

Summary	<p>I am a researcher in systems and networking at the Swedish Institute of Computer Science and Uppsala University. My research there has addressed a variety of problems in autonomous wireless networks, including distributed power saving, media access control, and self-configuration. In general, my research focuses on practical systems issues, but I have also done analytic work. I have a strong publication record and am active in the international research community.</p> <p>Before coming to Sweden, I was a researcher and software engineer at several R&D organizations and startup companies in the US, working in areas including distributed real time systems, military simulation, and computer games. As an undergraduate, I studied Mathematics and Computer Science (Course 18C) at MIT.</p> <p>My combined background in academic and industry R&D has given me good research and writing skills, as well as practical software engineering experience, primarily in C/UNIX environments.</p> <p>Dual citizen (USA/Ireland); broad international experience.</p>	
Current position	<p>Swedish Institute of Computer Science Communication Networks and Systems Laboratory</p> <p>Uppsala University Division of Computer Systems</p>	<p>Researcher 1999-date</p> <p>2005-date</p>
<i>Research</i>	<p>My current research is intended to improve the communication and energy efficiency of decentralized wireless networks, such as sensor networks or ad hoc networks, by coordinating the operation of the power save protocol and transmission scheduling. This work builds on previous results in characterizing the energy consumption of IEEE 802.11 NIC's and ad hoc routing protocols and in asynchronous power save protocols for ad hoc networks.</p> <p>Related software contributions include substantial extensions and fixes to the Omnet++ mobility-framework wireless simulation environment.</p> <p>Another project is investigating architectures that support uncoordinated deployment of sensor networks. A previous result in this area is Spontnet, a spontaneous networking toolkit for creating and securing small application-specific wireless networks.</p>	
<i>Management</i>	<p>Work package leader and task manager in the EU Coordination Action on Embedded Wireless Sensor Networks (Wisent). Basic proposal writing, project management skills.</p>	
<i>Supervision & teaching</i>	<p>Supervisor/co-supervisor for several M.Sc. student theses. Occasional guest lecturer for courses at Uppsala University, the Royal Institute of Technology (KTH) and Luleå University of Technology.</p>	
<i>Publication</i>	<p>Good publication record: thirteen papers in refereed journals and proceedings; numerous workshop papers and technical reports. Over 1200 total citations (via http://scholar.google.com).</p>	
<i>Collaboration & visits</i>	<p>University of Rome, La Sapienza Department of Computer Science</p> <p>Technical University, Berlin Telecommunication Networks (TKN) Group</p>	<p>Dec, 2006</p> <p>Fall, 2003</p>
Technical skills	<p>Formulating the structure of an "on-demand TDMA" MAC layer. Funding for research exchange competitively awarded via the European Commission and Wisent Program.</p> <p>Development of an opportunistic rate-adaptive relaying protocol to improve the capacity of IEEE 802.11 networks.</p> <p>Strong C/UNIX programming expertise; some kernel programming, FreeBSD networking internals. Familiarity with a variety of languages and platforms. Experience with network simulation tools, contributor to Omnet++ mobility framework. Background in practical software engineering, especially development environment and tools.</p>	

Professional experience	<p>Open Group (Open Software Foundation) Research Institute 1994-1998 Research Engineer</p> <p>Participated in the development of a fault resilient infrastructure for real time distributed services. System was based on a real-time process group model implemented using a resource management-oriented variant of the <i>x-kernel</i> in a Mach-derived real time OS.</p> <p>Developed distributed instrumentation and experiments for evaluating system responsiveness, including protocols for semi-offline clock synchronization. Built fault-resilient, distributed real-time golf ball sorter as a demonstration of a mechanical control application based on this software. Contributed to technology transfer to academic and industry partners.</p> <p>Looking Glass Technologies 1994-1995 Software Engineer/Project Lead</p> <p>Core technology project leader for award-winning PC game development startup. Focus on structured development of graphics and device libraries for re-usability. Designed development environment and release process.</p> <p>Open Software Foundation 1992-1994 Software Engineer</p> <p>Participated in developing architecture and reference implementation of OSF's Distributed Management Environment (DME) specification.</p> <p>BBN, Inc. Advanced Simulation Division 1990-1992 Software Engineer</p> <p>Assisted with implementation of air vehicle and dismounted infantry simulators for the SIMNET distributed warfighting simulation network. Provided field support for experiments, integration, and exercises. Improved tools for complex build and release environment. SIMNET was the precursor of the HLA simulation standard.</p>
Professional service	<p>Numerous technical program committees (partial list): PerCom Workshop on Pervasive Wireless Networking, 2005–2008; IEEE MASS 2004, 2007-2008; IFIP Networking, 2002–2007 (publicity co-chair 2002); Workshop on Wireless Mesh Networks, 2005 (executive committee); IEEE Journal on Selected Areas in Communications (JSAC) and ACM Wireless Networks Journal (WINET).</p>
Education	<p>Massachusetts Institute of Technology</p> <p><i>Course 18C: Mathematics with Computer Science</i>, 1988 - 1992</p> <p>Math courses at the advanced undergraduate level in complex and real analysis, linear algebra, discrete math, and probability.</p> <p>Computer science courses at the advanced undergraduate level in compiler construction, analysis of algorithms, and computational complexity. Introductory courses in structure and interpretation of computer programs, circuit and electronics, and computer architecture.</p> <p>Santa Fe Institute</p> <p><i>Complex Systems Summer School</i>, June 2008</p> <p>Inter-disciplinary summer school on topics in complex systems, with further project work in computational evolutionary biology. Scholarship funding competitively awarded through the Santa Fe Institute and NSF.</p>
Languages	<p>English (native speaker); Swedish (basic competency); Japanese (minimal competency)</p>

Publications See also <http://www.sics.se/~lmfeeney/publications>.

Book chapters, journal and magazine articles

- [1] Laura Marie Feeney, Christian Rohner, and Bengt Ahlgren. Mobicom poster abstract: Leveraging a power save protocol to improve performance in ad hoc networks. *SIGMOBILE Mob. Comput. Commun. Rev.*, 11(2):51–52, 2007.
- [2] Laura Marie Feeney. Energy efficient communication in ad hoc networks. In Stefano Basagni, Marco Conti, Silvia Giordano, and Ivan Stojmenovic, editors, *Mobile Ad Hoc Networking*. Wiley, 2004.
- [3] Laura Marie Feeney, Bengt Ahlgren, and Assar Westerlund. Spontaneous networking: An application-oriented approach to ad hoc networking. *IEEE Communications Magazine*, 39(6), June 2001.
- [4] Laura Marie Feeney. An energy-consumption model for performance analysis of routing protocols for mobile ad hoc networks. *Mobile Networks and Applications Journal*, 6(3):239–250, June 2001.

Invited papers and talks

- [1] Laura Marie Feeney. Keynote talk: Synchronization problems in multihop wireless networks. In *4th Int'l Conf on Wired/Wireless Internet Communications (WWIC 2006)*, May 2006. (Keynote presentation.).
- [2] Adam Dunkels, Laura Marie Feeney, Björn Grönvall, and Thimo Voigt. An integrated approach to developing sensor network solutions. In *2nd Int'l Workshop on Sensor and Actor Network Protocols and Applications (SANPA'04)*, August 2004. Invited paper.

Proceedings (refereed)

- [1] Laura Marie Feeney. Exploring semantic interference in heterogenous sensor networks. In *1st ACM Workshop on Heterogeneous Sensor and Actor Networks, in conjunction with the 9th ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc2008)*, May 2008.
- [2] Laura Marie Feeney, Bilge Cetin, Daniel Hollos, Holger Karl, Martin Kubisch, and Seble Mengesha. Multi-rate relaying for performance improvement in IEEE 802.11 WLANs. In *5th Int'l Conf on Wired/Wireless Internet Communications (WWIC 2007)*, May 2007.
- [3] Laura Marie Feeney, Christian Rohner, and Bengt Ahlgren. The impact of wakeup schedule distribution in asynchronous power save protocols on the performance of multihop wireless networks. In *IEEE Wireless Communications and Networking Conf (WCNC'07)*, March 2007.
- [4] Philipp Hurni, Torsten Braun, and Laura Marie Feeney. Simulation and evaluation of unsynchronized power saving mechanisms in wireless ad hoc networks. In *4th Int'l Conf on Wired/Wireless Internet Communications (WWIC 2006)*, May 2006.
- [5] Laura Marie Feeney, Daniel Hollos, Holger Karl, Martin Kubisch, and Seble Mengesha. A geometric derivation of the probability of finding a relay in multi-rate networks. In *3rd IFIP Conf on Networking (Networking 2004)*, May 2004.
- [6] Laura Marie Feeney, Bengt Ahlgren, Assar Westerlund, and Adam Dunkels. Spontnet: Experiences in configuring and securing small ad hoc networks. In *5th Int'l Workshop on Networked Appliances (IWNA5)*, October 2002.
- [7] Laura Marie Feeney. A QoS aware power save protocol for wireless ad hoc networks. In *1st Mediterranean Workshop on Ad Hoc Networks (Med-Hoc Net 2002)*, September 2002.
- [8] Laura Marie Feeney and Martin Nilsson. Investigating the energy consumption of a wireless network interface in an ad hoc networking environment. In *IEEE Conf on Computer Communications (Infocom'01)*, April 2001.
- [9] Franco Travostino, Laura Feeney, Philippe Bernadat, and Franklin Reynolds. Building middleware for real-time dependable distributed services. In *1st IEEE Symposium on Object-oriented Real-time Distributed Computing*, April 1998.

Workshops, posters and demos (refereed)

- [1] Laura Marie Feeney. Exploring semantic interference in heterogeneous sensor networks. In *6th Scandinavian Workshop on Wireless Ad Hoc Networks (AdHoc'08)*, May 2008.
- [2] Laura Marie Feeney, Christian Rohner, and Bengt Ahlgren. Mobicom poster abstract: Leveraging a power save protocol to improve performance in ad hoc networks. In *12th Int'l Conf on Mobile Computing and Networking (MobiCom 2006)*, 2006. Also appeared in *ACM Mobile Computing and Communications Review*, April 2007.
- [3] Laura Marie Feeney, Christian Rohner, and Bengt Ahlgren. Poster abstract: Modeling capacity in ad hoc networks. In *9th ACM/IEEE Int'l Symposium on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM 2006)*, October 2006.
- [4] Laura Marie Feeney and Christian Rohner. A model for evaluating asynchronous protocols in ad hoc networks. In *6th Scandinavian Workshop on Wireless Ad Hoc Networks (AdHoc'06)*, May 2006.
- [5] Laura Marie Feeney, Bengt Ahlgren, and Per Gunningberg. Enabling limited traffic scheduling in asynchronous ad hoc networks. In *3rd Swedish National Computer Networking Workshop (SNCNW 2005)*, November 2005.
- [6] Torsten Braun and Laura Marie Feeney. Power saving in wireless ad hoc networks without synchronization. In *5th Scandinavian Workshop on Wireless Ad Hoc Networks (AdHoc'05)*, May 2005.
- [7] Laura Marie Feeney, Daniel Hollos, Holger Karl, Martin Kubisch, and Seble Mengesha. Analysis and protocol design for rate adaptation for simple relay networks. In *4th Scandinavian Workshop on Wireless Ad-hoc Networks (AdHoc'04)*, May 2004.
- [8] Laura Marie Feeney, Bengt Ahlgren, Assar Westerlund, and Adam Dunkels. Spontaneous networking for secure collaborative applications in an infrastructureless environment. In *Demonstration Session: Int'l Conf on Pervasive Computing (Pervasive 2002)*, December 2002.
- [9] Laura Marie Feeney, Bengt Ahlgren, and Assar Westerlund. Spontaneous and ad hoc networks: Issues and applications. In *Work-in-progress session: 3rd IEEE Workshop on Mobile Computing Systems and Applications (WMCSA '00)*, December 2000.

Technical reports (unrefereed)

- [1] Laura Marie Feeney, editor and Can Basaran and others. Critical evaluation of platforms commonly used in embedded wireless sensor networks research. Public report, Embedded Wisents Project FP6-004400, 2006.
- [2] Laura Marie Feeney. Impact of phase distribution in asynchronous communication protocols. Technical Report T2005:15, Swedish Institute of Computer Science, December 2005.
- [3] Rui Campos and others. Scenarios for network composition in ambient networks: a new paradigm for internetworking. In *Wireless World Research Forum (WWRF11)*, June 2004.
- [4] Laura Marie Feeney. An asynchronous power save protocol for wireless ad hoc networks. Technical Report T2002:09, SICS – Swedish Institute of Computer Science, July 2002. revised February, 2003.
- [5] Laura Marie Feeney. Measuring the energy consumption of an 802.11 network interface. Technical Report T1999:11, SICS – Swedish Institute of Computer Science, December 1999.
- [6] Laura Marie Feeney. A taxonomy for routing protocols in mobile ad hoc networks. Technical Report T1999:07, SICS – Swedish Institute of Computer Science, October 1999.