

ANNUAL REPORT 2015

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

COMPUTER NETWORKS GROUP
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Editor: Prof. Dr. Xiaoming Fu

ANNUAL REPORT 2015

Computer Networks Group

Introduction

Founded in April 2007, 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 is the seventh issue of this series, and summarizes those of the year of 2015.

Group Members

Sameer Kulkarni, Abhinandan Prasad, Osama Lotf, and Tao Zhao joined the NET group as PhD student in March, June, October and October 2015, respectively. Dr. Stephan Sigg moved to Helsinki, starting his new career as an associate professor at Aalto University in October 2015. Dr. Jiachen Chen, Dr. Narisu Tao and Dr. Yuan Zhang completed their PhD theses in February, September and September 2015, starting their new career as research fellow at Rutgers University, assistant professor at Communication University of China, respectively. Lingjun Pu completed his 2-year joint PhD study at the NET group and returned to Nankai University for finalizing his PhD thesis. Also, several master and bachelor student assistants worked on various projects and thesis work; they are an important part of the team.

Prof. Lin Zhang, Prof. M. Li (BUPT, Feb 2015), Prof. Wenzhong Li, Prof. Sanglu Lu, Prof. Xiaoliang Wei, Prof. Lei Xie, Dr. Yanchao Zhao (NJU, August 2015), Prof. Jar-Der Luo (Tsinghua Univ, July 2015), Prof. Xin Wang, Prof. Jin Zhao, Prof. Xueqing Chen, and Prof. Yuedong Xu (Fudan Univ, July-August 2015), and Dr. Xiao Han (Telecom-Mines/UPMC, July 2015) spent one-month visit at the NET group. Chao Wu (Tsinghua Univ, Nov 2014-July 2015) and Qingyuan Gong (Fudan Univ, May-August 2015) spent a couple of months at the NET group and contributed to the research activities extensively.

By the end of year 2015, the research group comprises 1 professor, 4 senior researchers/postdoc fellows, 7 PhD students, 5 master students and several bachelor students. See Table 1 for detailed information.

Table 1: Member of Computer Networks Group (as of 31.12.2015):

Administrative staff	Head	Senior Researchers	Research assistants/PhD students	Adjunct researchers	Master students
Secretaries: A. Kadziora, F. Poltronieri System administrator: G. Krull	Prof. Dr. X. Fu	Dr. M. Arumathurai, Dr. X. Chen, Dr. D. Koll Dr. Narisu Tao	T. Zhao, O. Lotf, A. Prasad, S. Kulkarni, H. Huang, H. Tschofenig (extern), J. Li (jointly w/ Northeastern U., China) L. Dai (co-supervise with M. Boos/Psychol. & K. Kurz/ Sociology)	Dr. Y. Chen, Dr. S. Sigg, Dr. J. Chen, Dr. X. Han, Prof. K.K. Ramakrishnan Lingjun Pu	

			R. Xu, A. Stango (co-supervise with D. Farina/UMG)		
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Teaching and Supervision

During 2015 the Group has provided the following courses:

Lectures:

Computer Networks, 4 ECTS	NOTE: WS – Winter Semester, SS – Summer Semester, * - only partly WS2015/16
Introduction to Software-Defined Networking, 5 ECTS	WS2015/16
Specialization Software-Defined Networking, 5 ECTS	WS2015/16
Computer Networks, 4 ECTS (exam only)	SS2015
Advanced Computer Networks, 6 ECTS	SS2015

Exercise classes:

Computer Networks	WS2015/16
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Lab courses:

Practicum Advanced Networking, 6 ECTS	SS2015, WS2015/16
Practicum Networking Lab, 6 ECTS	SS2015, WS2015/16

Seminars:

Adv. Topics in Mobile Communications, 6 ECTS	SS2015
Adv. Topics in Computer Networking, 6 ECTS	WS2015/16
Internet Technologies, 4 ECTS	SS2015, WS2015/16
Advanced Topics in Social Network and Big Data Methods, 5 ECTS	SS2015

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 analysis, design, and evaluation of emerging and future network technologies, systems, and applications. Its current main research areas include:

- Architectures, protocols, mechanisms and applications for cloud computing and data centers, including resource and service management, energy efficiency, data delivery, software-defined networks, network function virtualization, cloud systems, applications and services. This has been conducted in collaboration with Microsoft Research, Deutsche Telekom, Alcatel-Lucent/Bell Labs, NEC, UC Riverside, U. Oregon, University of Paris – Marie Curie (Paris 6), BUPT, Fudan University, Tsinghua University, and Nanjing University etc.
- Future Internet architectures and protocols, including information-centric networking, software-defined networking, reliability and congestion control, pub/sub architecture, disaster management, measurement, and related security mechanisms for supporting large-scale content delivery and other applications over the Internet. This area has been in collaboration with UC Riverside, UCLA, Columbia University, University of Liege, University College London, University of Rome “Tor Vergata”, Swedish Institute of Computer Science, KDDI, Panasonic, NEC, Bell Labs, Orange Labs, Osaka University, University of Tokyo, Waseda University, NICT, Fudan University, Tsinghua University, and Nanjing University, etc.

- Social networks/social computing, including socio-aware networking/computing infrastructure, mobile social networks, as well as social behavior studies and social influence, in collaboration with researchers from Göttingen (including sociologists, socio-psychologists, physicists and epidemiologists), nationally (MPI-DS, T-Labs, L3S/University of Hannover) and internationally (University Oregon, University of Cambridge, Swedish Institute of Computer Science, Bell Labs, Nanjing University, Tsinghua University, etc).
- Mobile computing, pervasive/social sensing and applications e.g., in smart cities and energy-efficient buildings, leveraging machine learning (in particular compressive sensing) and data mining techniques where appropriate, in cooperation with Aalto University (Finland), Uppsala University (Sweden), University of Liege (Belgium), University of Kent (UK), Orange Labs (France), Hong Kong University of Science and Technology, Tsinghua University, Nankai University, Nanjing University (China), NEC, Toyota, National Institute of Informatics (Japan), Karlsruhe Institute of Technology, as well as the Institute of Geography at the University of Göttingen and Medical Center Göttingen.

Some funded projects in 2015 include:

- GreenICN – Architectures and Applications of Green Information-Centric Networking, sponsored by EU FP7 EU-Japan ICT EU-Japan International Cooperation program (Coordinated by NET Group)
- MobileCloud – sponsored by EU FP7 Marie Curie IRSES program (Coordinated by NET group)
- CleanSky – Network for Cloud Computing Eco-System, sponsored by EU FP7 Marie Curie Initial Training Network program (Coordinated by NET group)
- DFG – DFG/JSPS International Cooperation - Congress
- SWZ – Simulation Science Center, sponsored by State Lower Saxony and Volkswagen Foundation
- Socially-Motivated Cooperative Device-to-Device Communications, sponsored by Humboldt Foundation
- Software-Defined Clouds, sponsored by DAAD Scholarship program
- Mobile Cloud Computing, sponsored by CSC Scholarship program
- Social Network Analysis, sponsored by CSC Scholarship program
- Social Influence, sponsored by CSC Scholarship program
- Information Centric Networking, sponsored by CSC Scholarship program

Publications, Technical Reports and Theses

Edited Book

1. Xiaoming Fu, Jar-Der Luo, Margarete Boos (eds.), Social Network Analysis: Interdisciplinary Approaches and Case Studies, CRC Press, Taylor & Francis Group, forthcoming.

Editorials

2. Xiaoming Fu, Andrea Passarella, Daniele Quercia, Alessandra Sala, Thorsten Strufe (Eds.), Online Social Networks, Computer Communications, Elsevier, 73(B): 163-346, Jan. 2016.
3. Jun Guo, Sung Ho Cho, Xiaoming Fu, Nirwan Ansari, and Hong Ji (Eds.), Mobile Internet: Content, Security and Terminal. International Journal of Communications Systems, Wiley, DOI: 10.1002/dac.3092, Nov 2015.

Papers in Peer-Reviewed Journals

4. Xu Chen, Lei Jiao, Wenzhong Li, Xiaoming Fu, Efficient Multi-User Computation Offloading for Mobile-Edge Cloud Computing, *IEEE/ACM Transactions on Networking*, DOI: 10.1109/TNET.2015.2487344, in press.
5. Yang Chen, Shining Wu, Jun Li, Xiaoming Fu, NCShield: Protecting Decentralized, Matrix Factorization-Based Network Coordinate Systems, *IEEE Transactions on Services Computing*, DOI: 10.1109/TSC.2015.2437383, in press.
6. Lei Jiao, Jun Li, Tianyin Xu, Wei Du, Xiaoming Fu, Optimizing Cost for Online Social Networks on Geo-Distributed Clouds, *IEEE/ACM Transactions on Networking*, DOI: 10.1109/TNET.2014.2359365, in press.
7. Konglin Zhu, Wenzhong Li, Xiaoming Fu, Lin Zhang, Data routing strategies in opportunistic mobile social networks: Taxonomy and open challenges, *Computer Networks*, Elsevier, 93: 183-198, Dec 2015.
8. Hong Huang, Jie Tang, Lu Liu, JarDer Luo, Xiaoming Fu, Triadic Closure Pattern Analysis and Prediction in Social Networks, *IEEE Transactions on Knowledge & Data Engineering*, 27(12): 3374-3389, Dec 2015.
9. Farshid Hassani Bijarbooneh, Wei Du, Edith Ngai, Xiaoming Fu, Jiangchuan Liu, Cloud-Assisted Data Fusion and Sensor Selection for Internet-of-Things, *IEEE Internet of Things Journal* (accepted), IEEE, November 2015.
10. Wei Du, Yongjun Liao, Narisu Tao, Pierre Geurts, Xiaoming Fu, Guy Leduc, Rating Network Paths for Locality-Aware Overlay Construction and Routing, *IEEE/ACM Transactions on Networking*, 23(5): 1661-1673, Oct 2015.
11. Wenzhong Li, Yuefei Hu, Xiaoming Fu, Sanglu Lu, Daoxu Chen, Cooperative Positioning and Tracking in Disruption Tolerant Networks, *IEEE Trans on Parallel & Distributed Systems*, 26(2): 382-391, Feb 2015.
12. Qi Li, Xinwen Zhang, Qingji Zheng, Ravi Sandhu, Xiaoming Fu, LIVE: Lightweight Integrity Verification and Content Access Control for Named Data Networking, *IEEE Transactions on Information Forensics and Security*, 10(2): 308-320, Feb 2015.

Papers in Peer-Reviewed International Conferences and Workshops

13. Lingjun Pu, Xu Chen, Jingdong Xu, Xiaoming Fu, Crowdlet: Optimal Worker Recruitment for Self-Organized Mobile Crowdsourcing, 35th Annual IEEE International Conference on Computer Communications (INFOCOM 2016).
14. Chao Wu, Xu Chen, Yuezhi Zhou, Ningyuan Lee, Xiaoming Fu, Yaoxue Zhang, Spice: Socially-Driven Learning-Based Mobile Media Prefetching, *IEEE INFOCOM 2016*.
15. Abhinandan S Prasad, David Koll, Xiaoming Fu, On the Resiliency of Software-Defined Networks, 4th European Workshop on Software Defined Networks (EWSDN), short paper, Bilbao, Spain, October 2015.
16. Lingjun Pu, Xu Chen, Jindong Xu, Xiaoming Fu, sNDN: a Social-aware Named Data Framework for Cooperative Content Retrieval via D2D Communications, 10th ACM International Workshop on Mobility in the Evolving Internet Architecture (MobiArch), in conjunction with ACM MobiCom 2015, Paris, France, ACM, September 2015. (Best paper run-up)
17. Xiaowen Gong, Lingjie Duan, Xu Chen, When Network Effect Meets Congestion Effect: Leveraging Social Services for Wireless Service, *ACM MobiHoc 2015*, Hangzhou, China, June 2015.
18. Konglin Zhu, Wenzhong Li, Xiaoming Fu, Lin Zhang, VIRO: A Virtual Routing Method for Eliminating Dead End in Opportunistic Mobile Social Networks, 2015 IEEE International Conference on Communications (ICC 2015), London, UK, IEEE, June 2015.
19. Narisu Tao, Xu Chen, Xiaoming Fu, AS Path Inference: From Complex Network Perspective, *IFIP Networking 2015*, Toulouse, France, IEEE, May 2015.
20. Sripriya Srikanth Adhatarao, Jiachen Chen, Mayutan Arumaithurai, Xiaoming Fu, K. K. Ramakrishnan, ORICE: An Architecture for Object Resolution Services in Information-Centric Environment, The 21st IEEE International Workshop on Local and Metropolitan Area Networks (LANMAN 2015), IEEE, April 2015.

Extended Abstracts, Posters and Demos

21. Jie Li, Jiachen Chen, Mayutan Arumaithurai, Xingwei Wang, Xiaoming Fu, VDR: A Virtual Domain-based Routing Scheme for CCN, 2nd ACM Conference on Information-Centric Networking (ICN 2015), poster session, San Francisco, USA, September 2015.

22. Sripriya Srikant Adhatarao, Jiachen Chen, Mayutan Arumaithurai, Xiaoming Fu, K.K. Ramakrishnan, Prototype of an Architecture for Object Resolution Services in Information-Centric Environment, 2nd ACM Conference on Information-Centric Networking (ICN 2015), demo session, San Francisco, USA, September 2015.
23. Stephan Sigg, Contact-free sensing for collective activity recognition, in: UbiComp/ISWC Workshops: collective adaptation in very large scale ubicomp: towards a superorganism of wearables, Osaka, Japan, Sept 2015
24. Mayutan Arumaithurai, Jiachen Chen, Eeran Maiti, Xiaoming Fu, K. K. Ramakrishnan, Prototype of an ICN Based Approach For Flexible Service Chaining in SDN, IEEE INFOCOM 2015, IEEE, Demo session, April 2015.
25. Christoph Rauterberg, Matthias Velten, Stephan Sigg, Xiaoming Fu. Simply Use the Force. IEEE/KuVS NetSys 2015, demo session, March 2015.
26. Edo Monticelli, Mayutan Arumaithurai, Xiaoming Fu, Ioannis Psaras, K. K. Ramakrishnan, An Information Centric Approach for Communications in Disaster Situations, IEEE/KuVS NetSys PhD Forum, March 2015.
27. Christoph Rauterberg, Stephan Sigg, Xiaoming Fu, Implementation of RF-based gesture interaction on an Android phone, 2015 IEEE International Conference on Pervasive Computing and Communications (PerCom 2015), Demonstrations track, March 2015.

Technical Reports

28. Jiachen Chen, Mayutan Arumaithurai, Xiaoming Fu, K. K. Ramakrishnan, CONCORDE: a Content OriENted COmmunication platfoRm for Disaster Environments (Extended Materials), Technical Report No. IFI-TB-2015-04, Institute of Computer Science, University of Göttingen, Göttingen, Germany, ISSN 1611-1044, November 2015.
29. Jiachen Chen, Mayutan Arumaithurai, Xiaoming Fu, K.K. Ramakrishnan, SAID: A Control Protocol for Scalable and Adaptive Information Dissemination in ICN, Technical Report No. IFI-TB-2015-01, Institute of Computer Science, University of Göttingen, Göttingen, Germany, ISSN 1611-1044, January 2015.

PhD Dissertations

30. Narisu Tao, Data Driven Network Analysis and Applications, Faculty of Mathematics and Computer Science, University of Göttingen, September 2015
31. Yuan Zhang, Dynamic Resource Scheduling in Cloud Data Centers, Faculty of Mathematics and Computer Science, University of Göttingen, September 2015
32. Jiachen Chen, A Content-Oriented Architecture for Publish/Subscribe Systems, Faculty of Mathematics and Computer Science, University of Göttingen, February 2015

Scientific Contacts

Incoming researcher visits

Incoming visitors	Institution (from)	Detailed information	Date
Dr. Yanchao Zhao	Nanjing University, China	As a MobileCloud ER visiting for 1 month	Oct 2015
Prof. Jon Crowcroft	University of Cambridge, UK	Visiting NET group and giving a lecture at CleanSky summer school	Sept 2015
Dr. Yongguang Zhang	Microsoft Research	Visiting NET group and giving a lecture at CleanSky summer school	Sept 2015
Dr. Stefan Schmid	T-Labs, Germany	Visiting NET group and giving a lecture at CleanSky summer school	Sept 2015
Hannes Tschofenig	ARM Ltd, Austria	Visiting NET group for one week and giving two lectures at CleanSky summer school	Sept 2015

Dr. Oliver Hohlfeld	RWTH Aachen University, Germany	Visiting NET group and giving a lecture at CleanSky summer school	Sept 2015
Prof. Yuming Jiang	NTNU, Norway	Visiting NET group for one week and giving a lecture at CleanSky summer school	Sept 2015
Prof. Jussi Kangasharju	University of Helsinki, Finland	Visiting NET group for one week and giving a lecture at CleanSky summer school	Sept 2015
Dr. Dirk Kutscher	NEC Europe, Germany	Visiting NET group for one week and giving a lecture at CleanSky summer school	Sept 2015
Dr. Volker Hilt	Bell Labs, Germany	Visiting NET group for one week and giving a lecture at CleanSky summer school	Sept 2015
Prof. K. K. Ramakrishnan	UC Riverside, USA	Visiting NET group for one week, attending Yuan Zhang and Narisu Tao's PhD defenses and giving a lecture at CleanSky summer school	Sept 2015
Prof. Yuedong Xu	Fudan University, China	MobileCloud ER visitor for one month, invited talk "Modeling Streaming QoE in Wireless Networks with Large-Scale Measurement of User Behavior"	Aug-Sept 2015
Prof. Sanglu Lu, Prof. Wenzhong Li, Prof. Lei Xie; Prof. Xiaoliang Wang, Dr. Cam Tu Nguyen	Nanjing University, China	MobileCloud ERs, Visiting NET group for one month, colloquium talks "Active and Transfer Learning for Vietnamese Named Entity Recognition" (Dr. Cam-Tu Nguyen), "Software Middleboxes Placement in Data Center" (Prof. Xiaoliang Wang, Prof. Sanglu Lu), "Intelligent Sensing in RFID Systems towards Real Complex Environment" (Prof. Lei Xie)	Aug-Sept 2015
Prof. Shiqiang Yang	Tsinghua University, China	Visiting NET group and discussed collaborations	July-Aug 2015
Prof. Karl Andersson	LTU, Sweden	Visiting NET group and discussed collaborations	July 2015
Prof. Edith Ngai	Uppsala University, Sweden	Visiting NET group and discussed collaborations	July 2015
Prof. Noel Crespi, Dr. Reza Farah, Ehsan Ahvar, Shohren Ahvar	Telecom SudParis, France	Visiting NET group and discussed collaborations	July 2015
Dr. Xiao Han	Telecom SudParis, France	Visiting NET group for 1 month and collaborate on online social networks	July 2015
Prof. Jin Zhao, Prof. Xueqing Chen, Prof. Xin Wang	Fudan University, China	MobileCloud ER visitor for 17 days, talks "Venue Data Collection and Analysis in Location-based Social Network" (J. Zhao and X. Chen), "Design of a Load-Balancing Middlebox Based on SDN for Data Centers" (J. Zhao), "Redundancy Coding-oriented Regeneration Schemes and Performance Optimization in Distributed Storage Systems" (X. Wang)	July 2015
Dr. Pramod Bhatotia	TU Dresden, Germany	Visiting NET group, talk "Incremental Parallel and Distributed Systems"	July 2015
Prof. Xiaohui Yu	Shandong University, China	Visiting NET group, talk "Human Mobility Patterns: What Can We Infer from Massive Vehicle Passage Records?"	July 2015

Prof. Chencheng Hu	Xi'an Jiaotong University, China	Visiting NET group; talk "Scalability vs. Flexibility in SDN/OpenFlow data plane"	July 2015
Prof. Jar-Der Luo	Tsinghua University, China	MobileCloud ER visiting NET group for one month, talk "Complex network analysis of venture capital companies in China"	July 2015
Prof. Wei Cheng	VCU, USA	Visiting NET group, talk "Controlling the Spreads of Infectious Disease and Scare via Utilizing Location and Social Networking Information"	July 2015
Prof. Jiannong Cao	PolyU, Hong Kong	Colloquium, "Structural Health Monitoring using Wireless Sensor Networks: Challenges and Opportunities"	July 2015
Xiao Zhang	Nanjing University, China	MobileCloud ESR for 2 months	June-Aug 2015
Prof. Dah-Ming Chiu	Chinese University of Hong Kong	Visiting NET Group and giving colloquium talk "Mining the academic social network"	May 2015
Johannes Schulz, Carsten Johnson	Cisco Systems GmbH, Germany	Colloquium "The Cisco Networking Academy"	Apr 2015
Prof. K. K. Ramakrishnan	UC Riverside, USA	Visiting NET group for 2 days, attending Jiachen Chen's PhD defense and giving an invited talk at Computer Science colloquium "Addressing the Challenges of Network Function Virtualization: NetVM – A High Performance and Flexible Networking using Virtualization on Commodity Platforms"	Mar 2015
Chao Wu	Tsinghua University, China	As a MobileCloud ESR visiting for 4.7 months	Nov 2014-Mar 2015

Outgoing research visits

Outgoing visitors	Institution visited	Detailed information	Date
X. Fu	Renmin University of China	Visiting School of Business, giving a talk and meeting Prof. Jiye Mao, Prof. Kangtao Ye, Prof. Jiwen Song, Prof. Min Zhang, Dr. Xiaoyun Cao	Dec 2015
X. Fu	Baidu, Beijing	Visiting Dr. Miao Zhang (Operation & Maintenance dept.)	Dec 2015
X. Fu	Tecent, Shenzhen	Visiting data group	Dec 2015
X. Fu	Nankai University	Visiting Prof. Jingdong Xu, invited talk on "Mining and prediction of triad closure patterns"	Dec 2015
X. Fu, L. Pu	Tianjin University	Visiting Prof. Yantan Shu and Prof. Zenghua Zhao, invited talk "Mobile Edge Computing: Challenges and Opportunities from a Cooperative Communication and Computation Perspective"	Dec 2015
X. Fu	Tsinghua U Shenzhen Graduate School	Visiting Prof. Qi Li, invited talk on "ICN for SDN Management"	Dec 2015
X. Fu	HKBU, HK	Visiting Prof. Xiaowen Chu	Dec 2015
X. Fu	CityU, HK	Visiting Prof. Henry Xu and Prof. Xiaohua Jia, invited talk on "ICN for SDN management"	Dec 2015
X. Fu	CUHK	Visiting Prof. Dah-Ming Chiu, Prof. Jianwei Huang, Prof. Minghua Chen, invited talk "Mining and prediction of triad closure patterns"	Dec 2015

X. Fu	HKU	Meeting Prof. Chuan Wu	Dec 2015
X. Fu	HKUST-DT Lab	Visiting Prof. Pan Hui	Dec 2015
X. Fu	PolyU, Hong Kong	Research visit (host: Jiannong Cao), invited talk “Mining and prediction of triad closure patterns”, meeting Prof. Dan Wang, Prof. Bin Xiao etc.	Nov-Dec 2015
X. Fu	UC Riverside and UCLA, USA	Visiting Prof. K. K. Ramakrishnan, Prof. Lixia Zhang, and Prof. Mario Gerla	Nov 2015
X. Fu	China Telecom, Beijing	Visiting Big Data Group	Nov 2015
X. Fu	Momo, Beijing, China	Visiting the big data group	Nov 2015
X. Fu	NICT, Japan	Visiting the Photonic Network Research Institute and Network Generation Network Laboratory, hosted by Dr. Hitoshi Asaeda, Dr. Hiroaki Harai and Dr. Ruidong Li, invited talk and discussing issues with regards to EU-Japan project	Oct 2015
X. Fu	NII, Japan	Visiting Prof. Yusheng Ji, discussing issues on future collaborations	Oct 2015
X. Fu, S. Sigg, Mayutan A.	NII Seminar House, Japan	Invited talk and co-organizer/attendee of DFG-JSPS symposium	Oct 2015
X. Fu	Nanjing University, China	Meeting Prof. Zhiwei Wu, Prof. Sanglu Lu and Prof. Wenzhong Li, Prof. Chuanming Chen on Sino-German Institute of Social Computing and data-driven business investors and city migrants studies	Oct 2015, Dec 2015
N. Tao	SAP, Germany	3-month research stay/internship	Oct-Dec 2015
X. Chen	Nanjing University, Nankai University, SYSU, Tsinghua U.	MobileCloud ER visit for one month	Sept-Oct 2015
X. Fu	Tsinghua University, BUPT, Nanjing University, Fudan University, China	Sabbatical w/ MobileCloud research visit (visiting Profs. Jarder Luo, Yuezhi Zhou, Yong Li, Jie Tang, Yong Qiu, Yongfeng Huang; Lin Zhang, Konglin Zhu, Jun Guo; Wenzhong Li, Sanglu Lu; Xin Wang, Jin Zhao, Yang Chen, Yuedong Xu, Xiangyang Xue)	Sept 2015-Jan 2016
X. Fu	Fudan University	Meeting Prof. Xin Wang, Prof. Junyu Niu, Prof. Jin Zhao, Prof. Yang Chen, Prof. Y. Xu on research collaborations on MobileCloud, social networks and SDN	Sept, Oct 2015
X. Fu	UPMC, France	Visiting LIP6 and discussing with Assoc. Prof. Stefano Secci on EU proposal preparation	Sept 2015
X. Fu	Uppsala University, LTU, LTU – Skelefelea, Mid-Sweden University, Stockholm University, SICS, Sweden	U4 visit and IEEE DLT, discussed with Assoc. Prof. Edith Ngai (UU), Assoc. Prof. Karl Anderson (LTU), Dr. Mats Norberg (Ericsson Research), Dr. Anders Lindgren and Dr. Fehmi Ben Abdesslem (SICS), and Assoc. Prof. Harko Verhagen (SU) on MobileMobile project and new EU proposal	Aug-Sept 2015
X. Fu	Bell Labs Ireland	Meeting Dr. Lei Jiao	July 2015
S. Sigg	University of Helsinki, Finland	Research visit for 2 months (host: Prof. Sasu Tarkoma)	July-Aug 2015
X. Fu	Dublin City	Visiting Dr. Xiaojun Wang’s lab and giving a lecture on SDN	July 2015

	University, Ireland		
H. Huang	SAP, Germany	3-month research stay/internship	Feb-Apr 2015
X. Fu	Polytechnic University of Hong Kong	Research visit and invited talk	Feb 2015
X. Fu	Ji'nan University, Guangzhou, China	Invited talk and visiting Prof. Weng's group	Feb 2015
X. Fu	Sun Yat-sen University, China	Research visit and invited talk	Feb 2015

Conference and event participations and presentations

Participant	Conference	Detailed information	Date
X. Fu	IEEE ICNP 2015, San Francisco, CA, USA	Attending the conference	Nov 2015
X. Fu, Mayutan A., Stephan Sigg	DFG/JSPS Workshop on mobile sensing, networking and analytics	Co-organizer	Oct 2015
Abhinandan S Prasad	EWSDN, Bilbao, Spain	Presenting a short paper	Oct 2015
X. Fu, X. Chen, L. Pu	MobileCloud Workshop, BUPT, China	Presenting two talks and planning project next steps	Sept 2015
J. Li, K. K. Ramakrishnan	ACM ICN 2015, San Francisco, CA, USA	Presenting a poster and a demo	Sept 2015
X. Fu, L. Pu	ACM MobiCom 2015, Paris, France	Attending the conference, presenting a paper at MobiArch and discussing with collaborators	Sept 2015
X. Fu, D. Koll, A. Prasad, S. Kulkarni	ACM SIGCOMM 2015, London, UK	Attending the conference and discussing with collaborators	Aug 2015
X. Fu, X. Chen, D. Koll, S. Sigg, H. Huang	Workshop on Social Computing, Göttingen	Presenting recent results and brainstorming several interdisciplinary topics with different fields (CS, healthcare, sociology, psychology, physics) related to social network research	July 2015
N. Tao	IFIP Networking, Bordeaux, France	Attending the conference and presenting a paper	May 2015
X. Fu, Eeran Maiti	IEEE INFOCOM, Hong Kong	XF giving the keynote for IEEE Global Internet Symposium, attending INFOCOM and discussing possible collaborations; Eeran presented a demo	Apr 2015
X. Fu, K.K. Ramakrishnan	IEEE LANMAN 2015, Beijing, China	Presenting a paper	Apr 2015

Details on Organized Events

DFG-JSPS Seminar on Mobile Sensing and Future Networks, Oct 26-28, 2015

During October 26-28, 2015 Prof. Yusheng Ji (NII, Japan), Stephan Sigg and Xiaoming Fu (NET group) co-organized a German-Japan joint Seminar on Mobile Sensing and Future Networks, October 26-28, in Karuizawa, Japan, sponsored by DFG and JSPS. The attendees discussed a number of open research issues and identified common research interests and potential future collaboration in the areas of Smart City, Networked Systems, wireless communication, environmental sensing as well as Mobile and Pervasive Computing.

The meeting was held in Karuizawa, Japan, at the seminar house of the National Institute of Informatics. In addition, on October 29th, participants have visited the laboratories of Professor Hashitsume (National Institute of Informatics, Tokyo), Professor Prendinger (National Institute of Informatics, Tokyo) and Professor Kunze (Keio Media Design, Tokyo).

German side participants:

- Prof. Xiaoming Fu, Dr. Mayutan Arumathurai (NET group, University of Göttingen)
- Prof. Stephan Sigg (Aalto University/Finland and NET group, University of Göttingen)
- Prof. Lars Wolf (TU Braunschweig)
- Prof. Christian Becker (University of Mannheim)
- Prof. Jörg Nolte (Brandenburg University of Technology)

Japan side participants:

- Prof. Yusheng Ji (National Institute of Informatics)
- Prof. Hiromichi Hashitsume (National Institute of Informatics)
- Prof. Toru Hasegawa (Osaka University)
- Prof. Kai Kunze (Keio University)
- Prof. Hao Zhou (National Institute of Informatics)
- Prof. Xiaoyan Wang (National Institute of Informatics)
- Prof. Celimuge Wu (University of Electro-Communications)
- Prof. Zhi Liu (Waseda University)
- Mr. Takayuki Akiyama (National Institute of Informatics)
- Ms. Shuyu Shi (National Institute of Informatics)
- Mr. Ruijian An (National Institute of Informatics)
- Mr. Yu Mao (National Institute of Informatics)
- Mr. Jingyun Feng (National Institute of Informatics)

1st CleanSky Summer School, Sept 21-25, 2015

September 21-25, 2015, the NET group hosted the first CleanSky ITN summer school. The goal of this summer school was to introduce major relevant principles of cloud computing to the approximately 50 attendees of the summer school, including twelve researchers hired as Marie-Curie research fellows within the CleanSky ITN project. The technical program therefore consisted of both theoretical and practical sessions and tutorials, as well as several keynote talks by renowned invited speakers, including Jon Crowcroft (University of Cambridge), Yongguang Zhang (Microsoft Research) and Stefan Schmid (Deutsche Telekom Laboratories). Besides the main summer school track,

the young researchers were also educated in transferable research skills as, for instance, scientific writing or mathematical modeling. The summer school was accompanied by a comprehensive social program. For a detailed program, proceedings including presentation slides, and further information, please visit <http://www.cleansky-itn.eu> and <http://cleanskysummer.uni-goettingen.de>.

Workshop on Future Internet and Cloud Computing, July 14, 2015

Organized by Stephan Sigg, Federica Poltronieri and Xiaoming Fu, the NET group hosted a workshop on Future Internet and Cloud Computing, July 14, 2015, with the following attendees and a lot of brainstorming discussions (see details [here](#)):

- K. Andersson (Luleå University of Technology, Sweden)
- E. Ahvar, S. Ahvar, N. Crespi, X. Han (Telecom SudParis, France)
- X. Chen, X. Fu, F. Glaser, M. Göttsche, J. Grabowski, S. Sigg (University of Göttingen)
- E. Ngai (University of Uppsala, Sweden)
- Xin Wang, Jin Zhao, Xueqing Chen, Qingyuan Gong (Fudan University, China)

Workshop on Social Computing and Big Data, July 9, 2015

Organized by David Koll, Federica Poltronieri and Xiaoming Fu, the NET group hosted a workshop on social computing and big data, with the following talks and brainstorming discussions (see details [here](#)):

- M. Boos (UGOE, Psychology): Emergence of leadership in group movement
- W. Cheng (VCU, Computer Science): Controlling the Spreads of Infectious Disease and Scare via Utilizing Location and Social Networking Information
- A. & R. Farahbakhsh (Telecom SudParis, Computer Science): Popularity and Event detection on Social Media
- R. Farahbakhsh (Telecom SudParis, Computer Science): Professional users behavior analysis over major OSNs
- F. Froese (UGOE, Business management): International Management
- X. Han (Telecom SudParis, Computer Science): User Similarity in Online Social Networks
- H. Huang, X. Fu (NET group): Triadic Closures in OSNs
- D. Koll (NET group): Sybil Attack Defense via Online Social Networks
- J. Luo (Tsinghua University, Sociology): Complex network analysis of venture capital companies in china
- X. Yu (Shandong University, Computer Science): Human Mobility Patterns: What Can We Infer from Massive Vehicle Passage Records?

A follow-up meeting has been held among Prof. Marc Timme (MPI-DS), Prof. Jarder Luo (Tsinghua), Dr. Xiao Han, Prof. Xiaoming Fu, Hong Huang (NET group) to discuss further collaborations on mobility big data.

Project meetings*

Participant	Host institution/location	Detailed information	Date
X. Fu	NII, Japan	5G-SDN proposal meetings with Prof. Yusheng Ji (NII) and Stefan Aust (NEC)	Oct 2015
X. Fu, M. Arumaithurai, K.K. Ramakrishnan	Tokyo, Japan	GreenICN EU-JP plenary meeting and Workshop “Research Activities on ICN in EU/US/JP projects”	Oct 2015
X. Fu, X.	BUPT, Beijing,	MobileCloud third workshop and project meeting	Sept

Chen, L. Pu	China		2015
D. Koll, M. Arumaithurai, X. Fu	NET Group, Göttingen	CleanSky project management meeting	Sept 2015
X. Fu, W. Li	NET and Psychology dept, Göttingen	Meetings with Prof. M. Boos and Prof. J.-D. Luo for interdisciplinary projects	Aug, Sept 2015
X. Fu, M. Arumaithurai, K.K. Ramakrishnan	UCL, London, UK	GreenICN 2 nd annual review meeting	May 2015
X. Fu, M. Arumaithurai, K.K. Ramakrishnan	London, UK Prague, CZ Göttingen, DE Tokyo, JP	ICN2020 proposal consortium meetings	May 2015 July 2015 Sep 2015 Oct 2015
M. Arumaithurai, KK Ramakrishnan	Rome, Italy	GreenICN EU consortium meeting	Jan, Sept 2014

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

News Press Releases

Source	Detailed information	Date/Edition
Univ Göttingen press news	Soziale Netzwerke und Big Data	02.12.2015
Göttinger Tageblatt news	Neues Informatik-Institut mit Nanjing	02.12.2015

Awards

- Humboldt Fellowship (Xu Chen)
- IEEE Communications Society Distinguished Lecturer (Xiaoming Fu) 2014-2015

Professional Services (X. Fu unless noted)

University Services

- International Officer - Computer Science, Faculty of Mathematics & Computer Science, University of Göttingen
- Substitution Member of Faculty Board, Faculty of Mathematics and Computer Science, University of Göttingen
- Board member, Institute of Computer Science, University of Göttingen
- Director, [Sino-German Institute of Social Computing](#), University of Göttingen
- Program committee board of International Master/PhD program “Internet Technology and Information Systems (ITIS)”, University of Göttingen
- Participant of Doctoral program “PhD in Computer Science” (PCS) program, University of Göttingen
- Examination board Master’s program of “Social Sciences/Sociology”, University of Göttingen
- Coordinator of Planet-Lab membership for University of Göttingen

Elected and Appointed Positions

- Senior Visiting Scholar, Department of Sociology, Tsinghua University, China
- Visiting Scholar, Department of Computer Science, Polytechnic University of Hong Kong
- Changjiang Scholar Visiting Professorship, Ministry of Education, China
- “111” Guest Professor, Nanjing University, China
- DAAD Visiting Professor, Uppsala University, Sweden
- Vice Director, Center for Social Network Research, Tsinghua University, Beijing, China
- Member of Internet Engineering Steering Group (IESG) and Transport Area Director – Martin Stiemerling
- Advisory board, Shanghai Computer Science Society Internet Technical Committee

Conference organization

- Steering Committee Member, IEEE Global Internet Symposium (GI) 2015
- Steering Committee Member, ACM SIGMOBILE HotPlanet Workshop
- Steering Committee Chair, ACM SIGMOBILE International Workshop on Mobility in the Evolving Internet Architecture (MobiArch)

Technical Program Committees

- TPC Member, ACM CoNEXT 2015
- TPC Member, ACM MobiHoc 2015 (Xu Chen)
- TPC Member, ACM ICN 2015 (Mayutan Arumaithurai)
- TPC Member, IEEE/ACM IWQoS 2015
- TPC Member, IFIP Networking 2015
- TPC Member, IEEE GLOBECOM 2015 SAC Track on Cloud Networking (Xiaoming Fu, David Koll)
- TPC Member, IEEE GLOBECOM 2015 Workshop on Information Centric Network Solutions for Real-World Applications
- TPC Member, Elsevier Computer Communications (COMCOM) (Mayutan Arumaithurai, Stephan Sigg)

Journal Editorship

- Technical Editor, IEEE Communications Magazine
- Associate Editor, IEEE Transactions on Network and Service Management
- Area Editor, Elsevier Computer Networks Journal
- Area Editor, Elsevier Computer Communications Journal
- Associate Editor, Springer Networking Science Journal

- Associate Editor, EURASIP Journal on Wireless Communications and Networking (Xu Chen)
- Guest Co-Editor, International Journal of Communication Systems, Special Issue on Mobile Internet: Content, Security and Terminal
- Guest Co-Editor, IEEE Communications Magazine, Feature Topic on Mobile Cloud Computing
- Guest Co-Editor, Computer Communications, Special Issue on Online Social Networks