MURAT DEMIRBAS

Associate Professor
Computer Science and Engineering
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RESEARCH INTERESTS	◇ Distributed systems, Cloud computing, Ubiquitous computing, Smart-sourced sensing and collaboration, Wireless sensor/actor networks, Fault-tolerant computing, Self-stabilization.

EDUCATION

◇ **Post-doctorate**   Advisor: Prof. Nancy Lynch   Sept 2004 – Aug 2005
Theory of Distributed Systems Group
MIT CSAIL, Cambridge, MA, USA

◇ **Doctor of Philosophy**   Advisor: Prof. Anish Arora   Aug 2004
"Scalable design of fault-tolerance for wireless sensor networks"
Department of Computer Science and Engineering
The Ohio State University, Columbus, OH, USA

◇ **Master of Science**   Advisor: Prof. Anish Arora   March 2000
"Resettable vector clocks: a case study in designing graybox fault-tolerance"
Department of Computer Science and Engineering
The Ohio State University, Columbus, OH, USA

EMPLOYMENT HISTORY

◇ **Associate Professor**   May 2011 – ongoing
Computer Science and Engineering Department
University at Buffalo, SUNY

◇ **Assistant Professor**   Aug 2005 – May 2011
Computer Science and Engineering Department
University at Buffalo, SUNY

◇ **Post-doctoral Research Associate**   Sept 2004 – Aug 2005
Theory of Distributed Systems Group
MIT CSAIL, Cambridge, MA, USA

◇ **Graduate Research Associate**   Sept 1998 – Aug 2004
Department of Computer Science and Engineering
The Ohio State University, Columbus, OH, USA

AWARDS & HONORS

◇ **University at Buffalo, School of Engineering and Applied Sciences, Senior Researcher of the Year Award, 2016**.

◇ **Best Paper Award, IEEE International Conference on Big Data, 2015**. *"Panopticon: A lock broker architecture for scalable transactions in the datacenter"*

◇ **Outstanding Paper Award, Int. Conference on Collaboration Technologies and Systems, 2014**. *"Targeted question answering on smartphones utilizing app-based user classification"*

◇ **University at Buffalo Exceptional Scholars Young Investigator Award, 2010**.

◇ **NSF CAREER Award, 2008**. *"An in-network collaboration and coordination framework for wireless sensor actor networks"*

◇ **Best Paper Award, IEEE Int. Conference on Distributed Computing Systems (ICDCS), 2002**. *"Convergence Refinement"*

◇ **Outstanding Researcher Award**, Department of Computer Science and Engineering, The Ohio State University, 2002.

FUNDED RESEARCH PROJECTS

◇ **NSF XPS program** $750,000 from 2015-2019
"Synchrony-aware primitives for building highly auditable, highly scalable, highly available distributed systems"
PI: Murat Demirbas (50%) and coPI: Sandeep Kulkarni

◇ **NSF CSR program** $500,000 from 2015-2018
"Scalable coordination for wide-area distributed systems"
PI: Murat Demirbas (50%) and coPI: Tevfik Kosar

◇ **NSF CI program** $1,322,510 from 2012-2015
"PhoneLab: A programmable participatory smartphone testbed"
Geoffrey Challen (PI), Murat Demirbas, Steve Ko, Tevfik Kosar, Chunming Qiao

◇ **NSF CAREER award** $450,000 from 2008-2013
"An in-network collaboration & coordination framework for wireless sensor actor networks"
PI: Murat Demirbas (100%)

◇ **Office of Naval Research** $510,000 from 2009-2012
"Efficient and resilient querying and tracking services for wireless sensor networks"
PI: Murat Demirbas (100%)

◇ **NSF CSR program** $500,000 from 2009-2012
"Tool-support for producing high-assurance software for wireless sensor actor networks"
PI: Murat Demirbas (50%) and coPI: Sandeep Kulkarni

◇ **NIH NIEHS program** $330,000 from 2010-2012
"Use of cellphone-based time-activity data for air pollutant exposure estimation"
co-Investigator: Murat Demirbas

◇ **Google research award** $50,000 in 2011
"PhoneLab: A participatory smartphone cloud testbed"
Geoffrey Challen (PI), Murat Demirbas, Steve Ko, Tevfik Kosar

◇ **Army Research Office DURIP program** $290,000 in 2011
"Two-rank mobile robot fleet for swarm surveillance, warfighter assistance and other army-related research and research-related education
Jason Corso (PI), Murat Demirbas, Raymond Fu, Venkat Krovi, Rakesh Nagi

◇ **Google research award** $50,000 in 2010
"Crowdsourced sensing and collaboration using Twitter"
PI: Murat Demirbas (100%)

PH.D. SUPERVISION

◇ **Kuo Zhang**: *"Large-scale distributed machine learning systems"*; joined Fall 2015.

◇ **Aleksey Charapko**: *"Synchrony-aware primitives for building highly auditable, highly scalable, highly available distributed systems"*; joined Fall 2015.

◇ **Ailidani Ailijiang**: *"Scalable coordination for wide-area distributed systems"*; joined Fall 2013.

◇ **Serafettin Tasci**: *"Scalable coordination in tightly-coupled distributed systems"*; graduated Spring 15; working at Samsung Research.

◇ **Yavuz Yilmaz**: *"Targeted crowdsourcing using participant interest"*; graduated Spring 15; working at Intel Inc.

◇ **Zuhal Tepecik**: *"In-network querying on federated sensor networks"*; graduated Spring 15; working at Eskisehir University.

◇ **Ismail Aydin**: *"Investigation of multiple-choice question answering with mobile crowdsourcing"*; graduated Fall 14; working at Intel Inc.

◇ **Fatih Bulut**: *"Crowdsourced location-based sensing"*; graduated Summer 14; working at IBM, and adjunct professor at Pace University.

◇ **Onur Soysal**: *"A distributed algorithms approach for improving reliability and energy efficiency in wireless sensor networks"*; graduated Summer 10; working at Google Inc.

◇ **Murat Bayir**: *"Enabling location aware smartphone applications via mobility profiling"*; graduated Summer 10; working at Microsoft Inc.

◇ **Xuming Lu**: *"In-network querying and tracking for wireless sensor networks"*; graduated Spring 09; working at Bloomberg Inc.

M.S. THESIS   ◇ **Cuneyt Gurcan Akcora**, *"Crowdsourced sensing and opinion mining using Twitter"*,
SUPERVISION   graduated Summer 10.

◇ **Srivats Balachandran**: *"Robcast: A reliable MAC layer protocol for broadcast in wireless sensor networks"*, graduated Spring 08.

CITATIONS   ◇ **3601 (all time) and 2354 (since 2011)**
h-index= 27 (all time) and 21 (since 2011)
i10-index= 47 (all time) and 35 (since 2011)
Google Scholar: `http://goo.gl/UWm7yO`

PUBLICATIONS ◇ **Journal Papers**
Notation: * denotes the co-author was Dr.Demirbas's student when the work was done.

1. A crowdsourced "Who wants to be millionaire?" player
   B. I. Aydin*, Y. S. Yilmaz*, <u>M. Demirbas</u>
   Concurrency and Computation: Practice and Experience, Under review with minor revision, 2016.

2. Querying on Federated Sensor Networks
   Z. Can*, <u>M. Demirbas</u>
   Journal of Sensor and Actuator Networks, Accepted for publication, 2016.

3. *Specification based design of self-stabilization*
   <u>M. Demirbas</u>, A. Arora.
   IEEE Transactions on Parallel and Distributed Systems, 27(1): 263–270, 2016.

4. *Coffee shop wait-time monitoring using smartphones*
   M. F. Bulut*, <u>M. Demirbas</u>, H.Ferhatosmanoglu.
   IEEE Transactions on Mobile Computing, 14(10): 2045–2058, 2015.

5. *"Slow is fast" for wireless sensor networks in the presence of message losses*
   R. Hajisheykhi, L. Zhu, M. Arumugam, <u>M. Demirbas</u>, and S. Kulkarni.
   Journal of Parallel and Distributed Computing, 77:41–57, 2015.

6. *Smartphone-based data collection from wireless sensor networks in an urban environment*
   Z. Can* and <u>M. Demirbas</u>.
   Journal of Network and Computer Applications, 58, 208–216, 2015.

7. *A confidence-aware approach for truth discovery on long-tail data*
   Q. Li, Y.Li, J. Gao, L. Su, B. Zhao, <u>M. Demirbas</u>, W. Fan, J. Han.
   Proceedings of the VLDB Endowment, 8(4): 425–436 (2014).

8. *Using smartphones to collect timeactivity data for long-term personal-level air pollution exposure assessment*
   M. L. Glasgow, C. B. Rudra, E.-H. Yoo, <u>M. Demirbas</u>, J. Merriman, P. Nayak, C. Crabtree-Ide, A. A. Szpiro, A. Rudra, J. Wactawski-Wende and L. Mu. Journal of Exposure Science and Environmental Epidemiology, Nature Publishing Group, 2014.

9. *On the fly learning of mobility profiles for routing in pocket switched networks*
   M. A. Bayir*, <u>M. Demirbas</u>. Elsevier, Ad Hoc Networks, 16, 13–27, 2014.

10. *Trend sensing via Twitter*
    Y. S. Yilmaz*, M. F. Bulut*, C. G. Akcora*, M. A. Bayir*, <u>M. Demirbas</u>.
    International Journal of Ad Hoc and Ubiquitous Computing, 14(1): 16–26, 2013.

11. *A survey on in-network querying and tracking services for wireless sensor networks*
    Z. Can*, <u>M. Demirbas</u>.
    Elsevier, Ad Hoc Networks, 11 (1), 596–610, 2013.

12. *Smartphone technology for improving air pollution exposure estimates*
    M. L. Glasgow, L. Mu, P. Nayak, C. Crabtree-Ide, <u>M. Demirbas</u>, E.-H. Yoo, A. A.
    Szpiro, A. Rudra, J. Wactawski-Wende, et. al.
    American Journal of Epidemiology, vol 175, 2012.

13. *Discovering better navigation sequences for the session construction problem*
    M. A. Bayir*, I. H. Toroslu, <u>M. Demirbas</u>, A. Cosar.
    Elsevier, Data & Knowledge Engineering, volume 73, pages 58-72, 2012.

14. *Model-based tracking for mobile ad hoc networks*
    X. Lu*, <u>M. Demirbas</u>. Network Protocols and Algorithms 3 (2), 1–23, 2011.

15. *ABC-MC: A multi-channel geographic forwarding scheme for wireless sensor networks*
    TK. Lee, C. Qiao, <u>M. Demirbas</u>, J. Xu.
    Ad Hoc Networks, Elsevier, 9 (5), 699–712, 2011.

16. *A web based personalized mobility service for smartphone applications*
    M. A. Bayir*, <u>M. Demirbas</u>, A. Cosar. The Computer Journal 54 (5), 800–814, 2011.

17. *Coordinated locomotion and monitoring using autonomous mobile sensor nodes*
    SK Yoon, O. Soysal*, <u>M. Demirbas</u>, C. Qiao
    IEEE Transactions on Parallel and Distributed Systems. 22(10): 1742–1756, 2011.

18. *Mobility profiler: A framework for discovering mobility profiles of cell phone users*
    M. A. Bayir*, <u>M. Demirbas</u>, N. Eagle.
    Elsevier Pervasive and Mobile Computing Journal, Special Issue on Human Behaviour
    in Ubiquitous Environments, 6 (4), 435-454, 2010.

19. *A lightweight soft-state tracking framework for dense mobile ad hoc networks*
    X. Lu*, <u>M. Demirbas</u>.
    Elsevier Pervasive and Mobile Computing Journal, 6 (3), 297–311, 2010.

20. *ABC: A simple geographic forwarding scheme capable of bypassing routing holes in
    sensor networks*
    TK. Lee, C. Qiao, <u>M. Demirbas</u>, J. Xu.
    Ad Hoc Networks, Elsevier, 8(4), 361–377, 2010.

21. *Trail: A distance-sensitive network service for distributed object tracking*
    V. Kulathumani, A. Arora, <u>M. Demirbas</u>, M. Sridharan.
    ACM Transactions on Sensor Networks (TOSN), 5(2): 1–40, 2009.

22. *Consensus and collision detectors in radio networks*
    G. Chockler, <u>M. Demirbas</u>, S. Gilbert, N. Lynch, C. Newport, and T. Nolte.
    Distributed Computing (Springer), 21(1): 55–84, 2008.

23. *A lightweight querying service for wireless sensor networks*
    <u>M. Demirbas</u>, A. Arora, V. Kulathumani.
    Theoretical Computer Science Journal, Elsevier, 410(6-7): 500–513, 2009.

24. *An in-network querying framework for wireless sensor networks*
    <u>M. Demirbas</u>, X. Lu*, P. Singla.
    IEEE Transactions on Parallel and Distributed Systems, 99(1), 2008.

25. *The impact of data aggregation on the performance of wireless sensor networks*
    K. Akkaya, <u>M. Demirbas</u>, and S. Aygun
    Journal of Wireless Communications and Mobile Computing, 8(2): 171–193, 2008.

26. *A fault-local self-stabilizing clustering service for wireless ad hoc networks*
    M. Demirbas, A. Arora, V. Mittal, V. Kulathumani
    IEEE Transactions on Parallel and Distributed Systems, Special Issue on Localized
    Communication and Topology Protocols for Ad Hoc Networks, 17 (9), 912–923, 2006.

27. *Pursuer-evader tracking in sensor networks*
    M. Demirbas, A. Arora, and M. Gouda
    Sensor Network Operations, IEEE Press, Chapter 9, 2006.

28. *Resettable vector clocks*
    A. Arora, S. S. Kulkarni, and M. Demirbas
    Journal of Parallel and Distributed Computing (JPDC), 66 (2), 221–237, 2006.

29. *A line in the sand: A wireless sensor network for target detection, classification, and*
    tracking
    A. Arora, P. Dutta, S. Bapat, V. Kulathumani, H. Zhang, V. Naik, V. Mittal, H.
    Cao, M. Demirbas, M. Gouda, Y. Choi, T. Herman, S. Kulkarni, U. Arumugam, M.
    Nesterenko, A. Vora, and M. Miyashita
    Computer Networks (*Elsevier*), 46 (5), 605–634, 2004.

◇ **Under submission conference papers**

1. *Lightweight, Incremental, and Retrospective Distributed Snapshots Using Loosely Syn-*
   chronized Clocks
   A. Charapko*, A. Ailijiang*, S. Kulkarni, M. Demirbas *Under submission to 14th*
   USENIX Symposium on Networked Systems Design and Implementation (NSDI), 2017.

2. *WANKEEPER: Efficient Coordination at WAN scale*
   A. Ailijiang*, A. Charapko*, M. Demirbas, B. Turkkan, and T. Kosar. *UB CSE Tech-*
   nical Report 2016-05. (To be submitted to ICDCS), 2016.

◇ **Conference Papers**

1. *Efficient Algorithms for Predicate Detection using Hybrid Logical Clocks* S. Yingchare-
   onthawormchai, V. T. Valapil, S. Kulkarni, E. Torng and M. Demirbas
   International Conference on Distributed Computing and Networking (ICDCN), 2017.

2. *Precision, recall, and sensitivity of monitoring partially synchronous distributed systems*
   S. Yingchareonthawormchai, D. Nguyen, V. T. Valapil, S. Kulkarni, and M. Demirbas.
   The 16th International Conference on Runtime Verification, 2016.

3. *Consensus in the cloud: Paxos systems demystified*
   A. Ailijiang*, A. Charapko*, and M. Demirbas. *The 25th International Conference on*
   Computer Communication and Networks (ICCCN), 2016. (acceptance ratio < 30%)

4. *Analysis of bounds on hybrid vector clocks*
   S. Yingchareonthawormchai, S. S. Kulkarni, and M. Demirbas. *The 19th International*
   Conference on Principles of Distributed Systems (OPODIS), 2015. (acceptance ra-
   tio=30%)

5. *Panopticon: A lock broker architecture for scalable transactions in the datacenter*
   S. Tasci*, M. Demirbas. *IEEE International Conference on Big Data*, 2015.
   (acceptance ratio= 17%) **(Received the Best Paper Award.)**

6. *Highly auditable distributed systems*
   M. Demirbas, S. Kulkarni. *HotCloud*, 2015. (acceptance ratio < 30%)

7. *Energy-efficient smartphone-based data collection from wireless sensor networks*
   Z. Can*, M. Demirbas, IEEE CCNC, 643–647, 2015. (acceptance ratio = 30%)

8. *Logical physical clocks*
   S. Kulkarni, M. Demirbas, D. Madeppa*, B. Avva*, and M. Leone. *The 18th International Conference on Principles of Distributed Systems (OPODIS)*, 17–32, 2014. (acceptance ratio= 32%)

9. *Google Cloud Messaging (GCM): An evaluation*
   Y. Yilmaz*, B. Aydin*, M. Demirbas. *GlobeCom*, 2807–2812, 2014. (acceptance ratio= 37%)

10. *Crowdsourcing for multiple-choice question answering*
    B. Aydin*, Y. Yilmaz*, Y. Li, Q. Li, J. Gao, M. Demirbas. *Twenty-Sixth Annual Conference on Innovative Applications of Artificial Intelligence (IAAI)*, 2946–2953, 2014.

11. *Targeted question answering on smartphones utilizing app based user classification*
    Y. S. Yilmaz*, B. Aydin, M. Demirbas. *International Conference on Collaboration Technologies and Systems (CTS)*, 371–378, 2014.
    (acceptance ratio= 39%) **(Received the Outstanding Paper Award.)**

12. *Giraphx: Parallel yet serializable large-scale graph processing*
    S.* Tasci, M. Demirbas. *Euro-Par*, 458–469, 2013. (acceptance ratio < 30%)

13. *A holistic approach for energy efficient proximity alert on Android*
    F. Bulut*, M. Demirbas. *GlobeCom*, 2816–2821, 2013. (acceptance ratio= 37%)

14. *Participant behavior in PhoneLab*
    A. Nandugudi and A. Maiti and F. Bulut and S. Batra and Y. Ki and G. Challen and M. Demirbas and S. Ko and T. Kosar, and C. Qiao.
    International Conference on the Analysis of Mobile Phone Datasets (NetMob), 2013. (acceptance ratio < 35%)

15. *LineKing: Crowdsourced line wait-time estimation using smartphones*
    F. Bulut*, Y. Yilmaz*, M. Demirbas, H. Ferhatosmanoglu, N. Ferhatosmanoglu.
    MobiCASE, 205–224, 2012. (acceptance ratio < 35%)

16. *Optimistic concurrency control for multihop sensor networks*
    O. Soysal*, B. I. Aydin*, M. Demirbas. *IWCMC*, 89–94, 2011. (acceptance ratio= 35%)

17. *Investigation of querying techniques for federated sensor networks*
    M. Demirbas, Z. Can*. *IWCMC*, 2034–2039, 2011. (acceptance ratio= 35%)

18. *Powernap: An energy-efficient MAC for random routing in wireless sensor networks*
    O. Soysal*, S. Ayyorgun, M. Demirbas.
    8th IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON), 10–18, 2011. (acceptance ratio = 27%)

19. *Singlehop collaborative feedback primitives for threshold querying in wireless sensor networks*
    M. Demirbas, S. Tasci*, H. Gunes*, A. Rudra.
    25th IEEE International Parallel & Distributed Processing Symposium, 322–333, 2011. (acceptance ratio = 20%)

20. *Slow is fast for wireless sensor networks in the presence of message losses*
    M. Arumugam, M. Demirbas, S. Kulkarni.
    The 12th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS), pages 176–190, 2010.

21. *PRO: A profile based routing algorithm for pocket switched networks*
    M.A. Bayir* and M. Demirbas.
    IEEE Global Communications Conference (Globecom), 1–5, 2010. (acceptance ratio = 35%)

22. *Data Spider: A resilient mobile basestation protocol for efficient data collection in wireless sensor networks*
O. Soysal*, M. Demirbas.
The 6th IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS), 393–408, 2010. (acceptance ratio = 29%)

23. *Crowd-sourced sensing and collaboration using Twitter.*
M. Demirbas, M.A. Bayir*, C.G. Akcora*, Y. Yilmaz*, H. Ferhatosmanoglu.
11th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM), 1–9, 2010. (acceptance ratio = 21%)

24. *A holistic solution to the pursuer evader tracking problem.*
X. Lu*, M. Demirbas, C. Qiao.
The 28th IEEE Symposium on Reliable Distributed Systems (SRDS), 2009. (acceptance ratio = 22%)

25. *Track Me! A web based location tracking and analysis system for smartphone users*
M. A. Bayir*, M. Demirbas, A. Cosar.
24th International Symposium on Computer and Information Sciences (ISCIS), 2009.

26. *Discovering spatiotemporal mobility profiles of cellphone users*
M. A. Bayir*, M. Demirbas, N. Eagle.
The 10th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WOWMOM), 2009. (acceptance ratio =24%)

27. *A plant-and-play wireless sensor network system for gate monitoring*
R. Sudhaakar, A. Sanzgiri*, M. Demirbas, C. Qiao.
The 10th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WOWMOM), 2009. (acceptance ratio =24%)

28. *An application of specification-based design of self-stabilization to tracking in wireless sensor networks*
M. Demirbas, A. Arora.
The 10th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS), 203–217, 2008. (acceptance ratio < 30%)

29. *A lightweight tracking framework for mobile ad hoc networks*
X. Lu*, M. Demirbas.
The 5th IEEE International Conference on Mobile Ad Hoc and Sensor Systems (MASS), 359–364, 2008. (acceptance ratio 13%)

30. *ABC: A novel integrated MAC and routing protocol for wireless ad hoc networks*
TK. Lee, C. Qiao, M. Demirbas, J. Xu.
17th IEEE International Conference on Computer Communications and Networks (IC-CCN), 2008. (acceptance ratio < 26%)

31. *Coordinated locomotion of mobile sensor networks*
SK Yoon, O. Soysal*, M. Demirbas, C. Qiao
Fifth Annual IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON), 126–134, 2008. (acceptance ratio = 21%)

32. *Transact: A transactional programming framework for wireless sensor/actor networks*
M. Demirbas, O. Soysal*, M. Hussain*
IEEE/ACM International Conference on Information Processing in Sensor Networks (IPSN), 295–306, 2008. (acceptance ratio = 19%)

33. *Singlehop collaborative feedback primitives for wireless sensor networks*
M. Demirbas, O. Soysal*, M. Hussain*.
IEEE INFOCOM, 2047-2055, 2008. (acceptance ratio = 29%)

34. *Data Salmon: A greedy mobile basestation protocol for efficient data collection in wireless sensor networks*

M. Demirbas, O. Soysal*, and A. S. Tosun.
IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS),
267–280, 2007. (acceptance ratio < 27%)

35. *Distributed quad-trees for spatial querying in wireless sensor networks*
    M. Demirbas, X. Lu*.
    IEEE International Conference on Communication (ICC), 3325–3332, 2007. (Acceptance rate < 30%)

36. *Trail: A distance-sensitive network service for distributed object tracking*
    V. Kulathumani, A. Arora, M. Demirbas, M. Sridharan.
    European conference on Wireless Sensor Networks (EWSN), 83–100, 2007. (acceptance ratio = 13%)

37. *A lightweight querying service for wireless sensor networks*
    M. Demirbas, A. Arora, V. Kulathumani.
    International Conference on Principles of Distributed Systems (OPODIS), 242–257, 2006. (acceptance rate = 13%)

38. *A MAC layer protocol for priority-based reliable multicast in wireless ad hoc networks*
    M. Demirbas and M. Hussain*
    Broadband Wireless Networking Symposium (BroadNets), 2006.

39. *Consensus and collision detectors in wireless ad hoc networks*
    G. Chockler, M. Demirbas, S. Gilbert, C. Newport, and T. Nolte
    ACM Symposium on Principles of Distributed Computing (PODC), 197–206, 2005. (acceptance ratio= 23%)

40. *A hierarchy-based fault-local stabilizing algorithm for tracking in sensor networks*
    M. Demirbas, A. Arora, T. Nolte, and N. Lynch
    International Conference on Principles of Distributed Systems (OPODIS), 299–315, 2004. (acceptance ratio < 30%)

41. *Design and analysis of a fast local clustering service for wireless sensor networks*
    M. Demirbas, A. Arora, V. Mittal, and V. Kulathumani
    Invited paper at Broadband Wireless Networking Symposium (BroadNets), 700–709, 2004. (acceptance ratio < 30%)

42. *Peer-to-peer spatial queries in sensor networks*
    M. Demirbas and H. Ferhatosmanoglu
    IEEE International Conference on Peer-to-Peer Computing (P2P), 32–39, 2003.

43. *A pursuer-evader game for sensor networks*
    M. Demirbas, A. Arora, and M. Gouda
    Symposium on Self-Stabilizing Systems (SSS), 1–16, 2003.

44. *Introducing middle school girls to fault tolerant computing*
    P. A. G. Sivilotti and M. Demirbas
    Technical Symposium on Computer Science Education (SIGCSE), 327–331, 2003.

45. *Convergence refinement*
    M. Demirbas and A. Arora
    International Conference on Distributed Computing Systems (ICDCS), 589–597, 2002.
    (Received the Best Paper Award.) (acceptance ratio= 18%)

46. *Graybox stabilization*
    A. Arora, M. Demirbas, and S. S. Kulkarni
    International Conference on Dependable Systems and Networks (ICDSN), 389–400, 2001. (acceptance ratio= 35%)

47. *Resettable vector clocks*
    A. Arora, S. S. Kulkarni, and M. Demirbas
    ACM Symposium on Principles of Distributed Computing (PODC), 269–278, 2000. (acceptance ratio= 27%)

⋄ **Workshop papers**

1. *Employing in-memory data grids for distributed graph processing*
   S. Tasci*, <u>M. Demirbas</u>. BigGraphs Workshop as part of IEEE International Conference on Big Data (Big Data), 1856–1864, 2015.

2. *Coffee shop line length monitoring using smartphones*
   M. F. Bulut, <u>M. Demirbas</u>. 15th International ACM Workshop on Mobile Computing Systems and Applications (HotMobile), 2014.

3. *Beyond TrueTime: Using AugmentedTime for improving Google Spanner*
   <u>M. Demirbas</u>, S. Kulkarni. 7th Workshop on Large-Scale Distributed Systems and Middleware (LADIS), 2013.

4. *CrowdReply: A crowdsourced multiple choice question answering system*
   B. Aydin*, Y. S. Yilmaz*, M. F. Bulut*, <u>M. Demirbas</u>.
   International Workshop on Mobile Sensing, 2013

5. *Energy efficient proximity alert on Android*
   M. F. Bulut*, <u>M. Demirbas</u>.
   IEEE Workshop on Pervasive Collaboration and Social Networking (PerCol), 2013.

6. *Eywa: Crowdsourced and cloudsourced omniscience*
   <u>M. Demirbas</u>, Y. S. Yilmaz*, M. F. Bulut*.
   IEEE Workshop on Hot Topics in Pervasive Computing (PerHot), 2013.

7. *Maestro: A cloud computing framework with automated locking*
   <u>M. Demirbas</u>, S. Tasci*, S. Kulkarni.
   Workshop on Management of Cloud Systems, 2012.

8. *Crowdsourcing location-based queries*
   M. F. Bulut*, Y. S. Yilmaz*, <u>M. Demirbas</u>.
   Second IEEE Workshop on Pervasive Collaboration and Social Networking (PerCol),
   (in conjunction with IEEE PERCOM), 513–518, 2011.

9. *k+ decision trees*
   J. Aspnes, E. Blais, <u>M. Demirbas</u>, R. O'Donnell, A. Rudra, S. Uurtamo.
   International Workshop on Algorithms for Sensor Systems, Wireless Ad Hoc Networks and Autonomous Mobile Entities, 2010.

10. *Identifying breakpoints in public opinion*
    C. G. Akcora*, M. A. Bayir*, <u>M. Demirbas</u>, H. Ferhatosmanoglu.
    Workshop on Social Media Analytics, 2010.

11. *Short text classification in Twitter to improve information filtering*
    B. Sriram, D. Fuhry, E. Demir, H. Ferhatosmanoglu, <u>M. Demirbas</u>
    Poster Session in the 33rd ACM SIGIR Conference 2010.

12. *iMAP: Indirect measurement of air pollution with cellphones*
    <u>M. Demirbas</u>, C. Rudra, A. Rudra, M. A. Bayir*
    International Workshop on Information Quality and Quality of Service for Pervasive Computing (in conjunction with IEEE PERCOM), 2009.

13. *RoBcast: A singlehop reliable broadcast protocol for wireless sensor networks*
    <u>M. Demirbas</u>, S. Balakrishnan*
    International Workshop on Assurance in Distributed Systems and Networks, 2007.

14. *A transactional framework for programming wireless sensor/actor networks*
    <u>M. Demirbas</u>   Future Trends of Distributed Computing Systems, 2007.

15. *Position paper: High-confidence software platforms for cyber-physical systems*
    T. Herman and <u>M. Demirbas</u>
    High-Confidence Software Platforms for Cyber-Physical Systems workshop, 2006.

16. *A MAC layer protocol for priority-based reliable broadcast in wireless ad hoc networks*
    <u>M. Demirbas</u> and M. Hussain*
    IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WOWMOM), 2006.

17. *An RSSI-based scheme for sybil attack detection in wireless sensor networks*
    <u>M. Demirbas</u> and Y.W. Song*
    Advanced experimental activities on wireless networks and systems workshop (as part of WOWMOM), 564–570, 2006.

18. *INSIGHT: Internet-sensor integration for habitat monitoring*
    <u>M. Demirbas</u>, K.Y. Chow*, and C.S. Wan*
    Advanced experimental activities on wireless networks and systems workshop (as part of WOWMOM), 553–558, 2006.

19. *A middleware framework for robust applications in wireless ad hoc networks*
    G. Chockler, <u>M. Demirbas</u>, S. Gilbert, and C. Newport
    Forty-third Annual Allerton Conference on Communication, Control, and Computing, 2005.

20. *Reconciling the theory and practice of (un)reliable wireless broadcast*
    G. Chockler, <u>M. Demirbas</u>, S. Gilbert, N. Lynch, C. Newport, and T. Nolte
    International Workshop on Assurance in Distributed Systems and Networks, 42–48, 2005.

21. *Brief announcement: STALK: A self-stabilizing hierarchical tracking service for sensor networks*
    <u>M. Demirbas</u>, A. Arora, T. Nolte, and N. Lynch
    ACM Symposium on Principles of Distributed Computing (PODC), 2004.

22. *FLOC: A fast local clustering service for wireless sensor networks*
    <u>M. Demirbas</u>, A. Arora, and V. Mittal
    Workshop on Dependability Issues in Wireless Ad Hoc and Sensor Networks, 2004.

◇ **Invited talks (among others)**

1. MongoDB Inc., New York NY, October 2016.
   Hybrid Clocks for Monitoring and Debugging of Distributed Systems

2. Wayne State University, Computer Science Department Colloquia, Detroit MI, September 2016.
   Hybrid Clocks for Monitoring and Debugging of Distributed Systems

3. Carnegie Mellon University, Parallel Data Lab, SDI/ISTC Seminar Series, Pittsburg PA, April 2016.
   Coordination in Distributed Systems

4. Microsoft Inc., DocumentDB team, Seattle WA, March 2016.
   Coordination in Distributed Systems

5. Cornell University, Cornell Systems Lunch, Ithaca NY, November 2015.
   Hybrid Clocks for High Auditability

6. SUNY Fredonia, Computer Science Colloquia series, Fredonia NY, October 2015.
   Emerging Research Topics on Cloud Computing

7. MIT CSAIL, Theory of Distributed Systems Seminar, Boston MA, October 2015.
   Hybrid Clocks for High Auditability

8. Middle East Technical University, Teknokent, Cloud Computing Workshop, Ankara Turkey, October 2012.
   State of the Art in Cloud Computing

9. University of Illinois at Urbana-Champaign, Illinois Center for Wireless Systems Seminar Series, August 2010.
   Singlehop Coordination and Collaboration Primitives for WSANs

10. Keynote at the Third IEEE WoWMoM Workshop on Autonomic and Opportunistic Communications, June 2010
Employing the smartphone (and the smart human) for mobile sensing

11. Cornell University, Cornell Systems Lunch, May 2010
Singlehop Coordination and Collaboration Primitives for WSANs

12. Harvard University, Sensor Networks Lab, April 2010
Singlehop Coordination and Collaboration Primitives for WSANs

13. MIT, CSAIL, Theory of Distributed Systems Seminar, April 2010
Singlehop Coordination and Collaboration Primitives for WSANs

14. University of Texas at San Antonio, CS Seminar Series, November 2007
A Transactional Programming Framework for Wireless Sensor/Actor Networks

15. University of Vermont, CSSA Seminar Series, Burlington, VT, April 2007
A Transactional Programming Framework for Wireless Sensor/Actor Networks

16. US Japan Next Generation Buildings Workshop, Honolulu, HW, Feb 2007
Wireless Sensor Networks for Monitoring Next Generation Buildings

17. Los Alamos National Labs, Los Alamos, NM, Sept 2006
Scalable Self-Healing in Wireless Sensor Networks

COURSES TAUGHT

◇ **CSE 4/586:** Distributed systems (*Fall 2015, Fall 2014, Fall 2013, Fall 2012, Spring 2010, Spring 2009*) with classes of 60 students.

◇ **CSE 708 (also 703 & 719):** Seminar on distributed systems (*Spring 2016, Spring 2015, Spring 2014, Spring 2013, Spring 2010, Fall 2009, Fall 2008, Fall 2007, Spring 2007, Spring 2006*) with classes of 20 students.

◇ **CSE 646:** Wireless networking & mobile computing (*Spring 2015, Spring 2014, Spring 2013, Fall 2011, Fall 2010, Fall 2009, Fall 2008, Spring 2008, Fall 2006, Fall 2005*) with classes of around 20 students.

◇ **CSE 4/589:** Modern networking concepts (*Fall 2007 and Fall 2012*) with classes of 120 students.

◇ **UE141:** Discovery seminar on iPhone programming (*Fall 2009*), Discovery seminar on wireless sensor networks (*Fall 2007*)

EDITORSHIP

◇ **Guest Editor of special issue at Springer Distributed and Parallel Databases Journal (2016)**

◇ **Associate Editor and member of the Editorial Board of IEEE Transactions on Cloud Computing (since 2013)**

PROGRAM CHAIR

◇ **Program chair for** The International Workshop on End-to-end Management of Big Data 2012

◇ **Track chair for** IEEE International Conference on Distributed Computing Systems (ICDCS) 2016, *Track Chair for Mobility-based and Wireless Distributed Computing Systems.* IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS) 2016, *Track of the year Chair (on Cloud Computing)*; International Conference on Computer Communications and Networks (ICCCN) 2016 *Track Chair for the Data Centers and Big Data Computing Track*; International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS) 2014 and 2012

OTHER PROFESSIONAL ACTIVITIES

◇ **Program committee for (among others)** International Workshop on Data Intensive Distributed Computing (DIDC) 2016 and 2011; IEEE International Symposium on a World of

Wireless Mobile and Multimedia Networks (WoWMoM) 2015, 2013, 2011, 2009, and 2007; International Conference on IEEE Cloud Networking (CloudNet) 2015 and 2014; Workshop on Crowd Assisted Sensing, Pervasive Systems and Communications (CASPer 2015); International Conference on Principles of Distributed Systems (OPODIS) 2014 and 2007; International Workshop on Data Intensive Computing in the Clouds (DataCloud) 2014; IEEE International Symposium on Reliable Distributed Systems (SRDS) 2013 and 2009; 10th Annual IEEE Communications Society Conference on Sensing and Communication in Wireless Networks (SECON) 2013; International Workshop on Data Intensive Computing in the Clouds (DataCloud) 2011; 35th IEEE Conference on Local Computer Networks (LCN) 2010; IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS) 2010 and 2008; IEEE Globecom 2010; IEEE International Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTC) 2010; The 30th International Conference on Distributed Computing Systems (ICDCS) 2010; International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS) 2010, 2009, and 2008; IEEE International Conference on Communication (ICC) 2010, 2009, and 2008; The 25th ACM Symposium on Applied Computing (ACM-SAC) 2010; The Sixth International ICST Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness (QShine) 2009; The 7th IEEE/IFIP International Conference on Embedded and Ubiquitous Computing (EUC) 2009; 18th International Conference on Computer Communications and Networks (ICCCN) 2009; 34th IEEE Conference on Local Computer Networks (LCN) 2009; IEEE/IFIP International Conference On Embedded and Ubiquitous Computing (EUC) 2008; International Conference on Wireless Algorithms, Systems and Applications (WASA) 2008; 6th International Workshop on Assurance in Distributed Systems and Networks (ADSN) 2007; IEEE 20th International Conference on Advanced Information Networking and Applications (AINA) 2006; International Conference on Parallel and Distributed Systems (ICPADS) 2005;

⬦ **Journal referee for (among others)** ACM Distributed Computing, ACM Transactions on Embedded Computing Systems, ACM Transactions on Sensor Networks, Elsevier Ad Hoc Networks, Elsevier Theoretical Computer Science, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Computers, IEEE Transactions on Vehicular Technology, IEEE Communications Letters, Information Processing Letters, Journal of Parallel and Distributed Computing, SIAM Journal on Computing

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UNIVERSITY SERVICE

⬦ **Academic Integrity Committee member:** 2016

SCHOOL SERVICE

⬦ **SEAS Graduate Academic Programs Committee:** 2015 — Present

DEPT. SERVICE

⬦ **Director of Graduate Studies:** 2015 — Present

⬦ **Faculty recruitment committee chair:** 2013-14

⬦ **Committee member for:** Graduate studies, Graduate admissions, Colloquium, Distinguished speaker, Faculty recruitment.