

CURRICULUM VITAE

PERSONAL

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EDUCATION

- **M.Sc. in Technical Informatics**,
Budapest University of Technology and Economics, 2000
Thesis: “LDAP and Web-based Network Monitoring Tool Development”
Advisor: Gabor Ziegler, Ph.D.

PROFESSIONAL INTEREST

- object oriented technologies and languages
- model integrated computing
- embedded systems
- sensor networks, wireless communication
- acoustic and RF signal processing on FPGA architectures
- network management and information security

EMPLOYMENT HISTORY

- **Research Scientist**, Institute for Software Integrated Systems, Vanderbilt University, Nashville, TN, USA, 2004-present
- **Research Associate**, Embedded Information Technology Research Group, Hungarian Academy of Sciences, Budapest University of Technology and Economics, Hungary, 2002-2004
- **Consultant**, Institute for Software Integrated Systems, Vanderbilt University, Nashville TN, USA, 2002-2004
- **Research Instructor**, Institute for Software Integrated Systems Vanderbilt University, Nashville TN, USA, 2000-2002
- **System Engineer**, Synergon Information Systems, Budapest, Hungary, 1998-2000
- **Research Assistant**, MATÁV- Research Institute, Budapest, Hungary, 1998-2000
- **Technical Assistant**, Lutheran Secondary School, Budapest, Hungary, 1995-1997

TEACHING EXPERIENCE

- Lectures at the Budapest University of Technology and Economics (Faculty of Electrical Engineering and Informatics), 2002-2004
 - Embedded Information Systems (VIMM3244) – 300 students
 - System on Chip Design with Programmable Logic (VIMM9164) – 50 students
 - Information Processing in Embedded Systems (VIMD087) – 15 students
- Lectures at Student Computer Society (KSZK), Budapest University of Technology, 1998

- LDAP directories, Perl Tcl and Java programming courses, Cryptography and Public Key Infrastructures
- IT lectures and consultation at Muszertechnika, Ltd. – 20 students – Nuclear Power Plant, Paks, Hungary, 1997
 - Internet protocols and applications
- Prep school for 20 students – Lutheran Secondary School, Budapest, 1996
 - C programming and algorithms

PROFESSIONAL ACTIVITIES

- **Chairman**, Student Computer Society (KSZK), Budapest University of Technology, 1996-1998
- **Member**, Program Committee, SENSORCOMM 2007

JOURNAL AND BOOK PUBLICATIONS

1. B. Kusy, I. Amundson, J. Sallai, P. Völgyesi, Á. Lédeczi, X. Koutsoukos, “RF Doppler Shift-Based Mobile Sensor Tracking and Navigation”. *ACM Transactions on Sensor Networks* (in press), 2009.
2. Á. Lédeczi, T. Hay, P. Völgyesi, D.R. Hay, A. Nádas, J. Jayaraman, “Wireless Acoustic Emission Sensor Network for Structural Monitoring”. *IEEE Sensor Journal*, (in press), 2009.
3. Á. Lédeczi, J. Sallai, P. Völgyesi, R. Thibodeaux, “Differential Bearing Estimation for RF Tags”. *EURASIP Journal on Embedded Systems*, (in press), 2009
4. Á. Lédeczi, A. Nádas, P. Völgyesi, G. Balogh, B. Kusy, J. Sallai, G. Pap, S. Dóra, K. Molnár, M. Maróti, G. Simon, “Countersniper System for Urban Warfare,” *ACM Transactions on Sensor Networks*, Vol. 1, No. 2, pp. 153-177, November, 2005.
5. P. Völgyesi, M. Maróti, S. Dóra, E. Osses and Á. Lédeczi, “Software Composition and Verification for Sensor Networks”, *Science of Computer Programming*, Special Issue on New Software Composition Concepts, Elsevier, Autumn 2004
6. Á. Lédeczi, M. Maróti, P. Völgyesi, “Framework for the Rapid Development of Modeling Environments”. Chapter in K. Shiao (ed): *Advanced Topics in Database Research - Vol. 3*. Idea Group Publishing, 2004.
7. A. S. Tanenbaum, “Computer Networks” 3rd Ed. Hungarian translation by P. Völgyesi, V. et al ISBN: 963-545-213-6, Panem Kiadó, Hungary, 2003.
8. Á. Lédeczi, Á. Bakay, M. Maróti, P. Völgyesi, G. Nordstrom, J. Sprinkle, G. Karsai, “Composing Domain-Specific Design Environments”, *IEEE Computer* 34(11), pp. 44-51, November, 2001

CONFERENCES AND TECHNICAL PAPERS

1. J. Porter, P. Völgyesi, N. Kottenstette, H. Nine, G. Karsai and J. Sztipanovits, “An Experimental Model-Based Rapid Prototyping Environment for High-Confidence Embedded Software”. *20th IEEE/IFIP International Symposium on Rapid System Prototyping*, Paris, France, June 2009. (accepted)
2. J. Sallai, P. Völgyesi, Á. Lédeczi, “Radio Interferometric Quasi Doppler Bearing Estimation”. *Proc. of Information Processing in Sensor Networks*, SPOTS track (IPSN 09), (to appear), San Francisco, CA, April, 2009
3. I. E. Amundson, B. Kusy, P. Völgyesi, X. Koutsoukos, Á. Lédeczi: “Time Synchronization in Heterogeneous Sensor Networks”, *International Conference on Distributed Computing in Sensor Networks*, Santorini Island, Greece, June 2008.
4. J. Porter, G. Karsai, P. Völgyesi, H. Nine, P. Humke, G. Hemingway, R. Thibodeaux and J. Sztipanovits, “Towards Model-Based Integration of Tools and Techniques for Embedded Control System Design”, *Verification, and Implementation MODELS 2008 Workshop on Model Based Architecting and Construction of Embedded Systems*, Toulouse, France, September 2008.
5. I. E. Amundson, M. Kushwaha, B. Kusy, P. Völgyesi, Gy. Simon, X. Koutsoukos, Á. Lédeczi: “Time Synchronization for Multi-Modal Target Tracking in Heterogeneous Sensor Networks”, *Workshop on Networked Distributed Systems for Intelligent Sensing and Control*, June, 2007.

6. P. Völgyesi, G. Balogh, A. Nádas, C. Nash, Á. Lédeczi, "Shooter Localization and Weapon Classification with Soldier Wearable Networked Sensors", *MobiSys 2007*, Puerto Rico, June 2007.
7. Á. Lédeczi, P. Völgyesi, T. Bapty, "Soldier-Wearable System for Shooter Localization and Weapon Classification", *Proc. of the Government Microcircuit Applications and Critical technology Conference (GOMACTECH 07)*, 4 pages, electronic proceedings, Lake Buena Vista, FL, March 2007.
8. Á. Lédeczi, G. Kiss, B. Fehér, P. Völgyesi, G. Balogh, "Acoustic Source Localization Fusing Sparse Direction of Arrival Estimates", *Proc. of the Workshop on Intelligent Solutions in Embedded Systems*, pp. 1-13, Vienna, Austria, June, 2006.
9. B. Kusy, G. Balogh, P. Völgyesi, J. Sallai, A. Nádas, Á. Lédeczi, M. Maróti, L. Meertens, "Node-Density Independent Localization", *Information Processing in Sensor Networks (IPSN 06)* SPOTS Track, Nashville, TN, April 19, 2006.
10. P. Völgyesi, A. Nádas, Á. Lédeczi, K. Molnár, "Reliable Multihop Bulk Transfer Service for Wireless Sensor Networks", *13th Annual IEEE International Conference and Workshop on the Engineering of Computer Based Systems (ECBS 2006)*, CD-ROM, Potsdam, Germany, March, 2006.
11. M. Maróti, B. Kusy, G. Balogh, P. Völgyesi, K. Molnár, A. Nádas, S. Dóra, Á. Lédeczi, "Radio Interferometric Positioning", *ACM Third International Conference on Embedded Networked Sensor Systems (SenSys 05)*, pp. 1-12, San Diego, CA, November 3, 2005.
12. M. Kushwaha, K. Molnár, J. Sallai, P. Völgyesi, M. Maróti, Á. Lédeczi, "Sensor Node Localization Using Mobile Acoustic Beacons", *The 2nd IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS 2005)*, CD-Rom, Washington, DC, November 7, 2005.
13. Á. Lédeczi, P. Völgyesi, M. Maróti, Gy. Simon, Gy. Balogh, A. Nádas, B. Kusy, S. Dóra, G. Pap, "Multiple Simultaneous Acoustic Source Localization in Urban Terrain", *IPSN '05*, CD-Rom, Los Angeles, CA, April 25, 2005.
14. Á. Lédeczi, Gy. Balogh, Z. Molnár, P. Völgyesi, M. Maróti, "Model Integrated Computing in the Large", *IEEE Aerospace*, CD Rom, Big Sky, MT, March 6, 2005.
15. P. Völgyesi, "Robust Software Composition for Sensor Networks", *International Carpathian Control Conference*, Zakopane, Poland, May 25-28, 2004.
16. B. Kusy, Á. Lédeczi, M. Maróti, P. Völgyesi, "Domain Independent Generative Modeling", *IEEE ECBS Conference*, Brno, Czech Republic, May 2004
17. P. Völgyesi, M. Maróti, Á. Lédeczi, "Model-based Software Synthesis for Distributed Control Systems and Sensor Networks", *International Carpathian Control Conference*, High Tatras, Slovak Republic, May 26-29, 2003.
18. M. Maróti, P. Völgyesi, G. Simon, G. Karsai, Á. Lédeczi, "Distributed Middleware Services Composition and Synthesis Technology", *IEEE Aerospace Conference*, Big Sky, MT, USA, March 8, 2003.
19. G. Simon, P. Völgyesi, M. Maróti, Á. Lédeczi, "Simulation-based optimization of communication protocols for large-scale wireless sensor networks", *IEEE Aerospace Conference*, (in CD-ROM), Big Sky, MT, USA, March 8, 2003.
20. P. Völgyesi, Á. Lédeczi, "Component-Based Development of Networked Embedded Applications", *28th EUROMICRO Conference*, Dortmund, Germany, September 4-6, 2002.
21. Á. Lédeczi, M. Maróti, Á. Bakay, G. Karsai, J. Garrett, C. Thomason, G. Nordstrom, J. Sprinkle, P. Völgyesi, "The Generic Modeling Environment", *Workshop on Intelligent Signal Processing*, Budapest, Hungary, May 17, 2001.
22. Á. Lédeczi, G. Nordstrom, G. Karsai, P. Völgyesi, M. Maróti, "On Metamodel Composition", *IEEE Conference on Control Applications 2001*, CD-ROM, Mexico City, Mexico, September 5, 2001.

PATENTS

1. "System and methods of radio interference based localization in sensor networks", (with coauthors), pending, submitted in 2005.

PROFESSIONAL QUALIFICATION

- **Certified Security Administrator**, Check Point Software Technologies Ltd., 1999
- **Certified Security Engineer**, Check Point Software Technologies Ltd., 1999
- **System Administrator I.**, Sun Microsystems, Inc., 2000

OTHER QUALIFICATION AND ACTIVITIES

- **Amateur Radio License, General Class**, KJ4BLJ, FCC Registration No: 0016906521
- **Member of the ARRL** (American Radio Relay League)

RESEARCH:FUNDING

- Mobile Air Quality Monitoring Network, Microsoft, \$70k, 2007-2008, Co-PI
- Radio Interferometric Tracking of Wireless Nodes Indoors, NSF, \$450k, 2007-2010, Co-PI
- Geospatially Referenced and Inter-Dispersed Camera (GRIDCAM) Technology, US Navy STTR via Puritan Research Corporation, \$21K, 2006-2007, Co-PI
- Space/Time Acoustic Mapping for ASSIST, DARPA, \$400K, 2005-2006, Co-PI
- Disposable Sensors Network Routing Upgrade, US Army Night Vision Lab, \$80K, 2005, Co-PI