

SIGMETRICS/PERFORMANCE 2012

MONDAY MORNING

1

GreenMetrics

W-PIN

08:30
Registration opens

Keynote
09:00 **Challenges in multi-modal transport planning**
Jochen Mundinger
308

Keynote
09:00 **Economics, QoS, and charging in the next great telecom revolution**
Andrew Odlyzko
311

Paper Session: Greener IT
10:00 **Measuring Energy Consumption for Short Code Paths Using RAPL**
Marcus Hähnel, Björn Döbel, Marcus Völp, Hermann Härtig
10:20 **Empirical Evaluation of Power Saving Policies for Data Centers**
Michele Mazzucco, Isi Mitrani
10:40 **Evaluating the Need for Complexity in Energy-aware Management for Cloud Platforms**
Pooja Ghumre, Junwei Li, Mukil Kesavan, Ada Gavrilovska, Karsten Schwan
308

Paper Session: Neutrality
10:00 **Comparison of Search Engines Non-Neutral and Neutral Behaviors**
Pierre Coucheny, Patrick Maillé and Bruno Tuffin
10:30 **Game Theoretic Analysis of Collusions in Nonneutral Networks**
Manjesh Kumar Hanawal, Eitan Altman and Rajesh Sundaresan
311

11:00
Break
344

Invited Talks
11:30 **Stochastic Analysis of Real and Virtual Energy Storage in the Smart Grid**
Jean-Yves Le Boudec
12:15 **Branch Flow Model: Relaxations, Convexification, Computation**
Steven Low
308

Paper Session: Pricing and QoS
11:30 **Guaranteeing User Welfare in Network Service: Comparison of Two Subsidy Schemes**
Seung Min Yu and Seong-Lyun Kim
12:00 **Newsvendor Model Of Capacity Sharing**
Randall Berry, Michael Honig, Thanh Nguyen, Vijay Subramanian, Hang Zhou and Rakesh Vohra
12:30 **Price Differentiation in the Kelly Mechanism**
Richard T. B. Ma, Dah Ming Chiu, John Chi Shing Lui, Vishal Misra and Dan Rubenstein
311

13:00 – 14:00
Lunch Break
344

SIGMETRICS/PERFORMANCE 2012 MONDAY MORNING

2

SIGMETRICS Tutorials

SIGMETRICS Tutorials

08:30
Registration opens

09

09:30 **Micro and macro views of discrete state Markov models and their application to efficient simulation with Phase-type distributions Part 1**
Philipp Reinecke, Miklós Telek and Katinka Wolter

145

09:30 **PoTrA: A framework for Building Power Models For Next Generation Multicore Architectures Part 1**
Ramon Bertran and Marc Gonzalez

343

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11:00
Break

344

11:30 **Micro and macro views of discrete state Markov models and their application to efficient simulation with Phase-type distributions Part 2**
Philipp Reinecke, Miklós Telek and Katinka Wolter

145

11:30 **PoTrA: A framework for Building Power Models For Next Generation Multicore Architectures Part 2**
Ramon Bertran and Marc Gonzalez

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13:00 – 14:00
Lunch Break

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SIGMETRICS/PERFORMANCE 2012

MONDAY AFTERNOON

3

| | GreenMetrics | W-PIN |
|----|--|---|
| 14 | | |
| 15 | <p>Invited Talks</p> <p>14:30 Evaluation of the Impacts of Geographically-Correlated Failures on Power Grids Gil Zussman</p> | <p>Keynote</p> <p>14:00 Unbundling the incumbent: Evidence from UK broadband Tommaso Valletti</p> |
| 16 | <p>15:15 Real-time distributed control of electrical vehicle charging Catherine Rosenberg</p> <p>308</p> | <p>Paper Session: Transit and Peering</p> <p>15:00 The price of tussles: bankrupt in cyberspace? Zied Ben Houidi and Hélia Pouyllau</p> <p>15:30 Peering Strategy adoption by Transit Providers in the Internet: A Game Theoretic approach Aemen Lodhi, Amogh Dhamdhere and Constantine Dovrolis</p> <p>311</p> |
| 16 | <p>16:00</p> <p>Break</p> <p>344</p> | |
| 17 | <p>Paper Session: Smarter Grids</p> <p>16:30 On the Impact of Storage in Residential Power Distribution Systems Omid Ardakanian, Catherine Rosenberg, S. Keshav</p> <p>16:50 Electric Grid Balancing through Low-Cost Workload Migration David Chiu, Christopher Stewart, Bart McManus</p> <p>17:10 Survivability Analysis of Distribution Automation Networks with Reactive Power Compensation D. S. Menasche, R. M. M. Leao, E. de Souza e Silva, A. Avritzer, S. Suresh, K. S. Trivedi, R. Marie, L. Happe, A. Koziolk</p> <p>308</p> | <p>Paper Session: Infrastructure and Network Formation</p> <p>16:30 Pricing of insurance policies against cloud storage price rises Loretta Mastroeni and Maurizio Naldi</p> <p>17:00 ISP vs. ISP+CDN: Can ISPs in Duopoly Profit by Introducing CDN Services? Dongmyung Lee, Jeonghoon Mo and Jinwoo Park</p> <p>17:30 On Greedy Network Formation András Gulyás, Attila Kőrösi, Dávid Szabó and Gergely Biczók</p> <p>311</p> |
| 18 | | |

SIGMETRICS/PERFORMANCE 2012 MONDAY AFTERNOON

SIGMETRICS Tutorials

SIGMETRICS Tutorials

14:30 **Basic Theory and some Applications of Martingales Part 1**
Richard A. Hayden

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14:30 **Applications of Machine Learning to Performance Evaluation**
by Edmundo de Souza e Silva and Daniel Sadoc Menasche

343

16:00

Break

344

16:30 **Basic Theory and some Applications of Martingales Part 2**
Richard A. Hayden

145

16:30 **Introduction to Network Experiments using the GENI CyberInfrastructure**
Jay Aikat and Kevin Jeffay

343

18:00

Student Poster Session Set Up

Physics Common Room

18:30 – 21:00

Student Poster Session and Main Conference Opening Reception

Physics Common Room

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SIGMETRICS/PERFORMANCE 2012

TUESDAY

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| | | | |
|----|--------------------------------|---|---------------------|
| 08 | 07:45 | Registration opens | |
| | 08:30 | Opening Remarks | 308 |
| 09 | Keynote | 08:45 Performance Implications of Flash and Storage Class Memories Naresh Patel | 308 |
| 10 | Scheduling & Load Balancing I | 09:45 Delay Tails in MapReduce Scheduling Jian Tan, Xiaoqiao Meng and Li Zhang | 308 |
| | | 10:15 Optimal Queue-Size Scaling in Switched Networks Devavrat Shah, Neil Walton and Yuan Zhong | |
| 11 | 10:45 | Break | 344 |
| 12 | Scheduling & Load Balancing II | 11:15 Minimizing Slowdown in Heterogeneous Size-Aware Dispatching Systems Esa Hyttiä, Samuli Aalto and Aleksi Penttinen | 308 |
| | | 11:45 Bipartite Graph Structures for Efficient Balancing of Heterogeneous Loads Mathieu Leconte, Marc Lelarge and Laurent Massoulié | |
| 13 | 12:15 | Lunch Break | 344 |
| 14 | Characterization | 13:30 Workload Analysis of a Large-Scale Key-Value Store Berk Atikoglu, Yuehai Xu, Eitan Frachtenberg, Song Jiang and Mike Paleczny | 308 |
| | | 14:00 A First Look at Cellular Machine-to-Machine Traffic – Large Scale Measurement and Characterization Muhammad Zubair Shafiq, Lusheng Ji, Alex X. Liu, Jeffrey Pang and Jia Wang | |
| 15 | | 14:30 Bundling Practice in BitTorrent: What, How, and Why Jinyoung Han, Seungbae Kim, Taejoong Chung, Ted T. Kwon, Hyun-chul Kim and Yanghee Choi | |
| | 15:00 | Break | 344 |
| 16 | Networking | 15:30 Energy-Efficient Congestion Control Lingwen Gan, Anwar Walid and Steven Low | 308 |
| | | 16:00 Uniform Approximation of the Distribution for the Number of Retransmissions of Bounded Documents Predrag Jelenkovic and Evangelia D. Skiani | |
| 17 | | 16:30 Fluid Limit of an Asynchronous Optical Packet Switch with Shared per Link Full Range Wavelength Conversion Benny Van Houdt and Luca Bortolussi | |
| | | 17:00 Towards Optimal Error-Estimating Codes through the Lens of Fisher Information Analysis Nan Hua, Ashwin Lall, Baochun Li and Jun Xu | |
| 18 | 18:00 | Poster Session Set Up | Physics Common Room |
| | 18:30 – 21:00 | Main Conference Poster Session | Physics Common Room |

SIGMETRICS/PERFORMANCE 2012

WEDNESDAY

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|----|--------------------|--|-----------------------|
| 08 | 08:00 | Registration opens | |
| 09 | Award Lecture | 08:30 SIGMETRICS Achievement Award Winner's Lecture Debasis Mitra | 308 |
| 10 | Pricing | 09:30 How Well Can Congestion Pricing Neutralize Denial of Service Attacks? Ashish Vulimiri, Philip B. Godfrey, Karthik Lakshminarayanan and Gul A. Agha | |
| | | 10:00 Pricing Cloud Bandwidth Reservations under Demand Uncertainty Di Niu, Chen Feng and Baochun Li | 308 |
| 11 | 10:30 | Break | 344 |
| 12 | Green Data Centers | 11:00 Temperature Management in Data Centers: Why Some (Might) Like It Hot Nosayba El-Sayed, Ioan A. Stefanovici, George Amvrosiadis, Andy A. Hwang and Bianca Schroeder | |
| | | 11:30 Renewable and Cooling Aware Workload Management for Sustainable Data Centers Z. Liu, Y. Chen, C. Bash, A. Wierman, D. Gmach, Z. Wang, M. Marwah and C. Hyser | |
| | | 12:00 Energy Storage in Datacenters: What, Where, and How much? Di Wang, Chuangang Ren, Anand Sivasubramaniam, Bhuvan Urgaonkar and Hosam Fathy | 308 |
| 13 | 12:30 | Lunch Break | 344 |
| 14 | Keynote | 13:30 High-Performance Computing in Mobile Services Zhen Liu | 308 |
| 15 | Epidemics | 14:30 Rumor Centrality: A Universal Source Detector Devavrat Shah and Tauhid Zaman | |
| | | 15:00 Learning the Graph of Epidemic Cascades Praneeth Netrapalli and Sujay Sanghavi | |
| 16 | | 15:30 Network Forensics: Random Infection vs Spreading Epidemic Chris Milling, Constantine Caramanis, Shie Mannor and Sanjay Shakkottai | 308 |
| 16 | 16:00 | Break | 344 |
| 17 | Memory and Storage | 16:15 What is a Good Buffer Cache Replacement Scheme for Mobile Flash Storage? Hyojun Kim, Moonkyung Ryu and Umakishore Ramachandran | |
| | | 16:45 Versatile Refresh: Low Complexity Refresh Scheduling for High-throughput Multi-banked eDRAM Mohammad Alizadeh, Adel Javanmard, Shang-Tse Chuang, Sundar Iyer and Yi Lu | 308 |
| 18 | 17:45 | Travel to Banquet on London Routemaster bus | Queen's Gate Entrance |
| 19 | 18:45 - 22:45 | Banquet | Westminster Pier |

SIGMETRICS/PERFORMANCE 2012

THURSDAY

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| 08 | | | |
| 08:30 | | Registration opens | |
| 09 | | | |
| Award Lecture | 09:00 | SIGMETRICS Rising Star Award Winner's Lecture Winner TBA | 308 |
| System Performance I | 10:00 | Does Lean Imply Green? A Study of the Power Performance Implications of Java Runtime Bloat Suparna Bhattacharya, Karthick Rajamani, K. Gopinath and Manish Gupta | |
| | 10:30 | D-Factor: A Quantitative Model of Application Slow-Down in Multi-Resource Shared Systems Seung-Hwan Lim, Jae-Seok Huh, Youngjae Kim, Galen M. Shipman and Chita R. Das | 308 |
| 11 | 11:00 | Break | 344 |
| System Performance II | 11:30 | ADP: Automated Diagnosis of Performance Pathologies Using Hardware Events Wucherl Yoo, Kevin Larson, Lee Baugh, Sangkyum Kim and Roy H. Campbell | |
| | 12:00 | Providing Fairness on Shared-Memory Multiprocessors via Process Scheduling Di Xu, Chenggang Wu, Pen-Chung Yew, Jianjun Li and Zhenjiang Wang | 308 |
| 12:30 | | | |
| 13 | | Lunch Break | 344 |
| Graphs | 13:30 | Characterizing Continuous Time Random Walks on Time Varying Graphs Daniel Figueiredo, Philippe Nain, Bruno Ribeiro, Edmundo de Souza e Silva and Don Towsley | |
| | 14:00 | Beyond Random Walk and Metropolis-Hastings Samplers Chul-Ho Lee, Xin Xu and Do Young Eun | |
| | 14:30 | Clustered Embedding of Massive Social Networks H. H. Song, B. Savas, T. W. Cho, V. Dave, Z. Lu, I. S. Dhillon, Y. Zhang and L. Qiu | 308 |
| 15 | 15:00 | Break | 344 |
| Sampling and Ranking | 15:30 | Don't Let The Negatives Bring You Down: Sampling from Streams of Signed Updates Edith Cohen, Graham Cormode and Nick Duffield | |
| | 16:00 | Efficient Rank Aggregation Using Partial Data Ammar Ammar and Devavrat Shah | |
| | 16:30 | Fair Sampling Across Network Flow Measurements Nick Duffield | 308 |
| 17 | 17:00 | Closing remarks | 308 |
| 17:30 | | | |
| 18 | | Industrial Fair | 308 |
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SIGMETRICS/PERFORMANCE 2012

FRIDAY

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| | MAMA | NetFPGA |
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| 08 | 08:00 Registration opens | |
| 09 | 08:30 Uptime and Downtime Analysis for Hierarchical Redundant Systems in Telecommunications E.G. Coffman, Jr., Y. Kogan, W. Lai, V. Ramaswami | |
| 10 | 09:00 Optimal Congestion Control of TCP Flows for Internet Routers K. Avrachenkov, U. Ayesta, J. Doncel, P. Jacko | 09:00 NetFPGA Andrew W. Moore |
| | 09:30 Temporal Load Balancing for Distributed Backup Scheduling A. Schorgendorfer, P.M. van de Ven, B. Zhang | |
| | 10:00 Efficient Replication in Multi-Regional Peer-Supported VoD Systems Y. Rochman, H. Levy, E. Brosh 311 | |
| | 10:30 Break | 344 |
| 11 | 11:00 Pricing and Queueing C. Borgs, J.T. Chayes, S. Doroudi, M. Harchol-Balter, K. Xu | 11:00 NetFPGA Andrew W. Moore |
| 12 | 11:30 Stochastic Bounds for Randomized Load Balancing A.S. Godtschalk, F. Ciucu | |
| | 12:00 Estimating Queue Length Distributions for Queues with Random Arrivals D.S. Myers, M.K. Vernon 311 | |
| 13 | 12:30 Lunch Break | |
| 14 | 13:30 Modeling Response Times in the Google ROADEF/EURO Challenge P. Cremonesi, A. Sansottera | 13:30 NetFPGA Andrew W. Moore |
| | 14:00 Provisioning for Large Scale Loss Network Systems with Applications in Cloud Computing Y. Tan, Y. Lu, C.H. Xia | |
| 15 | 14:30 Cyber-Insurance for Cyber-Security: A Topological Take on Modulating Insurance Premiums R. Pal, P. Hui 311 | |
| | 15:00 Break | |
| 16 | 15:30 Meeting the Fairness Deadline in Speed Scaling Systems: Is Turbocharging Enough? M. Elahi, C. Williamson, P. Woelfel | 15:30 NetFPGA Andrew W. Moore |
| | 16:00 Analysis of the Large Number of Hosts Asymptotics of SITA Queues E. Bachmat, A. Natanzon | |
| 17 | 16:30 Rate-Optimal Scheduling Schemes for Asynchronous Input-Queued Packet Switches T. Bonald, D. Cuda | |
| | 17:00 Online Optimization with Switching Cost M. Lin, A. Wierman, A. Roytman, A. Meyerson, L.L.H. Andrew 311 | 343 |
| | 17:30 Short Break | 344 |
| 18 | 17:45 Far-Out Vertices in Weighted Repeated Configuration Model B. Błaszczyszyn, K. Gaurav | |
| | 18:15 Replaying the Geometric Growth of Complex Networks and Application to the AS Internet F. Papadopoulos, C. Psomas, D. Krioukov | |
| 19 | 18:45 Network Criticality in Vehicular Networks A. Tizghadam, W. Li, A. Leon-Garcia 311 | |

SIGMETRICS/PERFORMANCE 2012 FRIDAY

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PADE

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|----|------------|---|-----|
| 08 | 08:00 | Registration opens | |
| 09 | Keynote | 09:00 Dealing with the digital dilemma – Dodging digital exhaust while delivering trust Malcolm Crompton | 308 |
| 10 | Session I | 09:45 Two New Economic Models for Privacy Shah Mahmood, Yvo Desmedt | |
| | | 10:07 An architecture for ethical and privacy-sensitive social network experiments Luke Hutton, Tristan Henderson | 308 |
| 11 | 10:30 | Break | 344 |
| | Keynote | 11:00 Addressing the privacy management crisis in online social networks Krishna P. Gummadi | 308 |
| 12 | Session II | 11:45 On the Privacy Risks of Linking Complementary Information from Free Versions of People Databases Minaxi Gupta, Yuqing Wu, Swapnil S. Joshi, Aparna Tiwari, Ashish Nair, Ezhilan Ilangovan | |
| | | 12:07 How (not) to Build a Transport Layer for Anonymity Overlays Florian Tschorsch, Bjorn Scheuermann | 308 |
| 13 | 12:30 | Lunch Break | 344 |