Marcin Krzysztof Szczodrak
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Education

- **Ph.D. Candidate in Computer Science**
  Columbia University in the City of New York, New York, NY — Fall 2009 - Fall 2014 (expected)
  – Thesis: *Multitasking on Low-Power Wireless Distributed Embedded Systems.* Study low-power wireless network design in order to simplify application programming and maintenance while preserving system performance.

- **Master of Science**, Computer Science
  The City College of New York (CUNY), New York, NY — 2010
  Completed at CUNY Graduate Center during Ph.D. Program in Computer Science — 2007 - 2009

- **Bachelor of Science**, Computer Information Systems, *Summa Cum Laude*
  John Jay College of Criminal Justice (CUNY), New York, NY — 2004 - 2007
  GPA: 3.932/4.0 and 4.0/4.0 in major, minor in Mathematics

Employment

- **Columbia University** - Graduate Research Assistant, *System Level Design Group* — Fall 2009 -
  – Research focus on Internet-of-Things, Wireless Sensor Networks and Cyber-Physical Systems with applications in Smart Cities and Media.
  – Developed Fennec Fox and Swift Fox open source software for embedded system networking and programming. It is used in academia and industry, e.g. by the Philips Research North America and the United Technologies Research Center. — Fall 2009 -
  – Designed translation method from a closed-loop feedback system model into a sensor firmware for high-performance buildings (NSF GOALI). — Fall 2010 -
  – Wrote radio driver, prototyped network protocols and mentored students for the Energy-Harvesting Active Network Tags project. Won the best demo award, SenSys'11. — 2010 - 2011
  – Mentored seven student research projects, each concluded with a technical report. — Fall 2011 -
  – Teaching Assistant for Computer Architecture CSEE4824. — 2010 & 2011
  – Advisor prof. Luca Carloni.

- **Philips Research North America** - Research Intern, *Lighting and Services*
  – Designed and prototyped a framework for: analytics of 300GB of sensor data, control algorithm optimization and actuation visualization for outdoor LEDs. — Summer 2013
  – Developed and published first outdoor low-power wireless sensor testbed for SmartCity LED applications prototyping. OpenWRT Linux, msp430 toolchain, Python, Google API. This led to hiring a full-time employee to continue the work. — Summer 2012
  – Prototyped the first platform for design and evaluation of outdoor lighting solutions for SmartCity applications. Web2py and Android-based software. The project got founds to hire a full-time employee who transferred the prototype to business. — Summer 2011
  – Submitted seven Invention Disclosures.

- **CUNY Research Foundation** - Graduate Research Assistant, *USUKITA Project 7* — 2007 - 2009
  – Developed software simulator and statistical data models used to test and prototype algorithms for computing Quality of Information of Sensor Data.
  – Worked together with the US Army Research Lab and the UK Ministry Of Defense, for the International Technology Alliance in Network and Information Sciences, led by IBM

Skills:

- Day-to-Day: Python, nesC, C, Swift Fox, vi, LaTeX, Ubuntu OS
- 10,000+ lines projects: C++, Java (Android), C#, Ruby, Perl, Haskell, Eclipse

Awards & Honors

- Science Fellowship, Graduate Center (CUNY) 2007-2009
- Tuition Fellowship, Graduate Center (CUNY) 2007-2012
- Undergraduate Research Incentive Scholarship, John Jay College 2007
- Young Scholars, John Jay College 2007
- The Ruth S. Lefkowitz Mathematics Award, John Jay College 2007
- Polish and Slavic Federal Credit Union Scholarship 2006-2007
- Polish Student Organization Scholarship 2006-2007
- John Jay College Dean's List 2005-2007
- Achievement in Russian Studies and Culture 2006
- NYC Merit Scholarship 2004-2007

Publications

[1] M. Szczodrak, O. Gnawali, and L. P. Carloni, "Modeling and implementation of energy neutral sensing systems," in *Proc. of ENSSys Work.*, Nov. 2013, pp. 9:1–9:6.

[2] M. Szczodrak, Y. Yang, D. Cavalcanti, and L. P. Carloni, "An open framework to deploy heterogeneous wireless testbed for Cyber-Physical Systems," in *Proc. of IEEE SIES Symp.*, 2013, pp. 215–224.

[3] M. Szczodrak, O. Gnawali, and L. P. Carloni, "Dynamic reconfiguration of wireless sensor networks to support heterogeneous applications," in *Proc. of IEEE DCOSS Conf.*, May 2013, pp. 51–61.

[4] M. Gorlatova, R. Margolies, J. Sarik, G. Stanje, J. Zhu, B. Vigraham, M. Szczodrak, L. P. Carloni, P. Kinget, I. Kymissis, and G. Zussman, "Prototyping energy harvesting active networked tags (enhants)," in *Proc. IEEE INFOCOM'13 mini-conference*, Apr. 2013, pp. 585–589.

[5] M. Szczodrak and L. Carloni, "A complete framework for programming event-driven, self-reconfigurable low power wireless networks," in *Proc. of SenSys Conf.*, Nov. 2011, pp. 415–416.

[6] G. Stanje, P. Miller, J. Zhu, A. Smith, O. Winn, R. Margolies, M. Gorlatova, J. Sarik, M. Szczodrak, B. Vigraham, L. Carloni, P. Kinget, I. Kymissis, and G. Zussman, "Organic solar cell-equipped energy harvesting active networked tag (EnHANT) prototypes," in *Proc. of SenSys Conf.*, Nov. 2011, pp. 385–386, **Best Demo Award**.

[7] J. Zhu, G. Stanje, R. Margolies, M. Gorlatova, J. Sarik, Z. Noorbhaiwala, P. Miller, M. Szczodrak, B. Vigraham, L. Carloni, P. Kinget, I. Kymissis, and G. Zussman, "Demo: prototyping UWB-enabled enhants," in *Proc. of MobiSys Conf.*, 2011, pp. 387–388.

[8] S. Zahedi, M. Szczodrak, P. Ji, D. Mylaraswamy, M. Srivastava, and R. Young, "Tiered architecture for on-line detection, isolation, and repair of faults in wireless sensor networks," in *Proc. of MILCOM Conf.*, Nov. 2008.

[9] M. Szczodrak, S. Zahedi, P. Ji, D. Mylaraswamy, M. Srivastava, and R. Young, "Simulation framework for qoi characterization of sensor networks in the presence of faults," in *The International Technology Alliance Conf.*, Sep. 2008.

[10] J. Ping and M. Szczodrak, "A multivariate model for data cleansing in sensor networks," in *The International Technology Alliance Conf.*, Sep. 2008.

[11] S. Zahedi, M. Szczodrak, P. Ji, D. Mylaraswamy, M. Srivastava, and R. Young, "Two-tier framework for sensor fault characterization in sensor networks," in *The International Technology Alliance Conf.*, Sep. 2008.

[12] M. Szczodrak, J. Kim, and Y. Baek, "Two-level zigbee-4g design for secure and efficient communications in the resources constrained military environment," in *International Journal of Computer Science and Network Security*, vol. 7, Oct. 2007.

[13] M. Szczodrak and J. Kim, "4G and MANET, wireless network of future battlefield," in *Proceedings of the 2007 International Conference on Security & Management*, Jun. 2007.

[14] M. Szczodrak, J. Kim, and Y. Baek, "4GM@4GW: Implementing 4g in the military mobile ad-hoc network environment," vol. 7, no. 4, Apr. 2007.