generation and coverage for hybrid systems. *Hybrid Systems: Computation and Control*, Lecture Notes in Computer Science, Vol. 4416, pp 329-342, Springer 2007 (**25% Acceptance Rate**)
- (C13) H. Kress-Gazit, **G. E. Fainekos** and G. J. Pappas, From Structured English to Robot Motion. In the *Proceedings of the 2007 IEEE/RSJ International Conference on Intelligent Robots and Systems*, pp. 2717-2722, San Diego, California, October 2007
- (C14) H. Kress-Gazit, **G. E. Fainekos** and G. J. Pappas, Where's Waldo? Sensor-Based Temporal Logic Motion Planning. In the *Proceedings of the 2007 IEEE International Conference on Robotics and Automation*, pp. 3116-3121, Rome, Italy, April 2007 (**Finalist for best student paper, Invited paper**)
- (C15) **G. E. Fainekos**, A. Girard and G. J. Pappas, Temporal Logic Verification Using Simulation. *In the 4th Inter. Conference on Formal Modelling and Analysis of Timed Systems*, Lecture Notes in Computer Science, Vol. 4202, pp 171-186, Springer 2006
- (C16) **G. E. Fainekos** and G. J. Pappas, Robustness of Temporal Logic Specifications. *In the Workshop on Formal Approaches to Testing and Runtime Verification*, Lecture Notes in Computer Science, Vol. 4262, pp 178-192, Springer 2006
- (C17) **G. E. Fainekos**, S. G. Loizou, G. J. Pappas, Translating temporal logic to controller specifications. In the *Proceedings of the 45th IEEE Conference on Decision and Control*, pp. 899-904, San Diego, California, December 2006
- (C18) **G. E. Fainekos**, H. Kress-Gazit and G. J. Pappas, Hybrid Controllers for Path Planning: A Temporal Logic Approach. In the *Proceedings of the 44th IEEE Conference on Decision and Control*, pp. 4885-4890, Seville, Spain, December 2005
- (C19) **G. E. Fainekos**, H. Kress-Gazit and G. J. Pappas, Temporal Logic Motion Planning for Mobile Robots. In the *Proceedings of the IEEE International Conference on Robotics and Automation*, pp. 2020-2025, Barcelona, Spain, April 2005
- (C20) S. Bayraktar, **G. E. Fainekos** and G. J. Pappas, Experimental Cooperative Control of Fixed-Wing Unmanned Aerial Vehicles. In the *Proceedings of the 43rd IEEE Conference on Decision and Control*, pp. 4292-4298, The Bahamas, December 2004, (**Invited paper**)

Peer-reviewed Tutorial Papers & Presentations

- (Tu1) D. Del Vecchio, E. A. Lee, J.-F. Raskin, G. J. Pappas, **G. E. Fainekos**, D. Caveney and L. Caminiti, Partial Order Techniques for the Analysis and Synthesis of Hybrid and Embedded Systems. In the *Proceedings of the 46th IEEE Conference on Decision and Control*, pp. 156-170, New Orleans, Louisiana, December 2007

Invited Papers

- (I1) A. Banerjee, S. K. S. Gupta, **G. Fainekos**, and G. Varsamopoulos, Towards Modeling and Analysis of Cyber-Physical Medical Systems. In Proc. of the *4th International Symposium on Applied Sciences in Biomedical and Communication Technologies*, Barcelona, Spain, 2011.

Patents Pending

- (P1) U.S. Patent Application No 12/708,651, Publication No US 2010/0299651 A1 (published Nov. 25, 2010) (**Fainekos et al.**, “Robust Testing for Discrete-Time and Continuous-Time System Models”)

Technical Reports

- (TR1) **Houssam Abbas** and **Georgios Fainekos**, Linear Hybrid System Falsification With Descent. *Technical Report arXiv:1105.1733*, 2011
- (TR2) **G. E. Fainekos**, A. Girard, H. Kress-Gazit and G. J. Pappas, Temporal Logic Motion Planning for Dynamic Mobile Robots, *Technical Report MS-CIS-07-02*, Department of CIS, University of Pennsylvania, January 2007
- (TR3) **G. E. Fainekos**, A. Girard and G. J. Pappas, Hierarchical synthesis of hybrid controllers from temporal logic specifications, *Technical Report MS-CIS-07-01*, Department of CIS, University of Pennsylvania, January 2007
- (TR4) **G. E. Fainekos** and G. J. Pappas, Robustness of Temporal Logic Specifications for Finite State Sequences in Metric Spaces. *Technical Report MS-CIS-06-05*, Department of CIS, University of Pennsylvania, May 2006
- (TR5) **Georgios E. Fainekos**, An Introduction to Multi-Valued Model Checking. *Technical Report MS-CIS-05-16*, Department of CIS, University of Pennsylvania, September 2005
- (TR6) S. Bayraktar, **G. E. Fainekos** and G. J. Pappas, Hybrid Modeling and Experimental Cooperative Control of Multiple Unmanned Aerial Vehicles. *Technical Report MS-CIS-04-32*, Department of CIS, University of Pennsylvania, December 2004

RELEASED SOFTWARE

- TALIRO (TemporAl LogIc RObustness) tools is a suit of tools for the analysis of continuous and hybrid dynamical systems using linear time temporal logics. Currently, the following tools are distributed on the web-page <https://sites.google.com/a/asu.edu/s-taliro/>:
 - S-TALIRO (Systems TALIRO) is a software toolbox for Matlab for the temporal logic falsification of Hybrid Automata and Matlab/Simulink models.
 - TALIRO is a software toolbox for Matlab for the temporal logic robustness analysis of discrete time signals that take values in metric spaces.
- TALIRO v0.1 computes the robustness estimate of a Metric Temporal Logic formula with respect to a bounded duration 1D discrete time signal: <http://www.public.asu.edu/~gfaineko/taliro.html>

PRESENTATIONS

Note: Presentations given at the conferences listed above are not mentioned in this section. Some selected presentations can be found at: <http://www.public.asu.edu/~gfaineko/papers.html>.

Invited Talks & Tutorials

1. *Robust testing and Testing robustness for Cyber-Physical Systems*, Department of Electrical Engineering, University of California at Los Angeles, USA, June 2011
2. *Robust testing and Testing robustness for Cyber-Physical Systems*, Department of Computer Science and Engineering, Washington University, USA, September 2010
3. *Testing and Verification of Cyber-Physical Systems*, Department of Computer Science, Columbia University, USA, May 2008

4. *Testing and Verification of Cyber-Physical Systems*, Department of Computer Science and Engineering, Arizona State University, USA, April 2008
5. *Testing and Verification of Cyber-Physical Systems*, NEC Laboratories, USA, March 2008
6. *Cyber-Physical Systems: Theory and Applications*, Department of Electrical and Computer Engineering, Stevens Institute of Technology, USA, February 2008
7. *Temporal Logics over Lattices and Applications*, Tutorial session on partial order techniques for the analysis and synthesis of hybrid and embedded systems, IEEE Conference on Decision and Control, New Orleans, USA, December 2007
8. *Robustness of Temporal Logic Specifications (and an application to verification using simulation)*, Verimag, Grenoble, France, September 2006

Defenses

1. *Robustness of Temporal Logic Specifications*, PhD thesis defense, University of Pennsylvania, USA, June 2008. Committee: Rajeev Alur (Chair), Edmund M. Clarke (External), Insup Lee, and Oleg Sokolsky
2. *Multi-Valued Model Checking*, In-depth examination, University of Pennsylvania, USA, June 2005
Committee: Rajeev Alur (Chair), Insup Lee and George J. Pappas
3. *Ant Colony Optimization: Applications to discrete and continuous problems*, Thesis defense, National Technical University of Athens, Greece, September 2001
Committee: K. Giannakoglou (Chair), K. Mathioudakis, K. Papailiou

Posters

1. *Temporal Logic Motion Planning for Mobile Robots*, Hybrid Systems : Computation and Control, Santa Barbara, California, March 2006
2. *Temporal Logic Motion Planning for Mobile Robots*, Graduate Research Symposium, University of Pennsylvania, March 2005 (**Best poster award**)

AWARDS

- 2008 Frank Anger Memorial ACM SIGBED/SIGSOFT Student Award
- Finalist, Best Student Paper (2007 International Conference on Robotics and Automation)
- Best Poster Award (2005 Graduate Research Symposium at the University of Pennsylvania)
- 2002 – 08: Graduate Research Fellowship (University of Pennsylvania)
- Award for academic excellence in engineering sciences for the academic year 2000-2001 (Awarded by the Technical Chamber of Greece; Given to the top 5 students of every year in each department)

SERVICE AND PROFESSIONAL ACTIVITIES

- ASU Internal Service
 - Fall 2011 - Spring 2012: Computer Science (CS) Admissions Committee
 - Fall 2010 - Spring 2011: Computer Systems Engineering (CSE) Undergraduate Program Committee (UPC)
- Conference/Workshop Organizer:

- with E. Goubault and S. Putot; Numerical Software Verification (NSV) III; Affiliated with the Federated Logic Conference (FLOC) 2010.
- with E. Goubault and S. Sankaranarayanan; Numerical Software Verification (NSV) II: Verification of Cyber-Physical Software Systems; Affiliated with the Cyber-Physical Systems (CPS) Week 2009.
- Conference/Workshop Organizing Committee member:
 - Exhibit chair: Annual Conference of IEEE Industrial Electronics (IECON): 2010
- Program Committee member:
 - IEEE Real-Time Systems Symposium (RTSS): 2010, 2011
 - Logics for System Analysis (LfSA): 2010
 - Interaction and Concurrency Experiences (ICE): 2009
 - Quantitative Formal Methods (QFM): 2009
- NSF Panels
 - Cyber-Physical Systems (CPS) Initiative
- Reviewer for Journals (alphabetical order):
 ACM Transactions on Embedded Computing Systems; Automatica; Formal Methods in System Design; IEEE Control Systems Magazine; IEEE Robotics and Automation Magazine; IEEE Systems, Man and Cybernetics; IEEE Transactions on Automatic Control; IEEE Transactions on Automation Science and Engineering; IEEE Transactions on Control Systems Technology; IEEE Transactions on Robotics, IEEE Transactions on Software Engineering, *and* Robotics and Autonomous Systems.
- Reviewer for Conferences (alphabetical order):
 American Control Conference (ACC); Analysis and Design of Hybrid Systems (IFAC ADHS); Conference on Automation Science and Engineering (IEEE CASE); Computer Aided Verification (CAV); Conference on Decision and Control (IEEE CDC); Embedded Systems Software (ACM EMSOFT); European Control Conference (ECC); Formal Modeling and Analysis of Timed Systems (FORMATS); Hybrid Systems: Computation and Control (ACM HSCC); Industrial Electronics (IEEE IECON); International Conference on Intelligent Robots and Systems (IEEE/RSJ IROS); International Conference on Robotics and Automation (IEEE ICRA); Logic in Computer Science (LICS); Mediterranean Control Conference (MED); Multi-conference on Systems and Control (MSC); Reachability Problems (RP); *and* Real-Time Systems Symposium (IEEE RTSS).
- Graduate Student Representative for the academic year 2007-08 at the University of Pennsylvania (Attending faculty meetings; Member of the committee for the appointment of the new department Chairperson)
- Professional Memberships:
 - Association for Computing Machinery (ACM): Member 2008-, Student Member 2006-08.
 Special Interest Group: Embedded Systems (SIGBED).
 - Institute of Electrical and Electronics Engineers (IEEE): Member 2008 -, Student Member 2004-08.
 Societies: Robotics and Automation Society (RAS); Control Systems Society (CSS).
 - American Society Of Mechanical Engineers (ASME) Member 2008-10, Student Member 2006-08.
 - Member of the Technical Chamber of Greece since 2002 (as Mechanical Engineer)

STUDENTS

1. Current:

- **PhD**

- (a) Houssam Abbas (ECEE, ASU, Co-advised with Tolga Duman)
- (b) Bardh Hoxha (CIDSE, ASU)
- (c) Kangjin Kim (CIDSE, ASU)
- (d) David Medawar (CIDSE, ASU)

- **MS**

- (a) Ramtin Kermani (CIDSE, ASU).
- (b) Shashank Srinivas (CIDSE, ASU).
- (c) Shih-Kai Su (CIDSE, ASU).
- (d) Hengyi Yang (CIDSE, ASU).

2. Graduated:

- **MS**

- (a) Yashwanth Singh Rahul Annapureddy (Fall 2011, CIDSE, ASU). Thesis title: *S-TaLiRo: A tool for Temporal Logic Falsification for Hybrid Systems*. First placement: *Mathworks*

3. Other student advising:

- **Capstone teams**

- (a) Nikunj Dixit, Xing Gao, Anurag Kamasamudram, Wenyang Li, Narendra Patel (Fall 2011 - Spring 2012, CIDSE, ASU). Project title: *Touch screen interface for Human-Robot Interaction*.
- (b) Blake Birmingham, Nathan Kiel, Patrick Murphy, Mark Nixon, Michelle Paynes, Marcus Yazzie (Fall 2010 - Spring 2011, CIDSE, ASU). Project title: *Multi-Robot Experimental Platform*.

- **MS (On-line)**

- (a) Benjamin Jones (Fall 2011, CIDSE, ASU), Applied project title: *Automated Control of Multistage Evaporative Chilling for Residential Cooling Systems*

4. PhD Thesis committee member:

Michael Jonas (CIDSE, ASU, Advisor: Sandeep Gupta), Ayan Banerjee (CIDSE, ASU, Advisor: Sandeep Gupta)

5. Master Thesis committee member:

Sailesh Kandula (CIDSE, ASU, Advisor: Sandeep Gupta), Fei Hong (CIDSE, ASU, Advisor: Aviral Shrivastava)

OTHER EDUCATIONAL BACKGROUND

- **Launching of Ariane V.** Ecole Centrale Paris, Board of European Students of Technology (BEST) Spring course 2002, Paris, France.
- **Usability Engineering.** Chalmers University of Technology, Board of European Students of Technology (BEST) Summer course 2001, Gothenburg, Sweden.
- **Mathematics.** Department of Mathematics, University of Patras, 1995 – 96, Greece
First year student in the undergraduate program in mathematics.

COMPUTER KNOWLEDGE & FOREIGN LANGUAGES

- **Programming:** C, C++, Fortran, Visual Basic, OCaml
- **CAD/FEA:** SolidWorks, CosmosWorks, AutoCAD, Mechanical Desktop, Pro Engineer
- **Model Checking Tools:** SPIN, SMV
- **Modelling and Prototyping:** MATLAB, Simulink, Mathematica, ...
- **Greek:** Native, **English:** Fluent (Cambridge Certificate of Proficiency in English), **German, Spanish, Japanese:** beginner

EXTRA-CURRICULAR ACTIVITIES

- Open Sea Sailing (former member of the Hellenic Offshore Racing Club, Greece)
- Horse Riding (former member of the Horse Riding Club of Mesogeion, Greece)
- Basketball (During High-School: member of Kronos Basketball Team, Greece)
- Playing the saxophone (former member of Agios Dimitrios Municipality Band, Greece)