

CURRICULUM VITAE ET STUDIORUM

**Stefano Basagni**

Department of Electrical and Computer Engineering

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**Education**

Ph.D. in Electrical Engineering, December 2001

The University of Texas at Dallas, U.S.A.

Thesis: *Location-Aware Protocols for Ad Hoc Networks*

Supervisor: Prof. Imrich Chlamtac

Ph.D. in Computer Science, May 1998

Università degli Studi di Milano, Italy

Thesis: *On the Broadcast and Clustering Problems in Peer-To-Peer Networks*

Supervisors: Prof. Alberto Bertoni and Danilo Bruschi

Bachelor of Science with distinction in Computer Science, December 1991

Università degli Studi di Pisa, Italy

Thesis: *Una Nuova Algebra di Alberi Causali e sue Applicazioni al CCS (A New Algebra of Causal Trees and Its Application to CCS)*

Supervisor: Prof. Pierpaolo Degano

**Employment**

**Associate professor** (July 2008–Present)

Northeastern University, Department of Electrical and Computer Engineering.

**Assistant professor** (January 2002–June 2008)

Northeastern University, Department of Electrical and Computer Engineering.

**Assistant Professor** (August 2000–December 2001)

The University of Texas at Dallas, Department of Computer Science.

**Founding senior research member** (May 1997–December 2001)

Center for Advanced Telecommunications Systems and Services (CATSS), The University of Texas at Dallas.

**Visiting Scholar** (March 1997–August 1997)

The Erik Jonsson School of Engineering and Computer Science, The University of Texas at Dallas.

**Visiting Scholar** (February 1996–February 1997)

The Advanced Communications and Networking Laboratory, Boston University.

## Publications

According to the “Harzing’s Publish or Perish” (<http://www.harzing.com/pop.htm>), which is based on *Google Scholar*,<sup>1</sup> my peer-reviewed papers that have already appeared in journals, conference proceedings, books and on digital libraries have been cited over 2400 times.<sup>2</sup> This results to an average of more than 40 citations per paper. Moreover, 20 papers of mine have been cited more or as many as 20 times, i.e., my *h-index* is 20.<sup>3</sup>

### 1. Books

- [1] S. Basagni, M. Conti, S. Giordano, and I. Stojmenovic, editors. *Mobile Ad Hoc Networking*. IEEE Press and John Wiley & Sons, Inc., Piscataway, NJ and New York, NY, April 2004.
- [2] E. Gregori, G. Anastasi, and S. Basagni, editors. *Advanced Lectures in Networking, Networking 2002 Tutorials*. Number 2497 in Lecture Notes in Computer Science. Springer-Verlag, Berlin Heidelberg, Germany, May 2002.

### 2. Refereed Book Chapters

- [1] S. Basagni, A. Carosi, and C. Petrioli. Mobility in wireless sensor networks. In A. Boukerche, editor, *Algorithms and Protocols for Ad Hoc and Sensor Networks*, chapter 10, pages 267–305. John Wiley & Sons, Inc., Hoboken, NJ, 2008.
- [2] S. Basagni, R. Bruno, and C. Petrioli. Scatternet formation in bluetooth networks. In S. Basagni, M. Conti, S. Giordano, and I. Stojmenovic, editors, *Mobile Ad Hoc Networking*, chapter 4, pages 117–137. IEEE Press and John Wiley & Sons, Inc., Piscataway, NJ and Hoboken, NJ, April 2004.
- [3] S. Basagni. Remarks on ad hoc networking. In E. Gregori, G. Anastasi, and S. Basagni, editors, *Advanced Lectures on Networking, Networking 2002 Tutorials*, LNCS 2497. Springer-Verlag, Berlin Heidelberg, Germany, May 2002.
- [4] A. D. Myers and S. Basagni. Wireless media access control. In I. Stojmenovic, editor, *Handbook of Wireless Networks and Mobile Computing*, Wiley Series on Parallel and Distributed Computing, chapter 6, pages 119–143. John Wiley & Sons, Inc., Hoboken, NJ, February 2002.

### 3. Refereed Journal Articles

- [1] R. Ghosh and S. Basagni. Mitigating the impact of node mobility on ad hoc clustering. *Wiley Inter-Science’s Wireless Communications & Mobile Computing, WCMC, Special Issue on Resources and Mobility Management in Wireless Networks, L. Bononi and S. Nikolettseas, eds.*, 8(3):295–308, March 2008.

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<sup>1</sup> Google Scholar (GS, <http://scholar.google.com>) is a freely accessible web search engine that indexes the full-text of scholarly literature and report their number of citations across an array of publishing formats and disciplines. The GS index includes most peer-reviewed online journals of the world’s largest scientific publishers. To the best of my knowledge, GS covers more publications in my research area than other similar services.

<sup>2</sup> This number, and the number of citations reported with the papers are updated September 2007.

<sup>3</sup> The *h-index* is a parameter that quantifies the scientific productivity and impact of a scientist based on the number of citations that the scientist’s publications have received. A scientist has index  $h$  if  $h$  of his  $N$  papers have at least  $h$  citations each, and the other  $(N - h)$  papers have at most  $h$  citations each. The *h-index* aims at balancing between the number of publications and the number of citations per publication.

- [2] S. Basagni, C. Petrioli, and R. Petrocchia. Efficiently reconfigurable backbones for wireless sensor networks. *Computer Communications Journal, Special Issue on Algorithmic and Theoretical Aspects of Wireless Ad Hoc and Sensor Networks*, S. Misra, ed., 31(4):668–698, March 5 2008.
- [3] S. Basagni, A. Carosi, E. Melachrinoudis, C. Petrioli, and Z. M. Wang. Controlled sink mobility for prolonging wireless sensor networks lifetime. *ACM/Springer Wireless Networks*, 2008. Published online on February 7 2007.
- [4] S. Basagni, A. Carosi, E. Melachrinoudis, C. Petrioli, and Z. M. Wang. Protocols and model for sink mobility in wireless sensor networks. *ACM Mobile Computing and Communication Review, MC<sup>2</sup>R*, 10(4):28–30, October 2006.
- [5] S. Basagni, M. Mastrogiovanni, A. Panconesi, and C. Petrioli. Localized protocols for ad hoc clustering and backbone formation: A performance comparison. *IEEE Transactions on Parallel and Distributed Systems, Special Issue on Localized Communication and Topology Protocols for Ad Hoc Networks (S. Olariu, D. Simplot-Ryl, and I. Stojmenovic, editors)*, 17(4):292–306, April 2006.
- [6] S. Basagni, R. Bruno, G. Mambrini, and C. Petrioli. Comparative performance evaluation of scatternet formation protocols for networks of bluetooth devices. *ACM/Kluwer Wireless Networks*, 10(2):197–213, March 2004.
- [7] C. Petrioli, S. Basagni, and I. Chlamtac. BlueMesh: Degree-constrained multihop scatternet formation for Bluetooth networks. *ACM/Kluwer Journal on Special Topics in Mobile Networking and Applications (MONET), Special Issue on Advances in Research of Wireless Personal Area Networking and Bluetooth Enabled Networks (G. Zaruba and P. Johansson, editors)*, 9:33–47, February 2004. (**Cited 45 times.**)
- [8] C. Petrioli, S. Basagni, and I. Chlamtac. Configuring BlueStars: Multihop scatternet formation for Bluetooth networks. *IEEE Transactions on Computers, Special Issue on Wireless Internet (Y.-B. Lin and Y.-C. Tseng, editors)*, 52(6):779–790, June 2003. (**Cited 79 times.**)
- [9] S. Basagni, I. Chlamtac, and V. R. Syrotiuk. Location aware, dependable multicast for mobile ad hoc networks. *Computer Networks*, 36(5/6):659–670, August 2001.
- [10] S. Basagni. Finding a maximal weighted independent set in wireless networks. *Telecommunication Systems, Special Issue on Mobile Computing and Wireless Networks (S. Olariu and I. Stojmenovic, editors)*, 18(1/3):155–168, September 2001. (**Cited 39 times.**)
- [11] I. Chlamtac, S. Gibbs, and S. Basagni. An overview of the University of Texas at Dallas’ Center for Advanced Telecommunications Systems and Services (CATSS). *ACM/SIGMOBILE Mobile Computing and Communications Review*, 4(2):63–69, April 2000. Special Feature on Wireless Research Centers.
- [12] S. Basagni, D. Bruschi, and I. Chlamtac. A mobility transparent deterministic broadcast mechanism for ad hoc networks. *ACM/IEEE Transactions on Networking*, 7(6):799–807, December 1999. (**Cited 77 times.**)
- [13] S. Basagni and D. Bruschi. A logarithmic lower bound for time-spread multiple-access (TSMA) protocols. *ACM/Kluwer Wireless Networks*, 6(2):161–163, May 2000.
- [14] S. Basagni. A note on causal trees and their applications to CCS. *International Journal of Computer Mathematics*, 71:137–159, April 1999.

- [15] S. Basagni, D. Bruschi, and F. Ravasio. On the difficulty of finding paths of length  $k$  in digraphs. *Theoretical Informatics and Applications*, 31(5):429–435, September 1997.

#### 4. Journal Editorials

- [1] S. Basagni and C. A. Phillips. Editors foreword to the special issue on principles of mobile communications and computing. *Algorithmica*, 49(4):259–263, December 2007.
- [2] S. Basagni and A. Capone. Recent research directions in wireless ad hoc networking. *Elsevier Ad Hoc Networks*, 5(8):1205–1207, November 2007.
- [3] S. Basagni. Multipoint communications in wireless mobile networks. *ACM/Kluwer Mobile Networks and Application*, 7(6):427, December 2002.
- [4] S. Basagni and S.-J. Lee. Mobile ad hoc networking: Research trends and applications. *Wiley's InterScience Wireless Communications & Mobile Computing*, 2(5):439–440, August 2002.

#### 5. Refereed Demonstrations

- [1] S. Basagni, M. Nati, and C. Petrioli. Demonstrating the resilience of geographical routing to localization errors. In *Proceedings of the Fourth IEEE International Conference on Mobile Ad Hoc and Sensor Systems, MASS 2007*, pages 1–4, Pisa, Italy, October 8–11 2007.
- [2] S. Basagni, M. Nati, and C. Petrioli. A testbed-based performance investigation of an energy-efficient, load-balancing protocol for geo-forwarding in wireless sensor networks. Demo Session at ACM/USENIX MobiSys 2007, San Juan, Puerto Rico, June 11–14 2007.

#### 6. Refereed Conference Articles at Critically Reviewed Conferences (< 40% acceptance rate)

- [1] S. Basagni, C. Carosi, C. Petrioli, and C. A. Phillips. Moving multiple sinks through wireless sensor networks for lifetime maximization. In *Proceedings of the 5th IEEE International Conference on Mobile Ad Hoc and Sensor Systems, MASS 2008*, (acceptance rate: 30%), Atlanta, GA, September 29–October 2 2008.
- [2] S. Basagni, A. Carosi, E. Melachrinoudis, C. Petrioli, and Z. M. Wang. A new MILP formulation and distributed protocols for wireless sensor networks lifetime maximization. In *Proceedings of the IEEE International Conference on Communications, ICC 2006* (acceptance rate: 39%), volume 8, pages 3517–3524, Istanbul, Turkey, June 11–15 2006.
- [3] S. Basagni, M. Mastrogiovanni, and C. Petrioli. A performance comparison of protocols for clustering and backbone formation in large scale ad hoc networks. In *Proceedings of The 1st IEEE International Conference on Mobile Ad Hoc and Sensor Systems, MASS 2004* (acceptance rate: 25%), pages 70–79, Fort Lauderdale, FL, October 25–27 2004. (**Cited 15 times.**)
- [4] S. Basagni, R. Bruno, and C. Petrioli. A performance comparison of scatternet formation protocols for networks of Bluetooth devices. In *Proceedings of the IEEE International Conference on Pervasive Computing and Communications, PerCom 2003* (acceptance rate: 20%), pages 341–350, Forth Worth, TX, March 23–26 2003. (**Cited 27 times.**)

- [5] C. Petrioli and S. Basagni. Degree-constrained multihop scatternet formation for Bluetooth networks. In *Proceedings of the IEEE Globecom 2002* (acceptance rate: 30%), volume 1, pages 222–226, Taipei, Taiwan, R.O.C., November 17–21 2002. **(Cited 39 times.)**
- [6] S. Basagni, R. Bruno, and C. Petrioli. Device discovery in Bluetooth networks: A scatternet perspective. In E. Gregori, M. Conti, A. T. Campbell, G. Omidyar, and M. Zuckerman, editors, *Proceedings of the Second IFIP-TC6 Networking Conference, Networking 2002* (acceptance rate: 26%), LNCS 2345, pages 1087–1092, Pisa, Italy, May 19–24 2002. **(Cited 18 times.)**
- [7] S. Basagni and C. Petrioli. Multihop scatternet formation for Bluetooth networks. In *Proceedings of the 55th IEEE Semiannual Vehicular Technology Conference, VTC 2002 Spring* (acceptance rate: 39%), volume 1, pages 424–428, Birmingham, AL, May 6–9 2002. **(Cited 94 times.)**
- [8] S. Basagni, K. Herrin, D. Bruschi, and E. Rosti. Secure pebblenets. In *Proceedings of the 2001 ACM International Symposium on Mobile Ad Hoc Networking & Computing, MobiHoc 2001* (acceptance rate: 16%), pages 156–163, Long Beach, CA, October 4–5 2001. **(Cited 145 times.)**
- [9] S. Basagni, I. Chlamtac, A. Faragó, V. R. Syrotiuk, and R. Talebi. Route selection in mobile multimedia ad hoc networks. In *Proceedings of the Sixth IEEE International Workshop on Mobile Multimedia Communications, MoMuC 1999* (acceptance rate: 21%), pages 97–103, San Diego, CA, November 15–17 1999. **(Cited 16 times.)**
- [10] A. Faragó, I. Chlamtac, and S. Basagni. Virtual path network topology optimization using random graphs. In *Proceedings of IEEE Infocom 99. The Conference on Computer Communications* (acceptance rate: 30%), volume 2, pages 491–496, New York, NY, March 21–25 1999. **(Cited 12 times.)**
- [11] S. Basagni, I. Chlamtac, V. R. Syrotiuk, and B. A. Woodward. A distance routing effect algorithm for mobility (DREAM). In *Proceedings of the Fourth Annual ACM/IEEE International Conference on Mobile Computing and Networking, MobiCom 98*, (acceptance rate: 18%) pages 76–84, Dallas, TX, October 25–30 1998. **(Cited 636 times.)**

## 7. Refereed Conference Articles at Other Conferences, Symposia and Workshops

- [1] A. Farago and S. Basagni. The effect of multi-radio nodes on network connectivity—a graph theoretic analysis. In *Proceedings of the first IEEE Wireless Distributed Networks Workshop, WDN 2008*, Cannes, France, September 15 2008.
- [2] R. Alqudah and S. Basagni. On the effects of multiple beacons on localization for wireless sensor networks. In *Proceedings of IEEE Wireless Telecommunications Symposium, WTS 2008*, Pomona, CA, April 24–26 2008.
- [3] S. Basagni, M. A. Nanni, and C. Petrioli. Flow-fair intra-piconet (F/IP) scheduling for communications in personal area networks. In *Proceedings of the IEEE Radio and Wireless Symposium, RWS 2008*, pages 839–842, Orlando, FL, January 22–25 2008.
- [4] S. Basagni, C. Petrioli, and R. Petroccia. Fail-safe hierarchical organization for wireless sensor networks. In *Proceedings of the IEEE Military Communications Conference, MILCOM 2007*, pages 1–7, Orlando, FL, October 29–31 2007.
- [5] S. Basagni, A. Carosi, and C. Petrioli. Controlled vs. uncontrolled mobility in wireless sensor networks: Some performance insights. In *Proceedings of the 67th Semi-Annual IEEE Vehicular Technology Conference, VTC 2007 Fall*, pages 269–273, Baltimore, MD, September 30–October 3 2007.

- [6] F. Nidito, M. Battelli, and S. Basagni. Fault-tolerant and load balancing localization of services in wireless sensor networks. In *Proceedings of the 67th Semi-Annual IEEE Vehicular Technology Conference, VTC 2007 Fall*, pages 382–386, Baltimore, MD, September 30–October 3 2007.
- [7] M. Battelli and S. Basagni. Localization for wireless sensor networks: Protocols and perspectives. In *Proceedings of IEEE CCECE 2007*, pages 1074–1077, Vancouver, Canada, April 22–26 2007.
- [8] S. Basagni, M. A. Nanni, and C. Petrioli. Bluetooth scatternet formation and scheduling: An integrated solution. In *Proceedings of IEEE MILCOM 2006*, pages 1–7, Washington, DC, October 23–25 2006.
- [9] M. B. Kowalski, K. D. Bertolino, and S. Basagni. Hack Boston: Monitoring wireless security awareness in an urban setting. In *Proceedings of the IEEE Canadian Conference on Electrical and Computer Engineering, CCECE 2006*, pages 1308–1311, Ottawa, Canada, May 7–10 2006.
- [10] S. Basagni, M. Battelli, M. Iachizzi, C. Petrioli, and M. Salehi. Limiting the propagation of localization errors in multi-hop wireless networks. In *Proceedings of the Second IEEE International Workshop on Sensor Networks and Systems for Pervasive Computing, PerSeNS 2006*, pages 1–6, Pisa, Italy, March 13–17 2006.
- [11] R. Ghosh and S. Basagni. Napping backbones: Energy efficient topology control for wireless sensor networks. In *Proceedings of IEEE Radio and Wireless Symposium, RWS 2006*, pages 611–614, San Diego, CA, January 17–19 2006.
- [12] R. Ghosh and S. Basagni. Limiting the impact of mobility on ad hoc clustering. In *Proceedings of the 2nd ACM Workshop on Performance Evaluation of Wireless Ad Hoc, Sensor, and Ubiquitous Networks, PE-WASUN 2005*, pages 197–204, Montreal, Qc., Canada, October 13 2005.
- [13] S. Basagni, A. Carosi, E. Melachrinoudis, C. Petrioli, and Z. M. Wang. Controlling sink mobility in wireless sensor networks: A new model and protocols. In *Poster at ACM/SIGMOBILE MobiCom 2005*, Cologne, Germany, August 28–September 2 2005.
- [14] Z. M. Wang, E. Melachrinoudis, and S. Basagni. Voronoi diagram-based linear programming modeling of wireless sensor networks with a mobile sink. In *Proceedings of the IIE Annual Conference and Exposition*, Atlanta, GA, May 14–18 2005.
- [15] Z. M. Wang, S. Basagni, E. Melachrinoudis, and C. Petrioli. Exploiting sink mobility for maximizing sensor networks lifetime. In *Proceedings of the 38th Hawaii International Conference on System Sciences*, pages 1–9 (287a), Big Island, Hawaii, January 3–6 2005.
- [16] S. Basagni, M. Elia, and R. Ghosh. ViBES: Virtual backbone for energy saving in wireless sensor networks. In *Proceedings of the IEEE Military Communication Conference, MILCOM 2004*, volume 3, pages 1240–1246, Monterey, CA, October 31–November 3 2004.
- [17] S. Basagni, A. Carosi, and C. Petrioli. Sensor-DMAC: Dynamic topology control for wireless sensor networks. In *Proceedings of the 60th IEEE Vehicular Technology Conference, VTC 2004 Fall*, volume 4, pages 2930–2935, Los Angeles, CA, September 26–29 2004.
- [18] S. Basagni, R. Bruno, and C. Petrioli. Performance evaluation of a new scatternet formation protocol for multi-hop Bluetooth networks. In *Proceedings of the 5th International Symposium on Personal Wireless Multimedia Communications, WPMC 2002*, volume 1, pages 208–212, Honolulu, Hawaii, October 27–30 2002.

- [19] S. Basagni. Proving lower bounds for distributed ad hoc broadcast. In E. Sha, editor, *Proceedings of the 14th International Conference on Parallel and Distributed Computing Systems, PDCS 2001*, pages 171–176, Richardson, TX, August 8–10 2001.
- [20] S. Basagni, D. Turgut, and S. K. Das. Mobility-adaptive protocols for managing large ad hoc networks. In *Proceedings of the IEEE International Conference on Communications, ICC 2001*, volume 5, pages 1539–1543, Helsinki, Finland, June 11–14 2001. **(Cited 36 times.)**
- [21] G. Záruba, S. Basagni, and I. Chlamtac. BlueTrees—Scatternet formation to enable Bluetooth-based personal area networks. In *Proceedings of the IEEE International Conference on Communications, ICC 2001*, volume 1, pages 273–277, Helsinki, Finland, June 11–14 2001. **(Cited 188 times.)**
- [22] N. Checcacci, M. Barni, F. Bartolini, and S. Basagni. Robust video watermarking for wireless multimedia communications. In *Proceedings of the IEEE Wireless Communication and Networking Conference, WCNC 2000*, volume 3, pages 1530–1535, Chicago, IL, September 23–28 2000.
- [23] S. Basagni, I. Chlamtac, V. Syrotiuk, and R. Talebi. On-demand location aware multicast (OLAM) for ad hoc networks. In *Proceedings of the IEEE Wireless Communication and Networking Conference, WCNC 2000*, volume 3, pages 1323–1328, Chicago, IL, September 23–28 2000.
- [24] S. Basagni, I. Chlamtac, and V. Syrotiuk. Location aware one-to-many communication in mobile multi-hop wireless networks. In *Proceedings of the 51st IEEE Semiannual Vehicular Technology Conference, VTC 2000 Spring*, volume 1, pages 288–292, Tokyo, Japan, May 15–18 2000.
- [25] S. Basagni. A distributed algorithm for finding a maximal weighted independent set in wireless networks. In S. Q. Zheng, editor, *Proceedings of the Eleventh IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS'99)*, volume 1, pages 517–522, Cambridge, MA, November 3–5 1999.
- [26] S. Basagni, I. Chlamtac, and V. R. Syrotiuk. Dynamic source routing for ad hoc networks using the global positioning system. In *Proceedings of the IEEE Wireless Communications and Networking Conference 1999 (WCNC'99)*, volume 1, pages 301–305, New Orleans, LA, September 21–24 1999.
- [27] S. Basagni. Distributed and mobility-adaptive clustering for multimedia support in multi-hop wireless networks. In *Proceedings of the IEEE 50th International Vehicular Technology Conference, VTC 1999-Fall*, volume 2, pages 889–893, Amsterdam, The Netherlands, September 19–22 1999. **(Cited 113 times.)**
- [28] S. Basagni. Distributed clustering for ad hoc networks. In A. Y. Zomaya, D. F. Hsu, O. Ibarra, S. Origuchi, D. Nassimi, and M. Palis, editors, *Proceedings of the 1999 International Symposium on Parallel Architectures, Algorithms, and Networks (I-SPAN'99)*, pages 310–315, Perth/Fremantle, Australia, June 23–25 1999. IEEE Computer Society. **(Cited 363 times.)**
- [29] S. Basagni. Distributed clustering for multi-hop wireless networks. In A. Annamalai and C. Telambura, editors, *Proceedings of the IEEE International Symposium on Wireless Communications (ISWC'99)*, pages 41–42, Victoria, BC, Canada, June 3–4 1999.
- [30] S. Basagni, I. Chlamtac, and V. R. Syrotiuk. Geographic messaging in wireless ad hoc networks. In *Proceedings of the IEEE 49th Annual International Vehicular Technology Conference*, volume 3, pages 1957–1961, Houston, TX, May 16–20 1999.

- [31] S. Basagni, A. D. Myers, and V. R. Syrotiuk. Mobility-independent flooding for real-time, multimedia applications in ad hoc networks. In *Proceedings of 1999 IEEE Emerging Technologies Symposium on Wireless Communications & Systems*, pages 20.1–20.5, Richardson, TX, April 12–13 1999.
- [32] S. Basagni and I. Chlamtac. Broadcast in peer-to-peer networks. In O. Bukhres and H. El-Rewini, editors, *Proceedings of the Second IASTED International Conference European Parallel and Distributed Systems, Euro-PDS'98*, pages 117–122, Vienna, Austria, July 3–5 1998.
- [33] S. Basagni, I. Chlamtac, and V. R. Syrotiuk. Directional distance routing ( $D^2R$ ) for ad hoc networks. In *Technical Symposium and Exhibition SMTA/IMAPS EXPO 98*, Plano, TX, April 27–28 1998.
- [34] S. Basagni, I. Chlamtac, and A. Faragó. A generalized clustering algorithm for peer-to-peer networks. In *Workshop on Algorithmic Aspects of Communication, satellite workshop of ICALP 97*, Bologna, Italy, July 11–12 1997. (Cited 66 times.)

## 8. Technical Reports

- [1] S. Basagni, A. Carosi, C. Petrioli, and C. A. Phillips. Coordinated and controlled mobility of multiple sinks for maximizing the lifetime of wireless sensor networks. Technical Report SAND2008-4670J, Sandia National Laboratories, Albuquerque, NM, July 2008.
- [2] S. Basagni, C. Petrioli, and R. Petroccia. Clique clustering. Technical Report 09/2006, Dipartimento di Informatica, Università di Roma “La Sapienza,” Roma, Italy, August 2006.
- [3] S. Basagni, A. Carosi, E. Melachrinoudis, C. Petrioli, and Z. M. Wang. Mobile sink and network performance in wireless sensor networks. Technical Report 07/2006, Dipartimento di Informatica, Università di Roma “La Sapienza,” Roma, Italy, June 2006.
- [4] S. Basagni, A. Carosi, M. Nati, and C. Petrioli. Mobility, geo-routing and topology control: A wireless sensor networks perspective. Technical Report Research Report I-05/03, Università di Roma, “La Sapienza,” Roma, Italy, August 2005.
- [5] C. Petrioli, S. Basagni, and I. Chlamtac. BlueMesh: Degree-constrained multihop scatternet formation for Bluetooth networks. Technical Report Research Report I-02/01, Università di Roma, “La Sapienza,” Roma, Italy, July 2002.
- [6] C. Petrioli, S. Basagni, and I. Chlamtac. Configuring BlueStars: Multihop scatternet formation for Bluetooth networks. Technical Report Research Report I-02/01, Università di Roma, “La Sapienza,” Roma, Italy, August 2001.
- [7] S. Basagni, D. Turgut, and S. K. Das. A scalable backbone protocol for managing large ad hoc networks. Technical Report Technical Report UTDCS-07-01, The University of Texas at Dallas, Dallas, TX, February 2001.
- [8] N. Checcacci, M. Barni, F. Bartolini, and S. Basagni. MPEG-4 video objects watermarking. Technical Report UTD/EE-04-99, Department of Electrical Engineering, The University of Texas at Dallas, July 1999.
- [9] S. Basagni, I. Chlamtac, V. R. Syrotiuk, and R. Talebi. Dynamic source multicast for multi-hop wireless networks. Technical Report UTD/EE-05-99, Department of Electrical Engineering, The University of Texas at Dallas, May 1999.

- [10] S. Basagni. Distributed and mobility-adaptive clustering for ad hoc networks. Technical Report UTD/EE-02-98, Erik Jonsson School of Engineering and Computer Science, The University of Texas at Dallas, July 1998.
- [11] S. Basagni. On the complexity of clustering multi-hop wireless networks. Technical Report UTD/EE-01-98, Erik Jonsson School of Engineering and Computer Science, The University of Texas at Dallas, May 1998.
- [12] S. Basagni, I. Chlamtac, and V. R. Syrotiuk. Directional distance routing  $D^2R$  for ad hoc networks. Technical Report UTDCS-10-97, Department of Computer Science, The University of Texas at Dallas, December 1997.
- [13] S. Basagni, C. Mereghetti, and S. Panizza. A colored stochastic petri net model for dining philosophers. Technical Report RI-DSI-202-97, Dipartimento di Scienze dell'Informazione, Università di Milano, 1997.
- [14] S. Basagni, D. Bruschi, and I. Chlamtac. Deterministic, collision-free and distributed broadcast in multi-hop radio networks. Technical Report BU 96-008, Boston University, Boston, MA, October 1996.
- [15] S. Basagni. Causal trees: An application to CCS. Technical Report RI-DSI-146-95, Dipartimento di Scienze dell'Informazione, Università di Milano, 1995.
- [16] S. Basagni and P. Boldi. Causal equivalence and congruence between stable event structure. Technical Report RI-DSI-147-95, Dipartimento di Scienze dell'Informazione, Università di Milano, 1995.
- [17] S. Basagni, D. Bruschi, and F. Ravasio. Finding paths of length  $k$  in digraphs. Technical Report RI-DSI-150-95, Dip. di Scienze dell'Informazione, Università di Milano, 1995.

## Selected Invited Talks

Lectures delivered from 2002 to the present include the following.

1. *Mobility: Enemy or Friend?*, University of Illinois, Urbana-Champaign, IL, August 2007.
2. *Exploiting Mobility for Enhancing Multi-Hop Wireless Network Performance: The case of Wireless Sensor Networks*, Rutgers University, NSF Workshop on Mobility in Wireless Networks, July/August 2007.
3. *Performance Evaluation Comparison of Solutions for Ad Hoc Clustering*, Università di Roma "La Sapienza", Italy, May 2006.
4. *Hierarchical Organization for All Mobile Networks*, Università di Roma "La Sapienza", Italy, May 2006.
5. *Can Mobility Improve Wireless Sensor Networks Performance?* University of Massachusetts, Lowell, MA, February 2006.
6. *Localized Protocols for Ad Hoc Clustering and Backbone Formation*, Università di Pisa, Italy, December 2005.

7. *Ad Hoc Routing: A Survey*, Università di Roma “La Sapienza,” Italy, June 2005.
8. *Sink Mobility and Wireless Sensor Networks Lifetime*, Northeastern University, College of Computer and Information Science, Boston, MA, March 2005.
9. *Localization Algorithms for Wireless Sensor Networks*, Northeastern University CDSP workshop, Boston, MA, March 2005.
10. *Exploiting Sink Mobility for Improving Wireless Sensor Networks Lifetime*, BBN Technologies BANANA Workshop, Cambridge, MA, January 2005.
11. *Hierarchical Organization for Wireless Sensor Networks: Effectiveness and Performance Comparison*, Northeastern University, College of Computer and Information Science, Boston, MA, November 2004.
12. *Hierarchical Organization for Wireless Sensor Networks: From Theory to Experiments*, The University of California, Santa Cruz, Computer Engineering Department, Santa Cruz, CA, October 2004.
13. *Hierarchical Organization for Wireless Sensor Networks*, Boston University, Electrical and Computer Engineering Department, Boston, MA, September 2004.
14. *Building Clusters in Multi-Hop Networks*, Università di Roma “La Sapienza,” Italy, June 2004.
15. *Clustering and Backbone Formation in Wireless Multi-Hop Networks*, Centro Nazionale delle Ricerche, Pisa, Italy, June 2003.
16. *Routing in Ad Hoc Networks: Challenges and Perspectives*, Università di Ferrara, Italy, June 2003.
17. *Building Clusters in Multi-Hop Networks*, Università di Roma “La Sapienza,” Italy, May 2003.
18. *Cluster formation: The Challenges for Wireless Sensor Networks*, Technical University of Berlin, Germany, October 2002.
19. *Forming Scatternets*, Dagstuhl Seminar 02441 “Quality of Service in Networks and Distributed Systems.” Dagstuhl, Germany, October 2002.
20. *Multi-hop Scatternet Formation for Bluetooth Networks*, Northeastern University CDSP Workshop, May 2002.

## Sponsored Research

### External grants

1. *Modeling Networks with Multiple Physical Interfaces—The Case for Multi-Radio Networks*. Stefano Basagni, PI, Andrés Faragó (UT Dallas), co-PI. National Science Foundation, CISE Directorate, CNS Division, Theoretical Foundations Program. Time supported by the grant: 100%. October 1, 2006–September 30, 2009. \$350,000.
2. *Integer Linear Programming Models for Mobility in Wireless Networks*. Stefano Basagni, PI. National Science Foundation, CISE Directorate, CNS Division, Networking Technology and Systems–Wireless Networks Program. Time supported by the grant: 100%. August 1, 2007–July 31, 2008. \$97,160.

3. *Small Antennas for Angle of Arrival Determination and Accurate Localization*. Stefano Basagni, PI. National Science Foundation, Engineering Directorate, Electrical, Communications and Cyber System Division, Integrative, Hybrid & Complex Systems Program. Time supported by the grant: 100%. September 1, 2007–August 31, 2008. \$59,150.

### Internal grants

1. *Improving Localization in Wireless Ad Hoc Networks with Applications to Independent Assisted Living and Disaster Recovery*. Stefano Basagni, PI, Miriam Leeser, Co-PI. Northeastern University, CDSP seed grant. January 1, 2006–December 31, 2006. \$10,000.
2. *Robust Localization Protocols for Wireless Sensor Networks*. Stefano Basagni, PI. Northeastern University, RSRD (Provost grant). July 1, 2004–June 30, 2005. \$8,000.
3. *Network and Pervasive Computing*. Stefano Basagni, co-PI, Fabrizio Lombardi, PI, Other ECE co-PIs: D. Avreski, D. Brady, Y. B. Kim, F. Kirchner, M. Kokar, A. B. McDonald, F. J. Meyer. Northeastern University. July 1, 2002–June 30 2003. \$60,000.

## Teaching and Advising

Courses taught 2002–2008. Northeastern University.

- Undergraduate courses

1. Computer Networks and Lab (NU ECE U 628 and 629). Spring 2008. Enrollments: 38.
2. Optimization Methods (NU ECE U 326). Spring 2008. Enrollment 21.
3. Computer Networks and Lab (NU ECE U 628 and 629). Spring 2007. Enrollment: 33.
4. Computer Networks and Lab (NU ECE U 628 and 629). Fall 2005. Enrollment: 33.
5. Computer Networks and Lab (NU ECE U 628 and 629). Spring 2005. Enrollment: 44.
6. Optimization Methods (NU ECE 1320). Winter 2003. Enrollment: 31.
7. Optimization Methods (NU ECE 1320). Fall 2002. Enrollment: 34.
8. Optimization Methods (NU ECE 1320). Winter 2002. Enrollment: 22.

- Graduate courses

1. Fundamentals of Computer Engineering (NU ECE G 205). Fall 2007. Enrollment 38 (plus 25 remote students).
2. Fundamentals of Computer Engineering (NU ECE G 205). Fall 2006. Enrollment: 17 (plus 10 remote students).
3. Fundamentals of Computer Engineering (NU ECE G 205). Fall 2005. Enrollment: 21 (plus 17 remote students).
4. Fundamentals of Computer Engineering (NU ECE G 205). Fall 2004. Enrollment: 31 (plus 5 remote students).
5. Mobile and Wireless Networking (NU ECE G 364). Spring 2004. Enrollment: 18. (Taught also via Network Northeastern.)

6. Fundamentals of Computer Engineering (NU ECE G 205). Fall 2003. Enrollment: 28. **Newly developed graduate course.**
7. Mobile and Wireless Networking (NU ECE 3656). Winter 2003. Enrollment: 19. (Taught also via Network Northeastern.)
8. Mobile and Wireless Networking (NU ECE 3656). Spring 2002. Enrollment: 14. **Newly developed graduate course.**

- **Courses taught 2000-2001.** The University of Texas at Dallas.

1. Bluetooth and Ad Hoc Networking (UTD CS 6V81). Fall 2001. **Newly developed graduate course.**
2. Discrete Mathematics I (UTD CS 2305). Fall 2001. (Undergraduate course for freshmen.)
3. Advanced Data Structures and Algorithms (UTD CS 4349). Spring 2001. (Undergraduate course for seniors.)
4. Advanced Data Structures and Algorithms (UTD CS 4349). Fall 2000. (Undergraduate course for seniors.)

### **Supervision of graduate students**

- Current students: Maurizio A. Nanni (Ph.D.), Soheil Saadat (Ph.D.), Patricia Chavez (M.S.).
- Ph.D. students graduated
  1. Michele Battelli, "Localization and Location Management in Wireless Sensor Networks." Northeastern University, February 2007.
  2. Luke Demoracski (formally student of Prof. D. Avresky at NU) "Fault-tolerant Routing for Wireless Multi-hop Networks." Northeastern University, October 2006.
  3. Rituparna Ghosh, "Protocols for Hierarchical Organization in Ad Hoc Networks: Definitions, Performance Evaluation and Application to Wireless Sensor Networks." Northeastern University, May 2006.
- Master students graduated (with thesis)
  1. Rajaa Alqudah, "On the Effects of Multiple Beacons on Localization for Wireless Sensor Networks." Northeastern University, July 2007.
  2. Huseyin Mutlu, "A Performance Evaluation and Comparison of Protocols for Topology Control over IEEE 802.15.4." Northeastern University, August 2005.
  3. Marco Elia, "Virtual Backbones for Energy Saving (ViBES) in Wireless Sensor Networks." Northeastern University, April 2004.
- Students with master projects or independent studies (since 2008)
  1. Craig Daniels (independent study), "First Responders Networking: A Survey." Summer 2008.
  2. Kapil Pamnani (independent study), "Implementing and Comparing Sorting Algorithms." Summer 2008.
  3. Adnan Rawumpala (independent study), "Implementing and Comparing Algorithms on Graphs." Summer 2008.

### **Supervision of undergraduate students' research** (independent study and coop research)

1. James Edward IV. Summer 2008–Spring 2009.
2. Katharine Toth. Summer 2008–Spring 2009.
3. Vishal Sunak. Fall 2005–Spring 2007.
4. Matthew Kowalski. Fall 2004–Fall 2006.
5. Keith Bertolino. Fall 2004–Spring 2006.
6. Michael Benson. Fall 2005–Spring 2006.
7. Michael Cartwright. Spring 2005.
8. Dino Buro. Spring 2004.
9. Abdul Ismail. Winter 2003.
10. Craig Young. Fall 2002–Winter 2003.

### **Service and Professional Development**

- **Service to the NU Department of Electrical and Computer Engineering (ECE)**

**Fall 2007** Leader of the November 1st CE Freshman Forum

**Fall 2007** Member of the Undergraduate Study Committee.

**2005–2007** Member of the NU ECE awards committee.

**2002–2008** Faculty co-advisor of the IEEE student branch and Northeastern University (<http://www.ieee.neu.edu>).

**2002–2008** Member of the Ph.D. and M.S. thesis committee of over a dozen NU students.

**2002–2008** Ph.D. qualifying exam committee member.

**2002–2007** Academic advisor of over three dozen graduate students.

**2002–2005** Member of NU ECE hiring committee.

- **Service to the NU College of Engineering (COE)**

**Fall 2007** ECE leader for the November 10 “Welcome day.”

**Fall 2007** Speaker at the 1st year faculty breakfast.

**2005–2008** Member of the NU COE awards committee.

**2005, 2006, 2008** Participated in the “Leadership Retreat” for COE student groups.

**2002–2008** Helped in organizing and participated in the COE “Open Houses,” for new potential students (twice a year).

**2002–2004** Managed one of the activities of “Building Bridges,” the COE outreach to high school students (twice a year).

- **Service to Northeastern University:** 2003–2008. Marshall at the NU commencement exercises (both undergraduate and graduate ceremonies).

- **Service to the discipline/profession**

1. **Journal guest editorship**

- (a) With Dr. Cynthia A. Phillips (Sandia National Labs). Special issue of *Algorithmica* on the principles of mobile communications and computing. *Algorithmica* is the Springer-Verlag journal on the design of algorithms in applied and fundamental areas. Volume 49, issue 4, pages 259–263, December 2007.
- (b) With Professor Antonio Capone (Politecnico di Milano, Italy). Special issue of the Elsevier's *Ad Hoc Networks Journal* on advances in ad hoc and sensor networking. Volume 5, issue 8, pages 1205–1207, November 2007.
- (c) With Professor Chiara Petrioli (University of Roma, “La Sapienza”). Special Section of *ACM/ SIGMOBILE Mobile Computing & Communications Review (MC2R)* from the extended abstracts of the *ACM/SIGMOBILE MobiCom 2004* student posters session. Volume 9, issue 1, January 2005.
- (d) With Professor J.J. Garcia-Luna-Aceves (UCSC & Sun Microsystems). Special issue of the *ACM/Kluwer Journal on Special Topics in Mobile Networking and Applications (MONET)* on “Multipoint Communication in Wireless Mobile Networks.” Volume 7, issue 6, page 427, December 2002.
- (e) With Dr. S.J. Lee (HP Labs, Palo Alto, CA). Special issue of the journal *Wireless Communications and Mobile Computing* (John Wiley & Sons, Inc.) on “Mobile Ad Hoc Networking: Research, Trends and Applications.” Volume 2, issue 5, pages 439–440, August 2002.

2. **Journal editorial boards membership**

- (a) *Research Letters in Communications* (Hindawi Publishing Corp.). Since 2008.
- (b) *International Journal of Vehicular Technology* (Hindawi Publishing Corp.). Since 2006.
- (c) *Ad Hoc & Sensor Wireless Networks* (OCP Science). Since 2005.
- (d) *Ad Hoc Networks* (Elsevier). Since 2004.
- (e) *Wireless Communications & Mobile Computing* (John Wiley & Sons, Pub.). Since 2000.

3. **Conference organization positions**

- (a) Technical Program Committee (TPC) co-chair of Med-Hoc-Net 2006, Lipari, Italy, June 14–17 2006.
- (b) General and TPC co-chair of ACM/SIGMOBILE Dial M-POMC, Philadelphia, PA, October 1 2004.
- (c) **Organizing Committees membership** (partial list).
  - WONS 2009
  - HealthNet 2007 and 2008
  - ACM MobiHoc 2001 and 2006
  - IEEE SECON 2005 and 2006
  - ACM MobiCom 2001, 2004 and 2005
  - MobiQuitous 2004 and 2005
  - IEEE PERCOM 2003
  - IFIP WG6 Networking 2002

4. **Technical Program Committees membership** (partial list):

- UASS 2009
- IEEE ICC 2003, 2008 and 2009
- IEEE Globecom 2002, 2007–2009

IEEE PerCom 2003, 2004, 2008 and 2009  
 IEEE CCNC 2008 and 2009  
 IEEE Infocom 2005–2008  
 IEEE ICDCS 2008  
 IEEE IPDPS 2008  
 IEEE DCOS 2008  
 IEEE t2pWSN 2008  
 IEEE SECON 2004–2008  
 IEEE VTC Fall 2003, 2005 and 2008  
 IEEE Mass 2004–2008  
 IEEE PIMRC 2008  
 ACM MobiCom 2000–2007  
 ACM MobiHoc 2002, 2006 and 2007  
 ACM PE-WASUN 2007  
 ACM MSWiM 2008  
 FAWN 2006  
 WICON 2006  
 ACM DIAL M-POMC 2004 and 2005  
 MobiQuitous 2004 and 2005  
 ACM Sigcomm Asia 2005  
 WWAN 2005  
 IEEE WWAN 2004  
 IEEE NCA 2004  
 ACM MobiWac 2004  
 Ad Hoc Now 2004  
 SCS CNDS 2002 and 2003  
 ACM WoWMoM 2002

#### 5. **Proposal reviewing**

- (a) 2002–2008: National Science Foundation panelist.
- (b) 2007–2008: Panelist for the DoD/ASEE NDSEG fellowship.
- (c) 2007–2008: Reviewer of a research proposal for the Canada Council for the Arts.
- (d) 2007: Reviewer of a research proposal for the Italian private institution “Cariparo.”
- (e) 2004–2006: Reviewer of research proposals for the MICRO program of the State of California.
- (f) 2003–2005: Reviewer of research proposals for the Italian government.
- (g) 2003: Reviewer of research proposals for the National Science Foundation.

#### 6. **Books and book proposals reviewing.** Reviewer of nine books and book proposals (for Springer Verlag, for Wiley & Sons, Inc. and for Thomson Course Technology), which include:

- (a) Horstmann, C. *Commputing Concepts with C++ Essentials*. John Wiley and Sons, Inc., 2008.
- (b) Malick, S. S. *C++ Programming. From Problem Analysis to Program Design*. Third Edition. Thomson Course Technology, 2007.
- (c) Stojmenovic, I. *Wireless Sensor and Actuator Networks: Algorithms and Protocols for Scalable Coordination and Data Communication*. John Wiley & Sons, Ltd., 2007.

#### 7. **International journals and conferences reviewing** (partial list).

ACM/IEEE Transactions on Networking

ACM Transactions on Sensor Networks  
IEEE Transactions on Computers  
IEEE Transactions on Mobile Computing  
IEEE Transactions on Parallel and Distributed Systems  
IEEE Transactions of Wireless  
IEEE Transactions on Vehicular Technology  
IEEE Journal on Selected Areas in Communications  
IEEE Communication Letters  
IEEE System Journal  
ACM/Kluwer Wireless Networks  
ACM/Kluwer MONET  
Elsevier Computer Networks  
Elsevier Ad Hoc Networks  
Elsevier Computer Communications  
SIAM Journal on Computing  
Algorithmica  
Information Processing Letters  
ACM/IEEE MobiCom  
ACM/SIGMOBILE MobiHoc  
IEEE Infocom  
IEEE MASS  
IEEE SECON  
IEEE Globecom  
IEEE ICC

8. **Session chair and organizer** at over three dozens of IEEE, ACM, ICST and IASTED conferences.

- **Professional development**

- Invited at the following meetings**

- **July 31–August 1, 2007** NSF Workshop: Wireless Mobility: Challenges and Directions. Rutgers University, NJ.
    - **September 13–15, 2004** NSF Workshop: The NeTS Prowin Program. Nashua, NH.
    - **August 1–2, 2004** Microsoft Faculty Summit. Redmond, WA.
    - **June 2–3, 2004** U.S. Naval Research Laboratory Workshop: Cross-Layer Optimization for Ad Hoc Networks. Washington, D.C.
    - **February 26, 2004** NSF Workshop: The NeTS Program. Los Angeles, CA.
    - **Summer 2001–2006** Visiting professor at the Department of Computer Science of the University of Roma “La Sapienza.”

- Participated in the following NU organized events**

- **October 14, 2004** Workshop “Build a Basic Blackboard Course.” Northeastern University, Boston, MA.
    - **January/February 2003** Proposal Writing Workshop. Northeastern University, Boston, MA.
    - **February 25, 2003** NU Mentoring Workshop. Northeastern University, Boston, MA.

- **March 10, 2003** NU Tenure and Promotion Workshop. Northeastern University, Boston, MA.
- **Professional associations membership**
  - September 2006-** Senior member of the Association for Computing Machinery (ACM) and of the ACM SIGMOBILE.
  - April 2006-** Senior member of the Institute of Electrical and Electronic Engineers (IEEE), and of the IEEE Communications and Computer Societies.
  - October 2003-** Member of the American Society for Engineering Education (ASEE).

## **Honors and awards**

- 2003–2008** Listed in the Academic Keys Who’s Who in Engineering Education (WWE).
- 2006–2009** Listed in the Marquis’ Who’s Who in America.
- June 2007** Nominated for the Best Student Group Advisor of the Year award.
- September 2006** Elected senior member of the ACM.
- September 2006** IEEE Communication Society certificate of appreciation for organizing IEEE SECON 2006 (poster/demo co-chair).
- July 2006** Granted permanent residence in the U.S. (“green card”) for *Outstanding Research*.
- April 2006** Elected senior member of the IEEE.
- September 2005** IEEE Communication Society certificate of appreciation for organizing IEEE SECON 2005 (publicity co-chair).
- February 22, 2005** Northeastern University Major Work Reception. Recognition of scholarly work by NU faculty and staff.
- June 4, 2003** Northeastern University Major Work Reception. Recognition of scholarly work by NU faculty and staff.