

Joshua Bers — Curriculum Vitae

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Joshua Bers is a Senior Software Engineer in the Advanced Networking Systems business unit at BBN Technologies where he co-leads the design and deployment of CitySense, a large scale wireless sensor testbed in the Boston area. He is also developing a network management system for DARPA's Wireless Network after Next (WNaN) program. Previously, Mr. Bers served as software architect on Future Combat Systems Network Management System (FCS-NMS) and was a core contributor on microCougaar, a networking middle-ware for monitoring and controlling an ad hoc team of mobile robots [5].

Mr. Bers brings over 13 years of experience developing and deploying distributed software systems for technologically demanding customers. These include: a commercial voice over IP router (NEC), a multimodal speech and pen user interface (DARPA) [7], a spoken topic call routing system (Verizon) [8], and network management systems for wireless networks (U.S. Army). He is the author of two U.S. patents and holds an M.S. from MIT.

Professional Preparation

| Institution | Major | Degree | Year |
|---------------------------------------|-----------------------|--------|------|
| Dartmouth College | Computer Science | A.B. | 1993 |
| Massachusetts Institute of Technology | Media Arts & Sciences | M.S. | 1995 |

Professional Experience

2002 - Present Senior Engineer, Advanced Networking Systems, BBN Technologies, Cambridge, MA.

1999 - 2002 Software Architect / Engineering Manager, Commercial Speech Solution Group, BBN Technologies.

1997 - 1999 Research Software Engineer, Speech and Language Processing Department, BBN Technologies.

1995 - 1997 Software Developer, Network Products Group, BBN Systems and Technologies.

Recent Activities

Sensor Networks: CitySense

Mr. Bers is currently co-PI on a Computing Research Infrastructure grant from the National Science Foundation (NSF), CNS-0551535, "Large-Scale Open Sensor Network Testbed for Urban Monitoring", September 2006 through August 2010. Mr. Bers oversees the design, development and deployment of the wireless sensor node package. See <http://citysense.net> for more details.

MANET's

As part of DARPA's Wireless Network after Next (WNaN) program, Mr. Bers is developing a network management system for an embedded, handheld, radio device. The system will allow system operators to understand and manage the state of a mobile wireless network whose elements may be disconnected for large periods of time.

Network Management: FCS

Mr. Bers serves as a software architect on the Network Management System for the Army's Future Combat Systems (FCS). He designed and implemented a device abstraction layer that enables fault and configuration management applications to be insulated from changes to the managed network elements, such as routers and network interface connectors.

Publications and Patents

1. *Urban Sensing Revisited - Common Scents: Towards Standardized Geo-sensor Networks for Public Health Monitoring in the City*. B. Resch, M. Mittlboeck, S. Lipson, M Welsh, J. Bers, R. Britter, and C. Ratti. IN: Proceedings of the 11th International Conference on Computers in Urban Planning and Urban Management - CUPUM2009, 16-18 June, Hong Kong, pp. pending (2009).
2. *CitySense: A Vision for an Urban-Scale Wireless Networking Testbed*. R. Murty, G. Mainland, I. Rose, A. R. Chowdhury, A. Gosain, J. Bers, and M. Welsh. In Proceedings of the 2008 IEEE International Conference on Technologies for Homeland Security, Waltham MA, May (2008).
3. *Systems and methods for providing audio information to service agents*. J. Bers et. al. US Patent 7,092,506 (2006).
4. *System and Method for Maximum Benefit Routing*. J. Bers, P. Peterson and J. Golden, US Patent 6,895,083 (2005).
5. *Supporting Robot Teams with CougaarME over Wireless Ad-hoc Networks*, J. Bers and J. Redi, in Proceedings of the 1st Open Cougaar Conference, July 20th, New York, NY (2004).
6. *Exploiting the Interactions between Robotic Autonomy and Networks*, J. Redi and J. Bers, in Multi-Robot Systems Vol II, A.C. Schultz, L.E. Parker and F.E. Schneider (eds), Kluwer Academic, pp. 279-289 (2003).
7. *Designing the User Interface for Multimodal Speech and Pen-Based Gesture Applications: State-of-the-Art Systems and Future Directions*. S. Oviatt, P. Cohen, L. Wu, J. Vergo, L. Duncan, B. Suhm, J. Bers, T. Holzman, T Winograd, J. Landay, J. Larson and D. Ferro, In J.M. Carroll (Ed.), Human-Computer Interaction in the New Millennium, pp. 419-456. New York: ACM Press (2002).
8. *A Comparative Study of Speech in the Call Center: Natural Language Call Routing vs. Touch-Tone Menus*. B. Suhm, J. Bers, D. McCarthy, B. Freeman, D. Getty, K. Godfrey and P. Peterson, in Proceedings of the CHI'02 Conference on Human Factors in Computing Systems, pp. 283-290. ACM Press (2002).
9. *Designing Conversational Interfaces for Mobile Networked Computing*. J. Bers, S. Miller and J. Makhoul, in Proceedings of the Workshop on Perceptual User Interfaces, pp. 61-64. Banff, Canada, October 19-21 (1997).
10. *A Body Model Server for Human Motion Capture and Representation*. J. Bers, in Presence: Teleoperators and Virtual Environments, 5(4), pp. 381-392 (1996).

Other Experience and Qualifications

- Mr. Bers manages a technical staff of seven employees.
- Mr. Bers has served on a review panel for the National Science Foundation's directorate for Computer and Information Sciences and Engineering (NSF CISE).
- Mr. Bers holds a Secret level security clearance.
- He speaks both Spanish and French fluently.