

# ANNUAL REPORT 2009

Computer Networks Group  
Institute of Computer Science  
Faculty of Mathematics and Computer Science  
Georg-August-University of Göttingen

**COMPUTER NETWORKS GROUP**  
**GOLDSCHMIDTSTRASSE 7, 37077 GÖTTINGEN, GERMANY**  
**[HTTP://WWW.NET.INFORMATIK.UNI-GOETTINGEN.DE/](http://www.net.informatik.uni-goettingen.de/)**

January 2010  
Editor: Prof. Dr. Xiaoming Fu

# ANNUAL REPORT 2009

## Computer Networks Group

### Introduction

The Computer Networks Group is devoted to cutting-edge leading research and education programs in the field of network architectures, protocols and applications. This report series intends to review the most relevant and important research results and other achievements and activities performed by the Computer Networks Group. The present report summarizes the year of 2009.

### The Group in Numbers

#### Personnel

A new PhD student registered in the group in 2009: Sufian Hameed.

Ralf Lübben and Nikunj Modi discontinued their PhD due to personal reasons.

Also, several master and bachelor student assistants worked on various projects and thesis work; they are important part of the team. An international student sponsored by DAAD visited the Group between May-July 2009.

By the end of year 2009, the group comprised 1 professor, 2 postdocs, 7 PhD students, 5 master students and 1 bachelor student. Besides, the Group shares a secretary and a system administrator with the Software Engineering for Distributed Systems Group and the Database and Information Systems Group. See Table 1 for detailed information.

Table 1: Member of Computer Networks Group (as of 31.12.2009):

Administrative staff	Head	Postdocs/ research associates	Research assistants/PhD students	Adjunct researcher	Master students	Bachelor students
Secretary: A. Kadziora  System administrator : G. Krull	Prof. Dr. X. Fu	Dr. Y. Chen Dr. J. Lei	M. Arumaithurai S. Hameed N. Neumann F. Tegeler L. Shi (extern) M. Stiernerling (extern) H. Tschofenig (extern)	Dr. F.-C. Kuo	C. Dickmann D. Koll F. Meyer R. Rex B. Schaeffler	F. Glaser

### Teaching and Supervision

During 2009 the Group has provided the following courses:

#### Lectures:

*NOTE: WS - Winter Semester, SS - Summer Semester, \* - only partly*

Telematics (Computer Networks), 4ECTS	WS2009/10
<b><u>Exercise classes:</u></b>	
Telematics/Computer Networks	WS2009/10
<b><u>Lab courses:</u></b>	
Practicum Networking Lab, 6 ECTS	SS2009, WS2009/10
<b><u>Seminars:</u></b>	
Adv. Topics in Mobile Communications, 6ECTS	WS2009/10
Adv. Topics in Computer Networking, 6ECTS	SS2009
Internet Technologies, 4ECTS	SS2009, WS2009/10

Completed PhD dissertations (1): Fang-Chun Kuo (Feb 2009)

## Research Areas and Projects

The Computer Networks group is committed to explore innovative networking technologies and utilize its full potential, knowledge and experience in the design and evaluation of emerging and future network technologies and systems.

### Research Areas

- New architectures and platforms for large-scale networks and distributed systems, for instance the design and evaluation of a resilient overlay system (GONE) and experimentations with PLANET-LAB, XORP and other platforms, including their system performance and security implications and enhancements.
- Internet QoS and NAT/firewall middlebox control: in scope of collaborative effort SIGNET and NGSIG we study the design, development and standardization of a new extensible network-layer signaling protocol suite after RSVP, including NSIS signaling protocols for QoS resource reservations and NAT/firewall middlebox traversal, among the others.
- Internet multimedia and services. This includes P2P, IP-based emergency services, overlay multicast and signaled edge-to-edge QoS for media streaming over the Internet, and the effort towards a converged network framework design integrating the different mobile and digital broadcast technologies.
- Internet mobility, autonomic communications and cross-layer design. We develop and validate architecture and solutions for IPv6 based mobility networks providing advanced authorization services, resource control, multihoming and QoS support, as well as investigate emerging mobility management paradigms and performance optimizations, towards the future generation mobile networks (B3G/4G).
- Social networking and mobile social networks. We recently start the development of network infrastructure for large scale social mobile networking.
- Modeling, validation and analysis of communication protocols: to identify various issues in the spec flaws, nondeterministic behaviors and security holes introduced during the protocol design and development phase, we utilize formal tools such as Casper to model the functional behaviors and to detect possible design flaws, deadlocks, or livelocks. Moreover, to analyze performance and to optimize protocol parameters we use analytical, simulation and modeling tools such as queueing theory and Markov chains, ns-2, OPNET and OMNeT++.

### Research Projects

- Mobility and Routing in Future Internet – funded by US Department of State Fulbright Program (2009).

- NGSIG – New Advances and Applications of Next Generation Signaling, a project in collaboration with Columbia U., funded by the DAAD PPP USA program (2008-2009).
- 4G Mobility – Advanced Mobility Management in 4th Generation Mobile Networks, a research project funded by Huawei Technologies (2008-2010).
- MING-T – Multistandard Integrated Network Convergence for Global Mobile and Broadcast Technologies, an EC FP6 IST funded Specific Targeted Research Project (STREP) (2007-2009).
- SIGNET – Development of New, Extensible Internet Signaling Protocols, collaboration with Columbia University, Siemens, Nokia, NEC, University of Cambridge.
- Mobile social networking – collaboration with T-Labs, U. Cambridge, NEC Europe, SICS, U St Andrews, IIT-CNR, Max Planck Institute for Dynamic Systems etc.
- PlanetLab – An Open Platform for Developing, Deploying, and Accessing Planetary-Scale Services

## Publications, Technical Reports and Theses

### Book chapters

1. Jianhua He, Xiaoming Fu, Jie Xiang, Yan Zhang and Zuoyin Tang, Routing and Scheduling for WiMAX Mesh Networks, in: Y. Zhang (ed.), *WiMAX Network Planning and Optimization*, Auerbach Publications, Taylor&Francis Group, USA, ISBN 978-1-4200-6662-3, May 2009.

### Edited conference proceedings

2. Xiaoming Fu, Pan Hui (editors), [Proceedings of the 1st ACM International Workshop on Hot Topics of Planet-scale Mobility Measurement \(HotPlanet'09\)](#), in conjunction with ACM MobiSys 2009, Krakow, Poland, ACM Press, ISBN 978-1-60558-689-2, June 2009.

### Journals

3. Deguang Le, Xiaoming Fu, and Dieter Hogrefe, A Cross-Layer Approach for Improving TCP Performance in Mobile Environments, *Wireless Personal Communications*, Springer Verlag (in press).
4. Jun Lei, Lei Shi, and Xiaoming Fu, An Experimental Analysis of Joost Peer-to-Peer VoD Service, *Springer Peer-to-Peer Networking and Applications*(in press).
5. Jianhua He, Xiaoming Fu, Zuoyin Tang, and Hisiao-Hwa Chen, End-to-End versus Hop-by-Hop State Refresh in Soft State Signaling Protocols, *IEEE Communications Letters*, 13(4): 268-270, IEEE, April 2009.
6. Xiaoming Fu, Henning Schulzrinne, Hannes Tschofenig, Christian Dickmann, and Dieter Hogrefe, Overhead and Performance Study of the General Internet Signaling Transport (GIST) Protocol, *ACM/IEEE Transactions on Networking*, 17(1): 158-171, February 2009.

### Conferences

7. Mayutan Arumathurai, Ruediger Geib, Rene Rex, and Xiaoming Fu, Pre-Congestion Notification based Flow Management in MPLS-based DiffServ Networks, *The 28th IEEE International Performance Computing and Communications Conference (IPCCC 2009)*, Phoenix, AZ, USA, IEEE, December 2009.
8. Lin Cong, Guohan Lu, Yang Chen, Beixing Deng, Xing Li, What Level of Estimating Accuracy Does TCP Need and Can TCP Achieve, Poster session of the *5th ACM International Conference on emerging Networking EXperiments and Technologies (CoNEXT 2009)*, Rome, Italy, December 2009.
9. Jianhua He, Xiaoming Fu and Zuoying Tang, End-to-End Versus Hop-by-Hop Soft State Refresh for Multi-hop Signaling Systems, *17th IEEE International Conference on Network Protocols (ICNP 2009)*, Princeton, New Jersey, USA, IEEE, October 2009.

10. Peng Sun, Yang Chen, Beixing Deng, Xing Li, Neighbor Selection Based on TIV Severity Sort Model in Vivaldi Network Coordinate System, 17th IEEE International Conference on Network Protocols (ICNP 2009) Poster Session, Princeton, New Jersey, USA, October 2009.
11. Jianhua He, Xiaoming Fu, and Zuoying Tang, End-to-End versus Hop-by-Hop State Refresh for Multi-Hop Signaling Systems, IEEE ICNP 2009, Princeton, NJ, USA, Oct 2009. (Acceptance rate: 36/197 = 18%)
12. Ralf Lübben, Guangzhi Li, Dongmei Wang, Robert Doverspike, and Xiaoming Fu, Fast Rerouting for IP Multicast in Managed IPTV Networks, Proceedings of IEEE International Workshop on Quality of Service (IWQoS 2009), Charleston, SC, USA, July 2009.
13. Fang-Chun Kuo, Kun Tan, Xiang-Yang Li, Jiansong Zhang and Xiaoming Fu, XOR Rescue: Exploiting Network Coding in Lossy Wireless networks, Proceedings of 6th IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON 2009), Rome, Italy, June 2009. (Acceptance rate: 81/431=18.8%)
14. Lei Shi, Jing Fu, and Xiaoming Fu, Loop-Free Forwarding Table Updates with Minimal Link Overflow, Proceedings of IEEE International Conference on Communications (ICC 2009), Dresden, Germany, June 2009. (Acceptance rate: 1050/3000=35%)
15. Martin Stiemering, Marcus Brunner, Sebastian Kiesel, and Xiaoming Fu, TORI: User Provided Future Networking Testbeds, Proceedings of IEEE International Workshop on the Network of the Future, in conjunction with IEEE ICC 2009, Dresden, Germany, IEEE, June 2009.
16. Jun Lei, Xiaoming Fu, Interest-based Peer-to-Peer Group Management, Proceedings of Second IEEE/ACM International Workshop on Future Multimedia Networking (FMN 2009), Coimbra, Portugal, Springer LNCS 5360, pages 107-118, June 2009. (Acceptance rate: 16/64=25%)
17. Niklas Neumann, Jun Lei, Xiaoming Fu, Gong Zhang, I-PMIP: An Inter-Domain Mobility Extension for Proxy Mobile IP, in the Proceedings of 5th International Wireless Communications and Mobile Computing Conference (IWCMC 2009), Leipzig, Germany, ACM Digital Library, June 2009.
18. Florian Tegeler, Jun Lei, and Xiaoming Fu, A Unified Security Backplane for Trust and Reputation Systems in Decentralized Networks, IEEE INFOCOM 2009 Student Workshop, April 2009.
19. Mayutan Arumathurai, Rüdiger Geib, Rene Rex, and Xiaoming Fu, An encoding method to signal 3 states with a single PCN bit, IEEE INFOCOM 2009 Student Workshop, April 2009.

### PhD dissertations

20. Fang-Chun Kuo, Exploiting Network Coding in Lossy Wireless Networks, PhD Dissertation, Faculty of Mathematics and Computer Science, University of Göttingen, Feb 2009.

### Patents

21. Changpeng Fan, Andreas Festag, Xiaoming Fu, Cornelia Kapper, Holger Karl, Mirko Schramm, and Günter Schäfer, Method for carrying out a QoS-oriented handoff between a first and a second IP-based, especially mobile IPV6-based, communication path, between a mobile node (MN) and a correspondent node (CN), granted patent, No. EP20010953886, July 2009.

### Technical reports

No. (IFI-TB-)	Authors	Title	Date
2009-02	Florian Tegeler	Interest based automated content exchange in 7DS	Aug 2009
2009-01	Florian Tegeler	Security Analysis of IKEv2 Session Resumption	June 2009

### Scientific Contacts and Press News

#### Incoming researcher visits

Incoming	Institution (from)	Detailed information	Date
----------	--------------------	----------------------	------

visitors			
M. Stiemerling	NEC Europe	Talk on “P2P streaming in resource constrained mobile environments”	Dec 2009
Prof. Dr. Thomas Schmidt, Matthias Waehlich	Hamburg University of Applied Science, Hamburg, Germany Freie Universität Berlin, Germany	Prof. Schmidt gave a Colloquium talk “Hybrid Adaptive Mobile Multicast”	Aug 2009
Prof. Jinshu Su, Dr. Zhigang Sun, Junfeng He	National University of Defense Technology, Changsha, China	Colloquium “Some Aspects on High Performance Router”	Aug 2009
Prof. Dr. Jens Schmitt	University of Kaiserslautern, Germany	Colloquium “Why Play Fairer than the Attacker?”	July 2009
Prof. Shiqiang Yang, Prof. Shangkai Gao, Prof. Shushan Cai, Mr. Peng Cui	Tsinghua University, Beijing, China	Prof. Shangkai Gao gave a Colloquium talk “EEG based Brain-computer Interface”. Prof. Shiqiang Yang presented “An introduction to Computer Science Department at Tsinghua University”	July 2009
Prof. Xi Zhang	TAMU, College Station, TX, USA	Colloquium “Mobile Multimedia Multicast Over Wireless Networks - QoS-Guaranteed Cross-Layer Design Framework and Optimization-Based Adaptive Rate Control”	June 2009
Yang Chen	Tsinghua University, Beijing, China	Talk “Phoenix: Towards an Accurate, Practical and Decentralized Network Coordinate System”	May 2009
N. Harihara Krishnan	NIT Trichy, India	DAAD visit for 2 months	May-July 2009
Prof. Ken Calvert	University of Kentucky, USA	Colloquium “Postmodern Routing and Forwarding Architecture”	Apr 2009
Prof. David Yau	Purdue University, USA	Colloquium “Optimization of Threat-based Mobile Coverage”	Mar 2009
Prof. Jon Crowcroft	University of Cambridge, UK	Colloquium “Online Social Networks in Real Life”; F.-C. Kuo’s PhD viva; Extensively discussed various research topics with NET members.	Feb 2009
Axel Neumann	Consultant, Berlin, Germany	Talks on “Developing, Implementing, and Using Wireless Mesh Networks”; and “Hands on Wireless Mesh Deployment, Usage and Problems”	Jan 2009 Aug 2009
Dr. Matthias Hollick, André König	TU Darmstadt, Germany	Colloquium “Innovative Security Mechanisms for Distributed Systems”	Jan 2009
Holger Schell	Accenture, Düsseldorf, Germany	Colloquium “IPTV at Accenture - Overview and Case Study”	Jan 2009

### Outgoing research visits

Outgoing visitors	Institution visited	Detailed information	Date
-------------------	---------------------	----------------------	------

X. Fu	SIMULA, Oslo, Norway	Visiting Simula (host: Dr. Amund Kvalbein)	Dec 2009
X. Fu	University of Oslo, Norway	PhD defense Xuedong Liang (host: Prof. Ilango Balasingham, Assoc. Prof. Martin Steffen)	Dec 2009
X. Fu	UCSB, USA	Colloquium “Fast Rerouting for IP Multicast Traffic in Managed IPTV Networks” (host: Prof. Ben Zhao). Also meeting Prof. Kevin Almeroth and Prof. Heather Zheng.	Nov 2009
X. Fu	California Institute of Technology, USA	Visiting Networking Lab (host: Prof. Steve Low)	Nov 2009
X. Fu	USC/ISI, Los Angeles, USA	Colloquium “Fast Rerouting for IP Multicast Traffic in Managed IPTV Networks” (host: Dr. Joe Touch)	Nov 2009
X. Fu	University of Massachusetts at Lowell, MA, USA	Visiting the Center for Network and Information Security (hosts: Prof. Xinwen Fu, Prof. Benyuan Liu)	Oct 2009
X. Fu	Columbia University, NYC, USA	DAAD research visit for 2 days (host: Prof. Henning Schulzrinne)	Oct 2009
X. Fu	Nanjing University, China	Colloquium “Mobile Computing: Challenges and Opportunities” (host: Prof. Guihai Chen). Also attended the 25 <sup>th</sup> anniversary ceremony for University of Göttingen-Nanjing University cooperation.	Oct 2009
X. Fu	Tsinghua University, China	Colloquium “Mobile Computing: Challenges and Opportunities” (host: Prof. Yongfeng Huang); Visiting the Institute of HCI and Media Integration (host: Prof. Yaoyue Zhang, Prof. Shiqiang Yang, Dr. Lifeng Sun); Visiting Dr. Fenghua Li’s lab.	Sept 2009
X. Fu	Peking University, China	Colloquium “Mobile Computing: Challenges and Opportunities” (host: Prof. Lingyang Song)	Sept 2009
S. Hameed	T-Labs, Berlin, Germany	Visiting researcher to T-Labs for 6 months (host: Dr. Pan Hui)	Sept 2009-Feb 2010
X. Fu	UCLA, USA	Fulbright Visiting Professorship for 3 months (hosts: Prof. Lixia Zhang, Prof. Mario Gerla). Also discussed with Prof. Songwu Lu on various research topics. Colloquium “Fast Rerouting for IP Multicast Traffic in Managed IPTV Networks” (at Computer Science Dept, host: Prof. Lixia Zhang) in Dec 2009. Gave a talk “Edge-to-edge overlay and aggregate congestion control” in Dec 2009 (at Network Research Lab, host: Prof. Medy Sanadidi).	Sept-Dec 2009
M. Arumaithurai	Columbia University, NYC, USA	DAAD research visit for 2 months (host: Prof. Henning Schulzrinne)	Aug-Oct 2009
M. Arumaithurai	AT&T Labs – Research, NJ, USA	Visiting research on congestion control for delay insensitive traffic (host: Dr. K. K. Ramankrisnan)	Sept-Oct 2009
X. Fu	RWTH Aachen, Germany	Colloquium “Challenges and Lessons Learned from Building Extensible Signaling Services for the Future Internet” (host: Prof. Dr. S. Kowalewski)	May 2009
F. Tegeler	Columbia University, NYC, USA	DAAD research visit for 3 months (host: Prof. Henning Schulzrinne)	Apr-June 2009
X. Fu	Hangzhou University of Electronic Science and Technology, Hangzhou,	Colloquium “Extensible Signaling for the Future Internet” (hosts: Prof. Xianghua Xu, Dr. Rong Ouyang)	Apr 2009

	China		
X. Fu	Zhejiang University, Hangzhou, China	Visited the Department of Information Science and Electronic Engineering (host: Prof. Honggang Zhang)	Apr 2009
X. Fu	Fudan University, Shanghai, China	Colloquium “Fast Rerouting for IP Multicast Traffic in Managed IPTV Networks” (host: Assoc. Prof. Junyu Niu); visited Shanghai Engineering Research Center for Broadband Technologies & Application (B-STAR) (host: Prof. Xiangyang Xue)	Apr 2009
X. Fu	Helsinki University of Technology, Finland	Colloquium “Fast Rerouting for IP Multicast Traffic in Managed IPTV Networks” (host: Prof. Jörg Ott, Prof. Jukka Manner)	Mar 2009
X. Fu	University of Helsinki, Finland	Colloquium “Challenges and Lessons Learned from Building Extensible Signaling Services for the Future Mobile Internet” (host: Prof. Esko Ukkonen)	Mar 2009
X. Fu	Microsoft Research Asia, Beijing, China	Visited MSRA (host: Dr. Kun Tan)	Mar 2009
X. Fu	Tsinghua University, Beijing, China	Research visit at School of Information Technology for 1 week (host: Prof. Shiqiang Yang, Dr. Lifeng Sun); colloquium “Edge-to-Edge Overlay Using Aggregate Congestion Control” (host: Prof. Yaoyue Zhang)	Mar 2009
X. Fu	Huawei Technologies, Shenzhen, China	Visited Huawei Technologies (host: Gong Zhang)	Feb 2009
X. Fu	Hong Kong University, China	Colloquium “Fast Rerouting for IP Multicast Traffic in Managed IPTV Networks” (host: Prof. Chuan Wu)	Feb 2009
X. Fu	University of Tübingen, Germany	Colloquium “Challenges and Lessons Learned from Building Extensible Signaling Services for the Future Mobile Internet” (host: Prof. Kohlbacher)	Feb 2009
F.-C. Kuo	University of Cambridge, UK	Research visit at Computer Lab for 9 weeks (host: Prof. Jon Crowcroft)	Feb-Apr 2009

### Conference and event participations and presentations

Participant	Conference	Detailed information	Date
M. Arumaithurai	IEEE IPCCC, Phoenix, AZ, USA	Presented a paper “Pre-Congestion Notification based Flow Management in MPLS-based DiffServ Networks”	Dec 2009
X. Fu	Annual Fulbright event (region southern California), Pacific Palisades, CA, USA	Meeting Fulbright scholars at Southern California	Dec 2009
Y. Chen	ACM CoNEXT 2009, Roma, Italy	Y. Chen presented a poster “What Level of Estimating Accuracy Does TCP Need and Can TCP Achieve”	Dec 2009
X. Fu	IEEE INFOCOM 2010 TPC meeting, Los Angeles, CA, USA	Attended the INFOCOM’10 TPC meeting	Nov 2009
X. Fu	IEEE ICNP 2009, Princeton, NJ, USA	Presented a paper “End-to-End Versus Hop-by-Hop Soft State Refresh for Multi-hop Signaling Systems” Chaired a technical session “Multimedia”	Oct 2009
X. Fu	IEEE CCW 2009, Lenox, MA, USA	Chaired a panel “Network Virtualization”; attended TCCC meeting	Oct 2009
X. Fu	ACM MOBICOM 2009,	Attended the main conference and served on the	Sept 2009



	Beijing, China	MICNET'09 panel "Challenges for Mobile Internet Research: New Space or Old Resell?"	
F.-C. Kuo, X. Fu	ACM SIGCOMM 2009, Barcelona, Spain	Attended the main conference, and held a meeting with "A million people" project partners	Aug 2009
X. Fu	IETF#75, Stockholm, Sweden	Presented an Internet draft "WebAuth: Diameter Application for Authentication and Authorization in Web Applications"	July 2009
M. Arumaithurai	Emergency Service Workshop, Berlin, Germany	Discussed with NSN colleagues on future cooperation in the field of emergency services	July 2009
R. Luebben	IEEE IWQoS 2009, Charleston, SC, USA	Presented a paper "Fast Rerouting for IP Multicast in Managed IPTV Networks"	July 2009
X. Fu	ACM MobiSys 2009, Krakow, Poland	Chaired HotPlanet'09 workshop; steering committee and panel chair for MobiArch'09 workshop; "A Million People" consortium meeting	June 2009
X. Fu	IEEE ICC 2009, Dresden, Germany	Chaired TCCC meeting; presented a poster "TORI: User Provided Future Networking Testbeds" at ICC Future Networks workshop; ADVMM project meeting	June 2009
L. Shi	IEEE ICC 2009, Dresden, Germany	Presented a paper "Loop-Free Forwarding Table Updates with Minimal Link Overflow"	June 2009
N. Neumann	IWCMC 2009, Leipzig, Germany	Presented a paper "I-PMIP: An Inter-Domain Mobility Extension for Proxy Mobile IP"	June 2009
M. Arumaithurai	IEEE/ACM FMN 2009, Coimbra, Portugal	Presented a paper "Interest-based Peer-to-Peer Group Management"	June 2009
F.-C. Kuo	IEEE SECON 2009, Roma, Italy	Presented a paper "XOR Rescue: Exploiting Network Coding in Lossy Wireless networks". Chaired a session "Link Layer I"	June 2009
H. Tschofenig	EENA Workshop on 112, Brussels/Diegem, Belgium	Chaired two panels "Interoperability of emergency services" and "NG112 - The Future of the 112 & New Technologies"	June 2009
X. Fu	IFIP Networking 2009, Aachen, Germany	Chaired a session "Quality of Service"	May 2009
F. Tegeler	IEEE INFOCOM 2009, Rio de Janeiro, Brazil	Presented a poster "A Unified Security Backplane for Trust and Reputation Systems in Decentralized Networks" at INFOCOM student workshop	Apr 2009
R. Rex, M. Arumaithurai	IEEE INFOCOM 2009, Rio de Janeiro, Brazil	Co-presented a poster "An encoding method to signal 3 states with a single PCN bit" at INFOCOM student workshop	Apr 2009
X. Fu	IEEE INFOCOM 2009, Rio de Janeiro, Brazil	Co-organized the TCCC meeting at INFOCOM; attended the INFOCOM'10 TPC meeting	Apr 2009
X. Fu, M. Stiemerling	GI/KUVS KiVS 2009, Kassel, Germany	Co-organized the NVWS workshop; Xiaoming also served as a panelist at KiVS'09	Mar 2009
X. Fu	ICT Proposers' Day 2009, Budapest, Hungary	Presented 5 presentations: "A Million People: framework for enabling volunteer-based mobility experiments in metropolitan city using social-mobile applications", "Migrating IPTV with Application Traffic Engineering", "Virtualizing and Maximizing opportunism with Wireless Mesh Networking", "Sustainable/Green Internetworking: Can we do almost as much, with less?" and "A Million People:	Jan 2009

		infrastructure for large scale mobile social experimentation”.	
--	--	--	--

### Project meetings\*

Participant	Host institution/location	Detailed information	Date
F.C.Kuo, Y. Chen, F. Tegeler	T-Labs, Berlin, Germany	EU GlobalFEST project meeting	Oct 2009
X. Fu, Y. Chen, M. Arumaithurai	MPI-DS, Göttingen, Germany	Meeting on mobile social networks	Aug 2009
X. Fu, F.C.Kuo	Barcelona, Spain	EU GlobalFEST project meeting	Aug 2009
X. Fu, N. Neumann	Uni Göttingen, Germany	G-Lab HAMCast project meeting	Aug 2009
X. Fu	Stockholm, Sweden	G-Lab HAMCast project meeting (during IETF meeting)	Aug 2009
X. Fu	Brussels, Belgium	EU MING-T final review meeting	July 2009
X. Fu	Dresden, Germany	ADVMM project meeting	June 2009
X. Fu	T-Labs, Berlin, Germany	EU A Million People project meeting	June 2009
X. Fu	Tsinghua Univ, Beijing, China	EU MING-T Expert Workshop	Mar 2009
X. Fu, J. Lei	Frankfurt airport, Germany	Hosted the EU MING-TE consortium meeting	Mar 2009
X. Fu	Huawei Technologies, Shenzhen, China	ADVMM project meeting	Feb 2009

\* Note: project meetings held as teleconferences only are not included here.

### Press news

Source	Detailed information	Date
U Göttingen Press Information	Sichere Datenkommunikation über kabellose Zugänge ins Internet - Göttinger Informatiker ist Fulbright Professor an der University of California -	Sept 2009

## Professional Services

### University Services

- Board member, Institute of Computer Science, University of Göttingen
- Board member, Faculty of Mathematics and Computer Science, University of Göttingen
- Member of Faculty Search Committee for Junior Professor “Mobile Network Security”, Faculty of Mathematics and Computer Science, University of Göttingen
- Examiner and chair of PhD Commission in Computer Science, University of Göttingen (Fang-Chun Kuo)
- Examiner and member of PhD Commissions in Computer Science, University of Göttingen (Patrik Chamuczynski)

- Examiner and first opponent for PhD thesis in Computer Science, University of Oslo, 2009 (Xuedong Liang)
- Coordinator of Planet-Lab membership for University of Göttingen
- Coordinator of DAAD-PPP USA project NGSIG for University of Göttingen
- Participant of doctoral program “PhD in Computer Science” (PCS) program, University of Göttingen
- Participant of international master-PhD program “Internet Technology and Information Systems (ITIS)” (in preparation), University of Göttingen

### **Elected position**

- Secretary, IEEE Communications Society Technical Committee on Computer Communications (TCCC)

### **Conference organization**

- Steering Committee, ACM International Workshop on Mobility in the Evolving Internet Architecture (MobiArch)
- Co-Organizer and program chair, ACM HotPlanet 2009 (in conjunction with ACM MobiSys 2009)
- Panel Chair, ACM MobiArch 2009 (in conjunction with ACM MobiSys 2009)
- TPC Co-Chair, ACM GLOBECOM 2009 NGNI Symposium
- TPC Co-Chair, Workshop on Overlay and Network Virtualization (in conjunction with KiVS 2009)
- TPC Co-Chair, Mobile P2P Workshop (in conjunction with IEEE IWCMC 2009)
- TPC Co-Chair, International Workshop on Peer-to-Peer Networking (P2P Net 2009)
- Session Chair, IEEE International Conference on Computer Communications (INFOCOM) 2009
- Session Chair and Publicity Chair, IEEE ICNP 2009
- Session Chair and Web Chair, IEEE Computer Communications Workshop (CCW)
- Session Chair, IEEE SECON 2009
- Session Chair, IFIP Networking 2009

### **Technical Program Committees**

- IEEE International Conference on Network Protocols (ICNP) 2009
- IEEE International Conference on Computer Communications (INFOCOM) 2009
- IEEE INFOCOM High Speed Networking (HSN) Workshop
- IEEE GLOBECOM 2009
- IEEE International Conference on Communications (ICC) 2009
- IEEE ICCCN 2009
- IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM)

- IEEE LCN Workshop On User MObility and VEhicular Networks (ON-MOVE) 2009
- IEEE International Symposium on Wireless Communication Systems (ISWCS)
- Workshop on Future Internet Architectures: New Trends in Service Architectures (2nd Euro-NF Workshop)

### **Journal editorship**

- Editorial board member and Area Editor, Elsevier Computer Communications Journal
- Guest Editors, Fast Track “Network Virtualization”, Elsevier Computer Communications Journal

### **Journal reviews**

- IEEE Journal on Selected Areas in Communications
- IEEE Transactions on Parallel & Distributed Systems
- IEEE Transactions on Mobile Computing
- IEEE Transactions on Vehicular Technology
- IEEE Communications Letters
- IEEE Communications Surveys and Tutorials
- Elsevier Computer Communications
- Springer Telecommunication Systems