

# Curriculum Vitae

## Dr.-Ing. Michael Zink

ASSOCIATE PROFESSOR  
ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT  
UNIVERSITY OF MASSACHUSETTS AMHERST  
151 HOLDSWORTH WAY • AMHERST • MA 01003  
PHONE • 1-413-545-4465  
EMAIL • [zink@ecs.umass.edu](mailto:zink@ecs.umass.edu)  
WEB • <http://www.ecs.umass.edu/ece/zink/>  
IEEE SENIOR MEMBER

### RESEARCH INTERESTS

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Sensor Networks	Virtual private sensor networks, Sense-and-respond architecture, Sensor network design and implementation, Energy-rechargeable wireless sensor networks, Long-distance multi-hop 802.11 networks
Next Generation Internet	Measurement architectures and tools, Cloud computing for scientific applications, Virtual Lab for Computer Networks Education, Information Centric Networking
Systems Engineering	Design and implementation of a 4 node, closed-loop, radar sensor network, Technical project management in interdisciplinary environment
Multimedia Distribution	Architectures for content distribution, Scalable adaptive streaming, Streaming in wireless networks

### EDUCATION

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11/1998 – 09/2003	<b>Darmstadt University of Technology</b> <b>Darmstadt, Germany</b> Ph.D. in Electrical Engineering and Information Technology (with distinction) Ph.D. thesis “Scalable Internet Video-on-Demand Systems”
10/1991 – 07/1997	<b>Darmstadt University of Technology</b> <b>Darmstadt, Germany</b> Diploma (equivalent to M.Sc.) in Electrical Engineering and Information Technology, specializing in Communications Technology <ul style="list-style-type: none"><li>• Diploma thesis “Integration of ATM and Internet Quality of Service Architectures: Overview and Evaluation of RSVP over ATM approaches”</li><li>• Student thesis “Formal Description of the IPv6 Protocol for OSI Conformance Testing”</li></ul>

## PROFESSIONAL APPOINTMENTS

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- 09/2015 – present **TU Darmstadt** **Darmstadt, Germany**
- Adjunct Professor in the Multimedia Communications Lab, Department of Electrical Engineering and Information Technology
- 09/2015 – present **University of Massachusetts** **Amherst, USA**
- Associate Professor in the Electrical and Computer Engineering Department
  - Co-Director, NSF Engineering Research Center for Collaborative Adaptive Sensing of the Atmosphere
  - Adjunct Associate Professor in the College of Information and Computer Sciences
- 09/2009 – 08/2015 **University of Massachusetts** **Amherst, USA**
- Assistant Professor in the Electrical and Computer Engineering Department
  - Deputy Director for Technical Integration in the NSF Engineering Research Center for Collaborative Adaptive Sensing of the Atmosphere
- 09/2008 – 08/2009 **University of Massachusetts** **Amherst, USA**
- Research Assistant Professor in the Computer Science Dep.
  - Deputy Director for Technical Integration in the NSF Engineering Research Center for Collaborative Adaptive Sensing of the Atmosphere
- 08/2005 – 08/2008 **University of Massachusetts** **Amherst, USA**
- Senior Research Scientist in the Computer Science Department
  - Technical Integration Thrust Leader for the NSF Engineering Research Center for Collaborative Adaptive Sensing of the Atmosphere
- 04/2004 – 07/2005 **University of Massachusetts** **Amherst, USA**
- Postdoctoral Fellow in the Computer Networks Research Group in the Computer Science Department
  - Systems Engineer for the NSF Engineering Research Center for Collaborative Adaptive Sensing of the Atmosphere
- 10/2003 – 03/2004 **Darmstadt University of Technology** **Darmstadt, Germany**
- Head of the Multimedia Distribution and Networking group at the Multimedia Communications Lab (KOM)
- 11/1998 – 09/2003 **Darmstadt University of Technology** **Darmstadt, Germany**
- Research Assistant at the Multimedia Communications Lab (KOM). Involved in several teaching and research projects as described below

- 10/1997 – 09/1998 **National Institute of Standards and Technology** **Gaithersburg, MD, USA**
- Guest Researcher at the Information Technologies Lab. Designed and implemented an MPLS capable router
- 02/1997 – 04/1997 **Darmstadt University of Technology** **Darmstadt, Germany**
- 08/1997 – 09/1997
- Student Assistant at the Multimedia Communications Lab (KOM). Participation in research projects and conference paper preparation
- 01/1992 – 12/1996 **ID GmbH** **Wiesbaden, Germany**
- Technical staff and trainer
  - Novell Certified Network Engineer
  - Novell Certified Network Instructor (Held more than 40 courses)

## RESEARCH GRANTS & PROJECTS

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- 10/2017 to date CloudLab Phase II: Community Infrastructure to Expand the Frontiers of Cloud Computing Research (PI: Rob Ricci, Co-PIs: Michael Zink, Brig ‘Chip’ Elliot, Srinivasa Akella, Kuang-Ching Wang)
- National Science Foundation
- 7/2017 to date AIR-TT: Proof of Concept Multifunction Micro-drone and Weather Surveillance System (Sole PI)
- National Science Foundation
- 01/2016 to date GENI Going Forward: Virtual Computer Networks Lab II (Sole PI)
- National Science Foundation
- 09/2015 to date CC\*DNI: High-bandwidth Network Connectivity for Remote Sensing Research (Sole PI)
- National Science Foundation
- 03/2015 – 12/2015 NSF I-Coprs: Commercialization of a City-Scale Weather Radar (Sole PI)
- National Science Foundation
- 09/2014 to date CyberSEES: Type 2: Integrative Sensing and Prediction of Urban Water for Sustainable Cities (PI: Dong-Jun Seo, Co-PIs: Michael Zink, Xinbao Yu, Zheng Fang, Jean Gao)
- National Science Foundation
- 09/2014 to date CloudLab: Flexible Scientific Infrastructure to Support Fundamental Advances in Cloud Architectures and Applications (PI: Rob Ricci, Co-PIs: Michael Zink, Brig ‘Chip’ Elliot, Srinivasa Akella, Kuang-Ching Wang)
- National Science Foundation

- 03/2014 to date CAREER: Sensing as a Service: Architectures for Closed-loop Sensor Network (Sole PI)  
 • National Science Foundation
- 06/2014 to date FIA-NP (Senior Personnel, PI: Arun Venkataramani)  
 • National Science Foundation
- 10/2013 – 08/2016 Virtual Computer Networks Lab (PI, Co-PI: Jim Kurose)  
 • National Science Foundation
- 09/2013 to date HazardSEES Type 2: Next Generation, Resilient Warning Systems for Tornadoes and Flash Floods (Co-PI, PI: Brenda Philips)  
 • National Science Foundation
- 05/2013 – 12/2013 CASA Radar Integration with NWS Forecaster Operations (PI, Co-PI: Eric Adams)  
 • National Weather Service
- 12/2012 – 12/2014 CC-NIE Integration: Multi-Wave - A Dedicated Data Transport Ring to Support 21st Century Computational Research (Co-PI, PI: John Dubach)  
 • National Science Foundation
- 04/2012 – 04/2014 EAGER: Ultra high-speed bandwidth for performance improvements in radar networks for weather and aircraft surveillance. (PI, Co-PI: Brenda Philips)  
 • National Science Foundation
- 10/2011 – 09/2015 GIMI: Large-scale GENI Instrumentation and Measurement Infrastructure (PI, Co-PI: Max Ott)  
 • National Science Foundation
- 07/2010 to date • Jerome M. Paros Fund for Measurement and Environmental Sciences Research (Investigator)
- 10/2009 – 09/2012 Data Intensive Cloud for GENI (PI, Co-PIs: Prashant Shenoy, Jim Kurose)  
 National Science Foundation
- 10/2009 – 02/2013 Engaging Industry Personnel in the CASA Enterprise (Co-PI, PI: Ted Djaferis)  
 • National Science Foundation
- 09/2008 – 08/2011 Sensor Virtualization and Slivering in an Outdoor Wide-Area Wireless GENI Sensor/Actuator Network Testbed (Co-PI, PI: Prashant Shenoy, Co-PIs: Jim Kurose, Depak Ganesan)  
 • National Science Foundation
- 04/2005 – 08/2015 Engineering Research Center for Collaborative Adaptive Sensing of the Atmosphere (Deputy Director, Co-PI, PI: David McLaughlin)  
 • National Science Foundation

- 03/2002 – 03/2004 Multimedia distribution: feedback and adaptation in wireless networks (Technical Project Leader)  
 • Panasonic European Laboratories GmbH
- 11/1998 – 02/2002 MediaNode: support for multimedia enhanced teaching  
 • Ministry for Science and Art, State of Hesse, Germany

## TEACHING, ADVISING, MANAGEMENT

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Fall 2017/ Spring 2018	<b>University of Massachusetts</b> ECE 415 – Senior Design Project: Advised a group of 4 students	<b>Amherst, USA</b>
Fall 2017	<b>University of Massachusetts</b> ECE 597SI/697SI – Lecture for undergraduates and graduates on “Integrative Systems Engineering” (42 Students)	<b>Amherst, USA</b>
Fall 2016	<b>University of Massachusetts</b> ECE 671 – Lecture for graduate students on “Computer Networks” (44 Students)	<b>Amherst, USA</b>
	<b>University of Massachusetts</b> ECE 597SI/697SI – Lecture for undergraduates and graduates on “Integrative Systems Engineering” (32 Students)	<b>Amherst, USA</b>
Spring 2015	<b>University of Massachusetts</b> ECE 374 – Lecture for undergraduates on “Computer Networks & Internet” (62 Students)	<b>Amherst, USA</b>
Fall 2014/ Spring 2015	<b>University of Massachusetts</b> ECE 415 – Senior Design Project: Advised a group of 4 students	<b>Amherst, USA</b>
Fall 2014	<b>University of Massachusetts</b> ECE 242 – Lecture for undergraduates on “Data Structures & Algorithms” (125 Students)	<b>Amherst, USA</b>
Spring 2014	<b>University of Massachusetts</b> ECE 374 – Lecture for undergraduates on “Computer Networks & Internet” (65 Students)	<b>Amherst, USA</b>
Fall 2013/ Spring 2014	<b>University of Massachusetts</b> ECE 415 – Senior Design Project: Advised a group of 4 students	<b>Amherst, USA</b>
Fall 2013	<b>University of Massachusetts</b> ECE 597SI/697SI – Lecture for graduates on “Integrative Systems Engineering” (47 Students)	<b>Amherst, USA</b>
Spring 2013	<b>University of Massachusetts</b> ECE 374 – Lecture for undergraduates on “Computer Networks & Internet” (52 Students)	<b>Amherst, USA</b>
Fall 2012/ Spring 2013	<b>University of Massachusetts</b> ECE 415 – Senior Design Project: Advised a group of 4 students	<b>Amherst, USA</b>

Fall 2012	<b>University of Massachusetts</b>	<b>Amherst, USA</b> ECE 697SI – Lecture for graduates on “Integrative Systems Engineering” (8 Students)
Spring 2012	<b>University of Massachusetts</b>	<b>Amherst, USA</b> ECE 374 – Lecture for undergraduates on “Computer Networks & Internet” (37 Students)
Fall 2011/ Spring 2012	<b>University of Massachusetts</b>	<b>Amherst, USA</b> ECE 415 – Senior Design Project: Advised a group of 4 students
Fall 2011	<b>University of Massachusetts</b>	<b>Amherst, USA</b> ECE 597ST/697ST – Lecture for senior undergraduates and graduates on “Systems Simulation” (23 students)
Spring 2011	<b>University of Massachusetts</b>	<b>Amherst, USA</b> ECE 374 – Lecture for undergraduates on “Computer Networks & Internet” (43 Students)
Fall 2010/ Spring 2011	<b>University of Massachusetts</b>	<b>Amherst, USA</b> ECE 415 – Senior Design Project: Advised a group of 4 students
Fall 2010	<b>University of Massachusetts</b>	<b>Amherst, USA</b> ECE 697SI – Lecture for graduates on “Integrative Systems Engineering” (22 Students)
Spring 2010	<b>University of Massachusetts</b>	<b>Amherst, USA</b> ECE 597S/697S – Lecture for senior undergraduates and graduates on “Systems Simulation” (22 students)
Fall 2009/ Spring 2010	<b>University of Massachusetts</b>	<b>Amherst, USA</b> ECE 415 – Senior Design Project: Advised a group of 4 students
Fall 2006	<b>University of Massachusetts</b>	<b>Amherst, USA</b> CS 491M – Lecture for senior undergraduates in the CS and ECE departments “Introduction to Systems Engineering”
Fall 2005	<b>University of Massachusetts</b>	<b>Amherst, USA</b> CS 496A – Independent Study Class “Independent Study in Wireless Networking” (Co-taught with Prof. Kurose)
Fall 2000	<b>Darmstadt University of Technology</b>	<b>Darmstadt, Germany</b> Seminar “Introduction to Operating Systems”
Fall 1999, 2000, 2001, 2002	<b>Darmstadt University of Technology</b>	<b>Darmstadt, Germany</b> Lab Exercises “Communication Networks”
Spring 1999	<b>Darmstadt University of Technology</b>	<b>Darmstadt, Germany</b> Seminar “MBone: The Multicast Backbone”
2001, 2002, 2003	<b>Darmstadt University of Technology</b>	<b>Darmstadt, Germany</b> Substitute for lectures “Communication Networks I + II” and “Multimedia Communication”

- 08/2005 – present    Supervision of staff:
- Emmanuel Cecchet, Senior Research Fellow
  - Amr Rizk, Postdoctoral Research Associate (2014-2015)
  - David Pepyne, Senior Research Fellow
  - David Irwin, Postdoctoral Research Associate (2007-2011)
  - David Westbrook, Senior Research Fellow
  - Eric Lyons, Research Scientist
- 11/1998 – 06/2003    Supervision of eight Student Theses and 8 Master Theses at Darmstadt University of Technology

## GRADUATE STUDENTS

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Nauman Javed	PhD (co-advised with Prof. Wolf), now with Gaikai
Dilip Kumar Krishnappa	PhD, now at Akamai
Cong Wang	PhD, now at RENCi
Amr Rizk	Postdoc, now at TU Darmstadt

## INVITED TALKS

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07/2014	Software Defined Exchanges: New Opportunities for Future Internet Research, The Fourth GENI Research and Educational Experiment Camp (GREE-SC 2014), Iowa State University, Ames, IA.
09/2013	Collaborative Adaptive Sensing of the Atmosphere (CASA), Architecture, Design, Implementation, and Operation of Sensor/Actuator Networks for Severe Weather Observations, Alvine Engineering Professional Effectiveness and Enrichment Program, University of New Haven, New Haven, CT.
11/2012	Collaborative Adaptive Sensing of the Atmosphere (CASA): Architecture, Design, Implementation, and Operation of Sensor/Actuator Networks for Severe Weather Observations. Colloquium, University of Connecticut, Storrs, CT.
07/2012	Closed-loop Sensor Networks for Atmospheric Sensing. Siemens AG Corporate Technology, Munich, Germany.
07/2012	ExoGENI and GIMI: GENI Racks and Their Measurement and Instrumentation Tools. 12 <sup>th</sup> Würzburg Workshop on IP: Joint ITG and Euro-NF Workshop "Visions of Future Generation Networks" (EuroView2012), Würzburg, Germany.

08/2011	NowCasting: UMass/CASA Weather Radar Demonstration. 11 <sup>th</sup> Würzburg Workshop on IP: Joint ITG and Euro-NF Workshop "Visions of Future Generation Networks" (EuroView2011), Würzburg, Germany.
02/2011	Closed-loop Sensor Networks for Atmospheric Sensing. Keynote at IEEE Sensor App. Symposium, San Antonio, TX.
01/2009	Collaborative Adaptive Sensing of the Atmosphere. Systems Engineering Colloquium, Department of Systems and Information Engineering, University of Virginia, Charlottesville, VA
09/2006	CASA IP1 Meteorological Command and Control. Presentation to members of the DOE ARM Program, Amherst, MA
01/2005	CASA - Collaborative Adaptive Sensing of the Atmosphere. Darmstadt University of Technology, Darmstadt, Germany.
06/2004	Meteorological Command and Control in CASA's IP1A Test Bed. MIT Lincoln Laboratory, Lincoln, MA, USA.
05/2004	Content Distribution in CASA. Dagstuhl Seminar on Content Distribution Networks, Dagstuhl, Germany.
03/2003	Scalable Adaptive Streaming in the Internet. Department of Informatics, University of Oslo, Oslo, Norway.
02/2002	Scalable Streaming for Internet Video Distribution. University of Massachusetts, Amherst, MA, USA.

## PROFESSIONAL ACTIVITIES

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01/2014 –to date	Board Member of the Multimedia Communications Technical Committee (MMTC) in IEEE Communications Society
10/2008 – to date	Editorial Board Member of the Springer/ACM Multimedia Systems Journal
2017	<p>Technical Program Co-Chair:</p> <ul style="list-style-type: none"> <li>• ACM Multimedia Systems Conference 2018</li> </ul> <p>Program committee member:</p> <ul style="list-style-type: none"> <li>• ACM Workshop on Network and Operating System Support for Digital Audio and Video (NOSSDAV)</li> <li>• ACM Multimedia 2017</li> <li>• ACM Multimedia Systems Conference 2017</li> <li>• IEEE Workshop on Multimedia Streaming in Information Centric Networks</li> <li>• 26th International Conference on Computer Communications and Networks (ICCCN)</li> <li>• IFIP Networking 2017</li> </ul>



- 2016
- Technical Program Co-Chair:
- International Conference in Networking Science & Practice (ITC) 28 Area 4 “Next generation and future Internet architectures”
  - Demo Session at ACM MM Systems
- Program committee member:
- 24th IEEE International Conference on Network Protocols
  - ACM Multimedia
  - 9th USENIX Workshop on Cyber Security Experimentation and Test (CSET)
  - Infocom Workshop on Multimedia Streaming in Information-/Content- Centric Networks (MuSIC)
  - ACM Workshop on Network and Operating System Support for Digital Audio and Video (NOSSDAV)
  - IEEE Local Computer Networks Conference 2016
  - ACM Multimedia Systems Conference
- 2015
- Technical Program Committee Co-Chair:
- NOSSDAV 2015
- Program committee member:
- NetSys 2015
  - ACM Multimedia Systems 2015
  - LCN 2015
  - IEEE MASS Workshop on Content-Centric Networking (CCN 2015)
  - Workshop on Multimedia Streaming in Information Centric Networks (MuSiC)
- 2014
- Program committee member:
- ACM Multimedia Systems 2014
  - NOSSDAV 2014
  - LCN 2014
  - GREE 2014
- 2013
- Program committee member:
- ACM Multimedia Systems 2013
  - NOSSDAV 2013
  - ICCCN 2013
  - LCN 2013
  - ACM MM 2013 (Area Chair)
- 2012
- Technical Program Committee Chair:
- TridentCom 2012
- Program committee member:

- ACM Multimedia Systems 2012
  - LCN 2012
- 2011 Program committee member:
- INFOCOM 2011
  - ACM Multimedia Conference 2011
  - ACM Multimedia Systems 2011
  - NOSSDAV 2011
- 2010 Program committee member:
- INFOCOM 2010
  - ACM Multimedia Conference 2010
  - ACM Multimedia Systems Conference 2010
- 2009 Program committee member:
- INFOCOM 2009
  - ACM Multimedia 2009
  - YouTube and the 2008 Election Cycle in the United States
  - IEEE FNM 2009
  - WASA 2009
- 2008 Program committee member:
- INFOCOM 2008
  - ACM Multimedia 2008
  - MMCN 2008
  - PAM 2008
- 2007 Program committee member:
- ACM Multimedia 2007
  - MMCN 2007
- 2006 Program committee member:
- ACM Multimedia 2006
  - MMCN 2006
  - CCNC 2006
  - Euromicro 2006
  - NOSSDAV 2006
- 2005 Program committee member:
- ACM Multimedia 2005
  - CCNC 2005
  - WWW 2005
  - ICPP 2005
  - Euromicro 2005
- 2004 Program committee member:
- MMCN 2004
  - NRBC 2004

- 2003 Program committee member:
- ACM Multimedia 2003
  - MMCN 2003
- 2000 to date Adhoc reviews for the journals:
- IEEE Transactions on Multimedia, ACM Transactions on Multimedia Computing Communications and Applications
  - Springer & ACM Journal on Multimedia Systems
  - Inderscience International Journal on Sensor Networks
  - Elsevier International Journal on Computer and Telecommunication Networking

## AWARDS

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***Excellence in DASH Award at ACM Multimedia Systems 2016 for our paper “SQUAD: A Spectrum-based Quality Adaptation for Dynamic Adaptive Streaming over HTTP”***

***Best Paper Award at SPIE/ACM Multimedia Communication and Networking Conference 2008***

***“Journal’s best reviewer in 2007”, Springer/ACM Multimedia Systems Journal***

***Best Paper Award at the Second GENI Research and Educational Experiment Workshop (GREE2013).***

***NSF CAREER Award (2014)***

## BOOKS

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Thanasis Korakis, Michael Zink, Max Ott (Eds.). Testbeds and Research Infrastructure. Development of Networks and Communities. Springer. ISBN 978-3-642-35575-2

M. Zink. Scalable Video-on-Demand: Adaptive Internet-based Distribution. Wiley. October 2005. ISBN 0-470-02268-X.

## BOOK CHAPTER

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Thierry Rakotoarivelo, Guillaume Jourjon, Olivire Nehani, Max Ott, and Michael Zink. A walk through the geni experiment cycle. In *Rick McGeer, Mark Berman, Chip Elliott, and Rob Ricci, editors, The GENI Book, chapter 10, pages 266–290*. Springer, Springer Switzerland, 2016.

M. Zink, and P. Shenoy. Caching and Distribution Issues for Streaming Content

Distribution. In *Web Content Delivery*. Springer. August 2005. ISBN 0-387-24356-9.

## JOURNAL ARTICLES

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Cong Wang, Divyashri Bhat, Amr Rizk, and Michael Zink. 2017. Design and Analysis of QoE-Aware Quality Adaptation for DASH: A Spectrum-Based Approach. *ACM Transactions on Multimedia Computing, Communications and Applications*. 13, 3s, Article 45 (July 2017), 24 pages. DOI: <https://doi.org/10.1145/3092839>

Dilip Kumar Krishnappa, M. Zink, C. Griwodz, P. Halvorsen. Cache-centric Video Recommendation: An Approach to Improve the Efficiency of YouTube Caches. *ACM Transactions on Multimedia Computing, Communications and Applications*. 11(4), 48:1-48:20, 2015.

Mark Berman, Piet Demeester, Jae Woo Lee, Kiran Nagaraja, Michael Zink, Didier Colle, Dilip Kumar Krishnappa, Dipankar Raychaudhuri, Henning Schulzrinne, Ivan Seskar, Sachin Sharma. Future Internets Escape the Simulator. *Communications of the ACM*. 58(6), 78-89, 2015.

Nauman Javed, Eric Lyons, Michael Zink, Tilman Wolf. Adaptive Wireless Mesh Networks: Surviving Weather Without Sensing It. *Elsevier Computer Communications*. Vol. 54, 120-130, 2014.

Dilip Kumar Krishnappa, Eric Lyons, David Irwin, and Michael Zink, CloudCast: Cloud Computing for Short-term Weather Forecasts. *IEEE Computing Science in Science & Engineering Magazine*. 15(4), 30-37, Sep. 2013.

N. Sharma, D. Irwin, P. Shenoy, and M. Zink. MultiSense: Proportional-Share for Mechanically Steerable Sensor Networks. *Multimedia Systems Journal*, 18(5), 425-444, July 2012.

S. Khemmarat, R. Zhou, D. Kumar Krishnappa, L. Gao, and M. Zink. Watching User Generated Videos with Prefetching. *International Journal on Signal Processing: Image Communication*. 27(4), 343-359, April 2012.

M. Zink, E. Lyons, D. Westbrook, J. Kurose, D. Pepyne. Closed-loop Architecture for Distributed Collaborative Adaptive Sensing of the Atmosphere: Meteorological Command & Control. *International Journal of Sensor Networks, Inderscience*. 7(1/2), 4-18, February 2010.

D. McLaughlin, D. Pepyne, V. Chandrasekar, B. Philips, J. Kurose. M. Zink et al. Short-Wavelength Technology and the Potential for Distributed Networks of Small Radar Systems. *Bulletin of the American Meteorological Society*. 90(12), 1797-1817, January 2010.

P. Serrano, C. Bernardos, A. de la Oliva, A. Banchs and M. Zink. FloorNet: Deployment and Evaluation of a Multihop Wireless 802.11 Testbed. *EURASIP Journal on Wireless Comm. and Networking*, 2010.

E. Bass, L. Baumgart, B. Philips, K. Kloesel, K. Dougherty, H. Rodriguez, W. Donner, J. Santos, W. Diaz, and M. Zink. Incorporating Emergency Management Needs in the Development of Weather Radar Networks. *Journal of Emergency Management*. 7(1), 45-52, March 2009.

M. Zink, K. Suh, Y. Gu, and J. Kurose. Characteristics of YouTube Network Traffic at a Campus Network - Measurements, Models, and Implications. *Elsevier Computer Networks*. Vol. 53, No. 4, 501-514, March 2009.

M. Zink, J. Schmitt, and R. Steinmetz. Layer Encoded Video in Scalable Adaptive Streaming. *IEEE Transactions on Multimedia*, Vol. 7, No. 1, 75-84, February 2005.

M. Zink, J. Schmitt, and C. Griwodz. Layer-Encoded Video Streaming: A Proxy's Perspective. *IEEE Communications Magazine*, Vol. 42, No. 8, 96-103, August 2004.

## CONFERENCE PAPERS

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Denny Stohr, Alexander Frömmgen, Amr Rizk, Michael Zink, Ralf Steinmetz, Wolfgang Effelsberg. Where are the Sweet Spots? A Systematic Approach to Reproducible DASH Player Comparisons. *In Proceedings of ACM Multimedia 2017*, Mountain View, CA, Oct. 2017.

Rajvardhan Deshmukh and Michael Zink. An Information Centric Networking Approach for Sensor to Vehicular Network Communication in Disasters. *In Proceedings of the Workshop on Emergency Networks for Public Protection and Disaster Relief*, Rome, Italy, Oct. 2017.

The An Binh Nguyen, Pratyush Agnihotri, Christian Meurisch, Manisha Luthra, Rahul Dwarakanath, Jeremias Blendin, Doreen Böhnstedt, Michael Zink, Ralf Steinmetz. Efficient Crowd Sensing Task Distribution Through Context-aware NDN-based Geocast. *In Proceedings of the IEEE Conference on Local Computer Networks (LCN)*, Oct. 2017, Singapore

Amr Rizk, Michael Zink, Ramesh Sitaraman. Model-based Design and Analysis of Cache Hierarchies. *In Proceedings of IFIP Networking 2017*, Stockholm, Sweden, June 2017

Divyashri Bhat, Amr Rizk, and Michael Zink. Not so QUIC: A Performance Study of DASH over QUIC. *In Proceedings of the 27th Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV'17)*. Taipei, Taiwan, June 2017

Divyashri Bhat, Amr Rizk, Michael Zink, Ralf Steinmetz. Network Assisted Content Distribution for Adaptive Bitrate Video Streaming. *In Proceedings of the 8th International Conference on Multimedia Systems (MMSys 2017)*, Taipei, Taiwan, June 2017

Priyanka Kedalagudde and Michael Zink. Virtualizing Closed-loop Sensor Networks: A Case Study. *In Proceedings of SENSORNETS 2017*, Porto, Portugal, February 2017.

Cong Wang, Amr Rizk, Michael Zink. SQUAD: A Spectrum-based Quality Adaptation for Dynamic Adaptive Streaming over HTTP. *In Proceedings of the 7th International Conference on Multimedia Systems (MMSys 2016)*, Klagenfurt, Austria, May 2016

Denny Stohr, Alexander Frömmgen, Jan Fornoff, Michael Zink, Alejandro Buchmann, Wolfgang Effelsberg. QoE Analysis of DASH Cross-Layer Dependencies by Extensive Network Emulation. *In Proceedings of the 2016 workshop on QoE-based Analysis and Management of Data Communication Networks*, Florianopolis, Brazil, August 2016.

Cong Wang, Amr Rizk, and Michael Zink. SQUAD: A Spectrum-based Quality Adaptation for Dynamic Adaptive Streaming over HTTP. *In Proceedings of ACM MMSys*, Klagenfurt, Austria, May 2016. **Excellence in DASH Award!**

Zdravko Bozakov, Amr Rizk, Divyashri Bhat, and Michael Zink. Measurement-based Flow Characterization in Centrally Controlled Networks. *In Proceedings of the IEEE International Conference on Computer Communications INFOCOM*, San Francisco, CA, USA, April 2016.

Cong Wang, Michael Zink, and David Irwin. Optimizing Parallel HPC Applications for Green Energy Sources. *In Proceedings of the sixth Green and Sustainable Computing Conference*, Las Vegas, USA, December 2015.

Divyashri Bhat, Cong Wang, Amr Rizk, Michael Zink, A load balancing approach for adaptive bitrate streaming in Information Centric networks. *In Proceedings of Workshop on Multimedia Streaming in Information Centric Networks*. Torino, Italy, July 2015.

Dilip Kumar Krishnappa, Michael Zink, and Ramesh Sitaram. Optimizing the Video Transcoding Workflow in Content Delivery Networks. *In proceedings of the 6th ACM Multimedia Systems Conference (MMSys)*, 37-48, Portland OR, USA, February 2015.

Seo, D.-J. , B. Kerke, M. Zink, N. Fang, J. Gao, X. Yu, iSPUW: A Vision for Integrated Sensing and Prediction of Urban Water for Sustainable Cities. *In Dynamic Data-Driven Environmental System Science, Lecture Notes on Computer Science Vol. 8964*, 68-78, Boston, MA, USA, November 2014.

Divyashri Bhat, Niky Riga, Michael Zink, Towards Seamless Application Delivery using Software Defined Exchanges. *In Proceedings of Workshop on Federated Future Internet and Distributed Cloud Testbeds (FIDC)*, Karlskrona, Sweden, September 2014.

Cong Wang, Michael Zink, On the Feasibility of DASH Streaming in the Cloud. *In Proceedings of NOSSDAV 2014*, Singapore, March 2014.

Fraida Fund, Cong Wang, Yong Liu, Thanasis Korakis, Michael Zink, Shivendra Panwar, Mobile User Experience for DASH and WebRTC Video Services. *In Proceedings of International Packet Video Workshop 2013*, San Jose, CA, USA, December 2013.

Dilip Kumar Krishnappa, Divyashri Bhat, and Michael Zink, DASHing YouTube:

- An Analysis of Using DASH in YouTube Video Service. In *Proceedings of the IEEE Conference on Local Computer Networks (LCN), Sydney, Australia, October 2013*.
- Nauman Javed, Michael Zink, Eric Lyons, and Tilman Wolf, Adaptive Wireless Mesh Networks: Surviving Weather Without Sensing It. In *Proceedings of the 7th Workshop on Wireless Mesh and Ad Hoc Networks (WIMAN), Nassau, Bahamas, July 2013*.
- Tilman Wolf, Michael Zink, and Anna Nagurney, The Cyber-Physical Marketplace: A Framework for Large-Scale Horizontal Integration in Distributed Cyber-Physical Systems. In *Proceedings of the Third International Workshop on Cyber-Physical Networking Systems, Philadelphia, PA, USA, July 2013*.
- Fraida Fund, Cong Wang, Yong Liu, Thanasis Korakis, Michael Zink, Shivendra Panwar, GENI WiMAX Performance: Evaluation and Comparison of Two Campus Testbeds. In *Proceedings of the Second GENI Research and Educational Experiment (GREE) Workshop, Salt Lake City, UT, March 2013*. **Best paper award!**
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