SIGMOBILE FY'05 Annual Report: July 2004–June 2005

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Every year, as ACM's fiscal year ends annually on June 30, each SIG Chair is required to submit a report to ACM's SIG Governing Board that summarizes the highlights of the SIG's activities over the previous year. This article reproduces SIGMOBILE's Annual Report for the year July 1, 2004, through June 30, 2005. It has been an exciting, productive, and successful year for SIGMOBILE, and we hope you share in our excitement as we move forward to many more successes in the future.

I. Introduction

SIGMOBILE is a vibrant, healthy, and growing SIG, and the year 2004–2005 has been a great year for SIGMOBILE. The range of topics addressed by SIGMOBILE share one common theme: *mobility*. Our technical scope reflects the emerging symbiosis of portable computers and wireless networks, addressing the convergence of mobility, computing, and information organization: its access, services, management, and applications. Members of SIGMOBILE are active in the development of new technologies and techniques for mobile and wireless computing and communications. SIGMOBILE has members from around the world, from academic organizations, industry research and development, government, and other interested individuals.

This year, SIGMOBILE completed elections for new Executive Committee members. Nine members stood on the ballot for the four elected positions. The newly elected Executive Committee members are *Prof. David B. Johnson* (Rice University), Chair; *Dr. Jason K. Redi* (BBN Technologies), Vice Chair; *Prof. Tracy Camp* (Colorado School of Mines), Treasurer; and *Prof. Chiara Petrioli* (University of Rome "La Sapienza"), Secretary. The new Executive Committee is a diverse group (woman and men, from United States and non-US locations, from both academia and industry) that is fairly representative of SIGMOBILE's membership. As we begin our terms in office, we would like to thank the outgoing Executive Committee members, particularly outgoing SIGMOBILE Chair *Victor Bahl* (Microsoft Research), for their outstanding service and dedication to SIGMOBILE over the past years.

In other changes during this year, in October we welcomed *Prof. Mani Srivastava* (University of California, Los Angeles) as the new Editor-in-Chief for SIGMOBILE's journal *Mobile Computing and Communications Review* (MC2R), replacing *Prof. Nitin Vaidya*, who decided to step down so he can spend more time with his family; we thank Nitin for a job well done in his term as Editor-in-Chief. In January, we welcomed *Dr. Robert Steele* (University of Technology, Sydney) as SIGMOBILE's new Information Director, taking on the responsibility of further improving our communication with SIGMOBILE's members.

II. Conferences and Workshops

SIGMOBILE currently sponsors or co-sponsors four annual conferences (MobiCom, MobiHoc, MobiSys, and SenSys), which continue to attract at or near record numbers of submissions and healthy attendance. In addition, we sponsor a number of different co-located workshops at these conferences. SIGMOBILE is especially supportive of students at these conferences and workshops, for example through reduced registration fees, student travel awards for some conferences (with NSF support), student poster sessions, and the MobiCom Best Student Paper Award.

SIGMOBILE's conferences continue to make a substantial international impact. For example, this year the MobiSys 2005 conference generated media articles in the technical and popular press from at least ten countries around the world. Over 35 articles about MobiSys and the work presented there appeared in news media stories from Australia, Canada, Denmark, England, France, Italy, The Netherlands, Romania, Scotland, and USA. This international press coverage of MobiSys 2005 is summarized at *http://www.sigmobile.org/mobisys/2005/media.html*.

In addition, MobiCom, our flagship conference, is currently ranked by CiteSeer (the widely used scientific literature digital library and search engine) as the computer science venue with the fifth highest impact. This impact ranking by CiteSeer is based on the average citation rate of all articles published in that venue.

Furthermore, SIGMOBILE has been very successful in attracting donations from leading edge companies and other organizations around the world in support of these conferences. Over the past year, these corporate supporters have included Addison-Wesley, adesso, Boeing, Carnegie Mellon University CyLab, DaimlerChrysler Research and Technology North America, Deutsche Telekom, HP, IBM Research, IEEE Pervasive Computing magazine, ITtoolbox, Indiana University Center of Applied Cybersecurity Research, Intel, Microsoft Research, Morgan Kaufmann, NEC Europe Network Labs, NEC Laboratories America, NSF, NTT DoCoMo USA Labs, Nokia, RSA Security, SAP, Sprint, Storage Networking Industry Association, StorageNetworking.org, Sys Admin magazine, Toyota Technical Center USA, and U.S. Army Research Office. We thank them for their help in offsetting the financial costs of these events and contributing to their success.

MobiCom 2004, *the Tenth Annual International Conference on Mobile Computing and Networking*, was held September 26–October 1, 2004, in Philadelphia, Pennsylvania, USA. *Prof. Zygmunt J. Haas* (Cornell University) served as General Chair, and *Prof. Samir R. Das* (Stony Brook University, SUNY) and *Dr. Ravi Jain* (DoCoMo USA Labs) served as Program Co-Chairs. The MobiCom conference covers all areas of mobile computing and mobile and wireless networking at the link layer and above. The MobiCom 2004 technical program featured a keynote talk by *Dr. Richard D. Gitlin* (Senior Research Vice President, retired, Bell Laboratories, Lucent Technologies, and Vice President, Technology, NEC Labs America, retired), a second keynote talk by *D. Raychaudhuri* (WINLAB, Rutgers University), an invited lunch talk by *Prof. Robert Gallager* (Professor Emeritus, MIT) and another by *Dr. Masaki Yoshikawa* (Managing Director, Global Coordination Department, NTT DoCoMo, Japan). The conference included two days of tutorials on September 26–27:

- Evolution of IEEE 802.11 Wireless LANs: QoS, Security, Mobility, and Emerging Standard Perspectives (full-day), *Prof. Sunghyun Choi* (Seoul National University) and *Dr. Anand Balachandran* (Intel Research).

- New Methods for Analyzing Wireless and Sensor Networks: Capacity, Architecture, Information Theory, and Protocols (half-day), *Prof. P.R. Kumar*, University of Illinois at Urbana-Champaign.

- Power-Efficient Protocols for Wireless Ad Hoc Networks (full-day), *Prof. Marwan M. Krunz* (University of Arizona) and *Dr. Sung-Ju Lee* (Hewlett Packard Laboratories).

- Sensor Networks: Hardware, Software, and Applications (half-day), *Dr. Kris Pister* (Founder and CTO, Dust Networks).

MobiCom 2004 also included five full-day workshops on October 1:

- DIALM-POMC 2004: The 2004 Joint Workshop on Foundations of Mobile Computing.

- VANET 2004: The First ACM Workshop on Vehicular Ad Hoc Networks.

- WiSe 2004: The Third ACM International Workshop on Wireless Security.

- WMash 2004: The Second ACM International Workshop on Wireless Mobile Applications and Services on WLAN Hotspots.

- MobiWac 2004: The ACM International Workshop on Mobility Management and Wireless Access Protocols.

MobiCom 2005 will be held August 28–September 2, 2005, in Cologne, Germany. The conference will take place in cooperation with the two German professional computer science organizations GI (Gesellschaft für Informatik e.V., The Society for Computer Science) and ITG (Informationstechnische Gesellschaft im VDE, The Information Technology Society).

MobiHoc 2005, *the Sixth ACM International Symposium on Mobile Ad Hoc Networking and Computing*, was held May 25–28, 2005, in Urbana-Champaign, Illinois, USA, on campus at The University of Illinois at Urbana-Champaign. *Prof. P.R. Kumar* (University of Illinois at Urbana-Champaign) served as General Chair, and *Prof. Andrew T. Campbell* (Columbia University) and *Prof. Roger Wattenhofer* (ETH Zurich) served as Program Co-Chairs. The MobiHoc conference addresses the challenges emerging from wireless ad hoc networking and computing, with the focus being on issues at and above

the MAC layer. The MobiHoc 2005 technical program featured a keynote talk by *Prof. David E. Culler* (University of California, Berkeley), and included two half-day tutorials:

- Cross-Layer Design for Multi-hop Wireless Networks: A Loose-Coupling Perspective (half-day), *Prof. Ness B. Shroff* (Purdue University).

- Algorithm and Graph Issues in Wireless Ad-hoc and Sensor Networks (half-day), *Prof. Xiang-Yang Li* (Illinois Institute of Technology).

MobiHoc 2006 is being planned for May 22–25, 2006, in Florence, Italy.

MobiSys 2005, *the Third International Conference on Mobile Systems, Applications, and Services*, was held June 6–8, 2005, in Seattle, Washington, USA. *Prof. Kang G. Shin* (University of Michigan) served as General Chair, and *Prof. David Kotz* (Dartmouth College) and *Prof. Brian Noble* (University of Michigan) served as Program Co-Chairs. The MobiSys conference addresses broad systems research issues in mobile computing and mobile networking, particularly valuing the practical experience gained from designing, building, and using mobile systems, applications, and services. MobiSys is jointly sponsored by ACM SIGMOBILE and The USENIX Association, with actual financial sponsorship and organization alternating yearly between the two organizations; USENIX provided sponsorship for MobiSys 2005, and SIGMOBILE will sponsor MobiSys 2006. The MobiSys 2005 technical program featured a keynote talk by *Dr. Rick Rashid* (Senior Vice President, Microsoft Research), and another invited talk by *Dr. Alfred Spector* (Vice President of Software, IBM Research). The conference also included two full-day workshops on June 5:

- EESR 2005: Workshop on End-to-End, Sense-and-Respond Systems, Applications, and Services.

- WiTMeMo 2005: International Workshop on Wireless Traffic Measurements and Modeling.

MobiSys 2006 is being planned for June 19–22, 2006, in Uppsala, Sweden.

SenSys 2004, *the Second ACM Conference on Embedded Networked Sensor Systems*, was held November 3–5, 2004, in Baltimore, Maryland, USA. *Prof. John A. Stankovic* (University of Virginia) served as General Chair, and *Prof. Anish Arora* (Ohio State University) and *Prof. Ramesh Govindan* (University of Southern California) served as Program Co-Chairs. The SenSys conference focuses on systems issues in the emerging area of embedded, networked sensors, spanning multiple disciplines, including wireless communication, networking, operating systems, architecture, low-power circuits, distributed algorithms, data processing, scheduling, sensors, energy harvesting, and signal processing. SenSys is co-sponsored by SIGMOBILE together with SIGCOMM, SIGARCH, SIGOPS, SIGMETRICS, and SIGBED. The SenSys 2004 technical program featured two invited talks, one by *Prof. P.R. Kumar* (University of Illinois at Urbana-Champaign) and another by *Prof. Jim Kurose* (University of Massachusetts Amherst). Also this year, working with others, we finalized the Bylaws for the SenSys Steering Committee. SenSys 2005 will be held November 2–4, 2005, in San Diego, California, USA.

Beyond our own conferences and workshops, SIGMOBILE was in-cooperation with 11 other conferences and workshops during this past year (July 2004 through June 2005):

- The First Annual International Conference on Mobile and Ubiquitous Systems: Networking and Services (MobiQuitous 2004), Boston, Massachusetts, USA, August 22–26, 2004.

- The First International Conference on Quality of Service in Heterogeneous Wired/Wireless Networks (QShine 2004), Dallas, Texas, USA, October 18–20, 2004.

- The First Annual International Conference on Broadband Networks (BroadNets 2004), San Jose, California, USA, October 25–29, 2004.

- The Third International Conference on Mobile and Ubiquitous Multimedia (MUM 2004), College Park, Maryland, USA, October 27–29, 2004.

- The Eighth IEEE International Symposium on Wearable Computers (ISWC 2004), Arlington, Virginia, USA, October 31–November 3, 2004.

- The Third Asian International Mobile Computing Conference (AMOC 2004), Bangkok, Thailand, December 2–3, 2004.

- The Sixth IEEE Workshop on Mobile Computing Systems and Applications (WMCSA 2004), English Lake District, UK, December 2–3, 2004.

- The 18th International Conference on Architecture of Computing Systems (ARCS 2005), Innsbruck, Austria, March 14–17, 2005.

- The 2005 Wireless Telecommunications Symposium (WTS 2005), Pomona, California, USA, April 28–30, 2005.

- The Sixth International Conference on Mobile Data Management (MDM 2005), Ayia Napa, Cyprus, May 9–13, 2005.

- The 15th International Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV 2005), Skamania, Washington, USA, June 12–14, 2005.

Several of the workshops started and sponsored by SIGMOBILE over the years have gone on to become full-fledged conferences and symposiums. For example, the MobiHoc conference was first started as a workshop at MobiCom 2000. Beginning in 2001, it became an annual two-day (now three-day) symposium sponsored by SIGMOBILE (the ACM International Symposium on Mobile Ad Hoc Networking and Computing). WoWMoM, the ACM International Workshop on Wireless Mobile Multimedia, was originally held as a workshop annually at MobiCom in 1998 through 2002. Held next in June 2005, WoWMoM become a three-day symposium sponsored by IEEE Computer Society (the IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks). MSWiM, the ACM International Workshop on Modeling, Analysis, and Simulation of Wireless and Mobile Systems, was originally held as a workshop annually at MobiCom in 1999 through 2003. Held next in October 2004, MSWiM became a three-day symposium sponsored by ACM SIGSIM, and for 2005, MSWiM is also co-sponsored by IEEE Computer Society (the ACM/IEEE International Symposium on Modeling, Analysis and Simulation of Wireless and Mobile Systems).

III. Publications

SIGMOBILE produces a large number of publications and is a major contributor of content to the ACM Digital Library. SIGMOBILE's publications include conference proceedings for MobiCom, MobiHoc, MobiSys, and SenSys; proceedings for each of the workshops co-located with our conferences; and *Mobile Computing and Communications Review* (MC2R), SIGMOBILE's journal for our members. SIGMOBILE also maintains an extensive web site at *http://www.sigmobile.org*, including information about SIGMOBILE and its activities, and information about membership in SIGMOBILE.

MC2R serves both as a newsletter, keeping SIGMOBILE members informed, and as a scientific journal, publishing high-quality peer-reviewed research papers on mobile computing and wireless and mobile networking; MC2R publishes articles that provide a balance between state-of-the-art research and practice. In addition to publishing original research papers, MC2R provides regular features on the status of major international standards in mobile computing and communications (e.g., IETF, ITU, ISO, and IEEE), articles on the health aspects of wireless communication, bibliographies of recent publications in other journals and technical reports, paper and book reviews, workshop and conference reports, calls for papers, information on research groups from throughout the world, and general news in the field. In addition to Editor-in-Chief *Prof. Mani Srivastava* (University of California, Los Angeles), MC2R currently has two Associate Editors, *Dr. Sung-Ju Lee* (Hewlett-Packard Laboratories) and *Prof. Raghupathy Sivakumar* (Georgia Institute of Technology), and a group of outstanding Area Editors who are all recognized experts in the field. MC2R achieves a fast turn-around time, generally less than 6 months between submission and publication, and all submissions and reviewing for MC2R are handled electronically.

MC2R is published quarterly and sent to SIGMOBILE members; it is also available through ACM's Digital Library. In addition, MC2R content is indexed in IEE INSPEC, the leading English-language bibliographic information service providing access to the world's scientific and technical literature in physics, electrical engineering, electronics, communications, control engineering, computers, computing, information technology, manufacturing, production and mechanical engineering. INSPEC contains over eight million references cataloged since 1969. Indexing in INSPEC makes the content in MC2R more accessible and increases the impact of SIGMOBILE's journal.

Over the past year, MC2R published four quarterly issues (volume 8 numbers 3–4, and volume 9 numbers 1–2), with an average of 76 pages per issue. These four issues included a total of 31 peer-reviewed research papers from authors around the world, together with a number of general articles and features.

Furthermore, this year, we have started a monthly e-mail newsletter (*E-News*) for SIGMOBILE members. This electronic newsletter, edited by our new Information Director *Dr. Robert Steele* (University of Technology, Sydney), includes SIGMOBILE announcements, pointers to relevant mainstream news articles

of interest to SIGMOBILE members, a calendar of upcoming events of interest to our members, and pointers to developer news for active developers in the area of mobile computing and wireless networking.

IV. Chapters

In March, SIGMOBILE started a new Local Chapters program. SIGMOBILE Professional and Student Chapters continue the work of SIGMOBILE within their local regions by bringing together individuals with an interest in mobile systems, users, data, and computing. The Chapters consist of students and professionals from academia, industry, and government. We currently have two Local Chapters fully approved and operating:

- *Nanyang Technological University Student Chapter*: This SIGMOBILE Student Chapter is organized in Singapore within the Nanyang Technological University (NTU) ACM club. The Chair of this Chapter is *Nikhil Khandelwal*.

- *Sydney Professional Chapter*: This SIGMOBILE Professional Chapter is organized in Sydney, Australia. The Chair of this Chapter is *Dr. Robert Steele*.

These two international Chapters extend the reach of SIGMOBILE and further emphasize SIGMOBILE as a truly global organization.

We encourage interested groups to form a SIGMOBILE chapter in their local community, school, city, or region. For details about the procedures and benefits for forming a Local SIGMOBILE Chapter, see *http://www.sigmobile.org/chapters/*.

V. Membership

SIGMOBILE's membership continues to grow steadily, and we enjoy very high retention rate among our current members. Despite many challenges in the economy causing some to be more selective with their SIG memberships, and at a time when SIG memberships across ACM have in general been declining, SIGMOBILE has continued to grow and do well. In the past few years, we have tried to better define the benefits of SIGMOBILE membership and to make those in our community aware of SIGMOBILE. We believe this has been paying off, and we continue to look for ways to enhance our member benefits, such as our new e-mail *E-News* letter, and to improve our publicity in the mobile computing and mobile networking community.

VI. Awards

The 2004 SIGMOBILE Outstanding Contribution Award was presented at MobiCom 2004 to *Prof. Andy Hopper* (Professor of Computer Technology and Head of the Computer Laboratory, the University of Cambridge), *"For pioneering new areas of research in wireless and mobile computing, driven by a unique blend of innovative academic research and recognition of its commercial potential."* The Outstanding Contribution Award is given by SIGMOBILE to recognize an individual who has made a significant and lasting contribution to the research on mobile computing and communications and wireless networking; the contribution can be a single event or a lifetime of achievement.

The MobiCom 2004 Best Student Paper Award was presented to *Ricardo A. Baratto*, *Shaya Potter*, *Gong Su*, and *Jason Nieh* (Columbia University) for their paper "MobiDesk: Mobile Virtual Desktop Computing." Each year, the MobiCom Technical Program Committee chooses the best paper with a student as the primary author from among all papers submitted to the conference that year.

Also at MobiCom 2004, the Best Presentation Award was presented to *Thomas Moscibroda* (ETH Zurich), for his presentation of his paper "Initializing Newly Deployed Ad Hoc and Sensor Networks." The paper was coauthored together with Fabian Kuhn and Roger Wattenhofer. This was a new award this year initiated by the MobiCom 2004 Program Chairs.

The MobiSys 2005 Best Paper Award was presented to *Ramón Cáceres*, *Casey Carter*, *Chandra Narayanaswami*, and *Mandayam Raghunath* (IBM T.J. Watson Research Center) for their paper "Reincarnating PCs with Portable SoulPads." Each year, the MobiSys Technical Program Committee chooses the best paper from among all papers submitted to the conference that year.

VII. Future Challenges

Our fund balance, although it continues to grow, is currently less than the minimum fund balance that ACM requires for us. SIGMOBILE's membership is strong and growing, and our conferences are both technically and financially successful, but we continue to work to overcome the combination of two problems in this area. First, we had a significant loss for MobiCom 2002, and second, the fund balance requirements for all SIGs are currently increasing. In response, we have been more conservative in budgeting

our recent conferences and are being careful with expenses.

The field of mobile computing and mobile networking conferences and workshops has become increasingly crowded recently, with many new events starting in the last year or two, many of which technically compete directly with SIGMOBILE events. We need to maintain the reputation of our conferences and workshops as the premier events in this area. In particular, we are concerned about the number of these other new events requesting in-cooperation status with SIGMOBILE. We want to be careful which events we lend our name and reputation to in this way, and we are continuing to very carefully consider each of these requests on a case-by-case basis.

The acceptance rate for papers submitted to our own conferences remains very low, typically less than 10% in recent years of MobiCom and MobiHoc. This low acceptance rate demonstrates that the reviewing is highly selective, in general increasing the prestige of the conference, but it creates problems by making it hard for authors to get papers published, particularly discouraging students and new faculty members who may feel more pressure to publish. As an experiment this year, MobiHoc used a mostly double-track format, accepting 40 papers rather than the 24 papers accepted last year. The results from this experiment were mixed, with some attendees saying they prefer the traditional single-track format. We will continue to consider this and other ways to accept more papers without affecting the quality of our conferences.

VIII. Summary

SIGMOBILE is in a strong position now and for the future. We have been very successful in past years, and we continue this year to be in an excellent position for future success and growth. Our conferences are strong and have substantial impact and recognition in the community and in the popular and technical press. Our membership continues to grow, and we have a very high retention rate among our current members. We are truly an international organization, holding our conferences in locations around the world, attracting and retaining a worldwide membership, and now with a further international presence in our Local Chapters program. We have a newly elected Executive Committee that is passionate about continuing and improving on the successes of the past, and we look forward with great excitement to further success for SIGMOBILE in the future.