

## Dr. Athanasios (Thanos) Stathopoulos

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### CONTACT INFORMATION

Center for Embedded Networked Sensing  
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### CURRENT RESEARCH INTERESTS

- Energy-Aware Computing for Server Systems & Embedded Systems
- System-wide Optimizations for Energy-Efficient Computing
- Energy-Aware Operating Systems
- Outcome-oriented Wireless Health & Biomedical applications

### RESEARCH & PROFESSIONAL ACTIVITIES

**University of California, Los Angeles, Los Angeles, CA, USA**

*Postdoctorate Research Scientist*

**July 2007—Current**

Since July 2007, I have been working as a Postdoctoral Research Scientist, in a joint appointment at CENS and the EE department at UCLA. As part of my position I pursue active research, manage research & development programs, participate in grant & proposal formulation and advise graduate students.

#### *Active Research Efforts*

- Actively pursuing research in the area of *Energy-Aware Computing Systems*, aimed at providing energy savings to computing environments ranging from server systems to embedded systems, through detailed, real-time energy measurements and energy-performance optimizations.
- Actively pursuing research in the area of *Wireless Health*, with emphasis on resource management and optimization.

#### *Research and Development Program Management*

- National Instruments partnership program. I am the main Program Manager on the NI partnership program, which includes an R&D component on energy-aware platform & software development and an academic component, which includes instruction support & development of instruction material.
- LEAP-embedded & LEAP-server. I am the main Program Manager on the LEAP-embedded and LEAP-server programs, which are part of the Energy-Aware Computing research effort.
- Traffic monitoring program. I contribute to the research planning on the campus traffic monitoring pilot program.
- SmartCane & Wireless Health program. I contribute to the technical and research planning on the SmartCane and Wireless Health programs.

#### *Advised Students*

- Dustin McIntire (co-advised with William Kaiser)
- Sebi Ryffel (co-advised with William Kaiser and Lothar Thiele)
- Yeung Lam (co-advised with William Kaiser)

**Foundation for Research and Technology, Hellas (FORTH), Heraklion, Crete, Greece**

*Postdoctorate Researcher*

**January 2007—June 2007**

- Designed and implemented a per-process energy consumption measurement system, based on the Unix “top” utility.
- Advised one MSc student and two undergraduate students

**University of California at Los Angeles, Los Angeles, California USA**

- Project Affiliations:
  - CENS (NSF STC)
  - EmStar (NSF CRI)
  - Tenet (NSF)
- Designed and implemented a multihop path wakeup mechanism for heterogeneous dual-radio sensor networks(CENS).
- Designed and implemented *CentRoute*, a centralized routing protocol for resource constrained wireless sensor networks, which has been deployed in the CENS habitat monitoring application(CENS).
- Designed and implemented *Mote Herding*, a set of system services including routing, transport, resource discovery and allocation as part of a new architectural paradigm for Wireless Sensor Networks (Tenet/CENS).
- Made significant software and design contributions to the EmStar software environment, including the heterogeneous device integration library, the IP integration driver, routing protocols, miscellaneous libraries and drivers(EmStar/CENS).
- Designed and implemented a reliable wireless programming protocol as well as several routing, transport, reliability and synchronization and parts of an operating system for the Berkeley Mote class of Sensor Network devices(CENS).

**National Technical University of Athens**, Zografou, Athens, Greece

Graduate Student Researcher

October, 1999—June 2000

Project Affiliations:

- DO ALL (Esprit)

My research on the Photonics Communications Research Laboratory focused on developing mathematical models concerning the operation of Semiconductor Optical Amplifiers (SOAs) as well as fiber ring lasers.

## EDUCATION

**University of California at Los Angeles**, Los Angeles, California USA

Ph.D., Computer Science, October 2006

- Dissertation Topic: “Exploiting Heterogeneity for Routing in Wireless Sensor Networks”
- Advisor: Deborah L. Estrin
- Degree completion date: 2 October 2006
- Degree award date: 15 December 2006
- GPA: 3.9/4

M.Eng., Computer Science, Dec 2003

Ph.D. Student, Computer Science, Sept 2001

**University of California, Riverside**, Riverside, California USA

Ph.D. Student, Computer Science, January–May 2001

- Completed 32 units of coursework

**National Technical University of Athens**, Zografou, Athens, Greece

Ph.D. Student, Electrical and Computer Engineering, Oct 1999-June 2000

• Research group: Photonics Communications Research Laboratory  
Dipl.Eng.(B.Sc), Electrical and Computer Engineering, October 1999

- Diploma Thesis: “Numerical Modeling of a High Repetition Rate Fiber Laser, Mode-Locked by External Optical Modulation of a Semiconductor Optical Amplifier”

**Best Paper Award**

Best Paper Award on Bodynets 2008. Paper title: “SmartCane System: An Assistive Device for Geriatrics” **2008**

Stathopoulos, T., McIntire, D. and Kaiser, J., “The Energy Endoscope: Real-time Detailed Energy Accounting for Wireless Sensor Nodes”, In *IEEE/ACM Information Processing on Sensor Networks (IPSN)*, April 2008

Wu, W., Au, L., Jordan, B., Stathopoulos, T., Batalin, M., Kaiser, W., Vahdatpour, A., Sarrafzadeh, M., Fang, M. and Chodosh, J., “SmartCane System: An Assistive Device for Geriatrics”, In *BodyNets, March 2008 (Awarded Best Paper)*

Girod, L., Elson, J., Ramanathan, N., Stathopoulos, T., Lukac, M., Parker, A., and Estrin, D., “EmStar: a Software Environment for Developing and Deploying Heterogeneous Sensor-Actuator Networks”. In press, *ACM Transactions on Sensor Networks*.

Stathopoulos, T., Lukac, M., McIntire, D., Heidemann, J., Estrin, D., and Kaiser, W., “End-to-end Routing for Dual-Radio Sensor Networks”, In *IEEE INFOCOM, May 2007*

Stathopoulos, T., Kapur, R., Estrin, D., Heidemann, J. and Zhang, L., “Application-Based Collision Avoidance in Wireless Sensor Networks”, In *Proceedings of the 29th Annual IEEE International Conference on Local Computer Networks (LCN'04)*, November 2004.

Girod, L., Stathopoulos, T., Ramanathan, N., Elson, J., Estrin, D., Osterweil, E., and Schoellhammer, T., “A System for Simulation, Emulation, and Deployment of Heterogeneous Sensor Networks”. In *Proceedings of the International Conference on Sensor Network Systems (SenSys 2004)*, November 2004

Girod, L., Elson, J., Cerpa, A., Stathopoulos, T., Ramanathan, N., and Estrin, D., “EmStar: a Software Environment for Developing and Deploying Wireless Sensor Networks”. In *Proceedings of the 2004 USENIX Technical Conference*, Boston MA June 2004.

Kalyvas, M., Bintjas, C., Stathopoulos, T., Avramopoulos, H. and Boscovic, Al., “Experimental and Theoretical Study of Crosstalk in WDM – CATV systems”, In *OFC 2001, Tech. Dig., WCC5, Anaheim, USA, 2001*.

Bintjas, C., Kalyvas, M., Theophilopoulos, G., Stathopoulos, T., Avramopoulos, H., Occhi, L., Schares, L., Guekos, G., Hansmann, S., and Dall’Ara, R., “20 Gb/s All-Optical XOR with UNI Gate”, In *IEEE Photon. Technol. Lett.*, Vol. 12, No. 7, pp. 834-836, July 2000

Zoiros, K., Stathopoulos, T., Vlachos, K., Houbavlis, T., Papakyriakopoulos, T., Hatziefremidis, A., and Avramopoulos, H., “Experimental and Theoretical Studies of a High Repetition Rate Fiber Laser, Mode-Locked by External Optical Modulation”, In *Opt. Comm.*, Vol. 180, pp. 301-315, 15 June 2000

Zoiros, K., Vlachos, K., Stathopoulos, T., Bintjas, C., and Avramopoulos, H., “40 GHz Mode-Locked SOA Fiber Ring Laser with 20 nm Tuning Range”, In *OFC’2000 Tech. Dig.*, TuR3, pp. 254-256 Baltimore, USA, 2000.

Zoiros, K., Stathopoulos, T., Vlachos, K., Hatziefremidis, A., Houbavlis, T., Papakyriakopoulos, T., and Avramopoulos, H., “Numerical Modeling of a High Repetition Rate Fiber Laser, Mode-Locked

by External Optical Modulation of a Semiconductor Optical Amplifier”, In *Proceedings of IFIP 4th Working Conference on Optical Network Design And Modeling (ONDM) 2000*, pp. 84-103, Athens, Greece, February 2000

TECHNICAL  
REPORTS  
& PAPERS IN  
SUBMISSION

McIntire, D., Stathopoulos, T., Reddy, S., Schmidt, T., and Kaiser, W., “Efficient Sensing with the Low Power Energy Aware Processing (LEAP) System”, *In submission to ACM Transactions on Embedded Computing Systems*.

Stathopoulos, T., Girod, L., Heidemann, J., and Estrin, D., “Centralized Routing for Resource-Constrained Wireless Sensor Networks”, *In submission to ACM Transactions on Sensor Networks*

Guy, R., Greenstein, B., Hicks, J., Kapur, R., Ramanathan, N., Schoellhammer, T., Stathopoulos, T., Weeks, K., Chang, K., Girod, L., and Estrin, D. “Experiences with the Extensible Sensing System (ESS)”. CENS Technical Report #61, March 2006.

Stathopoulos, T., Girod, L., Heidemann, J. and Estrin, D., “Mote Herding for Tiered Wireless Sensor Networks” CENS Technical Report #58, December 2005.

Girod, L., Lukac, M., Parker, A., Stathopoulos, T., Tseng, J., Wang, H., Estrin, D., Guy, R. and Kohler, E., “A Reliable Multicast Mechanism for Sensor Network Applications”, CENS Technical Report #48 April 2005.

Stathopoulos, T., Heidemann, J., and Estrin, D., “A Remote Code Update Mechanism for Wireless Sensor Networks” CENS Technical Report # 30, November 2003.

Elson, J., Bien, S., Busek, N., Bychkovskiy, V., Cerpa, A., Ganesan, D., Girod, L., Greenstein, B., Schoellhammer, T., Stathopoulos, T., and Estrin, D., “EmStar: An Environment for Developing Wireless Embedded Systems Software”, CENS Technical Report #09, March 2003.

CONFERENCE  
PRESENTATIONS

Stathopoulos, T., McIntire, D. and Kaiser, J., “The Energy Endoscope: Real-time Detailed Energy Accounting for Wireless Sensor Nodes”, Presentation in the International Conference on Information Processing in Sensor Networks, IEEE/ACM IPSN, April 2008.

Stathopoulos, T., Lukac, M., McIntire, D., Heidemann, J., Estrin, D., and Kaiser, W., “End-to-end Routing for Dual-Radio Sensor Networks”, Presentation to the 26th Annual Conference on Computer Communications, IEEE INFOCOM, May 2007.

Stathopoulos, T., Kapur, R., Estrin, D., Heidemann, J. and Zhang, L., “Application -Based Collision Avoidance in Wireless Sensor Networks”, Presentation to the 1st Workshop on Embedded Networked Sensors (EMNETS-I) as part of the 29th Annual IEEE International Conference on Local Computer Networks (LCN’04), November 2004.

Zoiros, K., Stathopoulos, T., Vlachos, K., Hatziefremidis, A., Houbavlis, T., Papakyriakopoulos, T., and Avramopoulos, H., “Numerical Modeling of a High Repetition Rate Fiber Laser, Mode-Locked by External Optical Modulation of a Semiconductor Optical Amplifier”, Presentation to the 4th Working Conference on Optical Network Design And Modeling (ONDM) 2000, pp. 84-103, Athens, Greece, February 2000

INVITED TALKS

Stathopoulos, T., “Towards energy-aware embedded systems: Real-time Detailed Energy Accounting for Wireless Sensor Nodes”, Invited talk, IBBT, Ghent University, Belgium, April 2008.

Stathopoulos, T., “Towards Energy-Aware Operating Systems for 32-bit Wireless Sensor Nodes”, Invited talk, Microsoft Research, Redmond, WA, May 2007.

Stathopoulos, T., “Exploiting Heterogeneity for Routing in Wireless Sensor Networks”, Invited talk, University of Valencia, Spain, February 2007.

Stathopoulos, T., “Exploiting Heterogeneity for Routing in Wireless Sensor Networks”, CENS Technical Seminar Series, UCLA, October 2006.

Stathopoulos, T., “TinyOS and nesC III: Using EmTOS”, CS113 class lecture, (Prof. Deborah Estrin), February 2005.

Stathopoulos, T., “Mote Clusters”, Presentation to the 2004 CENS Research Review, October 2004.

Stathopoulos, T., “Multihop Over the Air Programming”, CENS Technical Seminar Series, April 2004.

Stathopoulos, T., “EmTOS: Bringing EmStar and TinyOS together”, CS213 class lecture (Prof. Deborah Estrin), March 2004.

Stathopoulos, T., “Reliable Transport and Code Distribution in Wireless Sensor Networks”, CS213 class lecture (Prof. Deborah Estrin), February 2004.

Stathopoulos, T., “Programming and Tasking Sensor Networks”, CS213 class lecture, (Prof. Deborah Estrin), February 2003.

POSTERS  
& DEMOS

Au, L., McIntire, D., Wu, W., Batalin, M., Stathopoulos, T. and Kaiser, W., “Demonstration of Active Guidance with SmartCane”, Demo presentation at IPSN 2008, St. Louis, MO.

McIntire, D., Stathopoulos, T., and Kaiser, W., “etop—Sensor Network Application Energy Profiling on the LEAP2 Platform”, Demo presentation at IPSN 2007, Boston, MA.

Stathopoulos, T., Lukac, M., McIntire, D., Heidemann, J., Estrin, D., and Kaiser, W., “A Multihop Path Wakeup Mechanism for Dual-Radio Sensor Networks”, Poster presentation at EWSN 2007, Delft, Netherlands.

TEACHING  
EXPERIENCE

**University of California at Los Angeles**, Los Angeles, California USA

*Guest Lecturer*

**2001–2005**

Presented guest lectures on the topic of EmStar, TinyOS, Data Reliability and Code Dissemination in Wireless Sensor Networks. Courses included UCLA CS213, Winter 2003 and Winter 2004 and UCLA CS113, Winter 2005 and 2006.

**University of California, Riverside**, Riverside, California USA

*Teaching Assistant*

**Spring 2001**

Developed and graded homework assignments and supervised and assisted students in the lab for CS 164 Computer Networks, an upper-division undergraduate class

PROFESSIONAL  
ACTIVITIES

- Member, IEEE
- Member, ACM
- TPC Member, IEEE ISIT 2007
- Student Reviewer, ACM Sensys 2005 Conference
- Student Reviewer, ACM Sensys 2004 Conference
- Student Reviewer, ACM Mobisys 2004 Conference
- Student Reviewer, Workshop in Embedded Networked Sensors (EMNETS) 2004

- Student Reviewer, Workshop in Sensor Network Applications (WSNA) 2003
- Student Reviewer, Operating Systems Design and Implementation (OSDI) 2002
- Student Member of IEEE, 2001-2006
- Student Member of ACM, 2001-2006

#### REFERENCES

References provided upon request