

2012 IEEE 37th Conference on Local Computer Networks

(LCN 2012)

**Clearwater Beach, Florida, USA
22 – 25 October 2012**



**IEEE Catalog Number: CFP12068-PRT
ISBN: 978-1-4673-1565-4**

10:00 - 10:30

Coffee break

10:30 - 12:00

1A: Plenary session: Best Paper Candidates

Rooms: Beach, Gulf

Chair: Anura P Jayasumana (Colorado State University, USA)

10:30 Facilitating Non-Collocated Coexistence for WiFi and 4G Wireless Networks

Punit Ashok Rathod (Indian Institute of Technology Bombay, India); Abhay Karandikar (IIT Bombay, India); Anirudha Sahoo (IIT Bombay, India)
pp. 1-9

11:00 A Privacy-Preserving Reputation System for Participatory Sensing

Kuan Lun Huang (University of New South Wales & CSIRO Australia, Australia); Salil Kanhere (The University of New South Wales, Australia); Wen Hu (Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia)
pp. 10-18

11:30 Secure Sensor Network SUM Aggregation with Detection of Malicious Nodes

Sunoh Choi (Purdue University, USA); Gabriel Ghiniță (University of Massachusetts Boston, USA); Elisa Bertino (Purdue University, USA)
pp. 19-27

12:00 - 13:20

Lunch break

13:20 - 15:00

2A: Mobility Modeling and Management in Wireless Networks

Room: Beach

Chair: Ehab S. Elmallah (University of Alberta, Canada)

13:20 Interconnecting Disjoint Network Segments Using a Mix of Stationary and Mobile Nodes

Ahmad Abbas (University of Maryland, Baltimore County, USA); Mohamed Younis (University of Maryland Baltimore County, USA)
pp. 28-35

13:45 Modeling Visitor Movement in Theme Parks

Gürkan Solmaz (University of Central Florida, USA); Mustafa İ Akbaş (University of Central Florida, USA); Damla Turgut (University of Central Florida, USA)
pp. 36-43

14:10 Comparison of Anchor Selection Algorithms for Improvement of Position Estimation During the Wi-Fi Localization Process in Disaster Scenario

Oleksandr Artemenko (Ilmenau University of Technology, Germany); Tobias Simon (TU Ilmenau, Germany); Andreas Mitschele-Thiel (Ilmenau University of Technology, Germany); Dominik Schulz (Ilmenau University of Technology, Germany); Rheza Satria Ta (Swiss German University, Tangerang, Indonesia)
pp. 44-49

14:35 TOMP: Opportunistic Traffic Offloading Using Movement Predictions

Patrick Baier (University of Stuttgart, Germany); Frank Dürr (University of Stuttgart, Germany); Kurt Rothermel (University of Stuttgart, Germany)

2B: Network Traffic Measurement and Characterization

Room: Gulf

Chair: Burkhard Stiller (University of Zürich & ETH Zürich, TIK, Switzerland)

13:20 Monitoring Traffic Activity Graphs with Low-rank Matrix Approximation

Yang Liu (Iowa State University, USA); Wenji Chen (Iowa State University, USA); Yong Guan (Iowa State University, USA)
pp. 59-67

13:45 Sub-flow Packet Sampling for Scalable ML Classification of Interactive Traffic

Sebastian Zander (Swinburne University of Technology, Australia); Thuy Thi Thu Nguyen (Swinburne University of Technology, Australia); Grenville Armitage (Swinburne university of Technology, Australia)
pp. 68-75

14:10 Decoupling Non-Stationary and Stationary Components in Long Range Network Time Series in the Context of Anomaly Detection

Cyriac James (Indian Institute of Technology Madras, India); Hema A Murthy (Indian Institute of Technology Madras, India)
pp. 76-84

14:35 Rapid and Generalized Identification of Packetized Voice Traffic Flows

Philip Branch (Swinburne University of Technology, Australia); Jason But (Swinburne University, Australia)
pp. 85-92

2C: Security, Privacy and Anonymity

Room: Palm

Chair: Gary Craig Kessler (Embry-Riddle Aeronautical University & Edith Cowan University, USA)

13:20 Multi-Resolution Elliptic Curve Digital Signature

Panoat Chuchaisri (University of Florida, USA); Richard E. Newman (University of Florida, USA)
pp. 93-101

13:45 Applicability of Crypto-based Security Approaches in Tactical Wireless Multi-hop Networks

Nils Aschenbruck (University of Osnabrück, Germany); Elmar Gerhards-Padilla (Fraunhofer FKIE, Germany); Martin Lambertz (University of Bonn, Germany)
pp. 102-110

14:10 3DSVAT: A 3D Stereoscopic Vulnerability Assessment Tool for Network Security

Troy Nunnally (Georgia Institute of Technology, USA); Selcuk Uluagac (Georgia Institute of Technology & The School of ECE, USA); John A. Copeland (Georgia Institute of Technology, USA); Raheem Beyah (Georgia Institute of Technology, USA)
pp. 111-118

14:35 Efficient Construction of Directed Redundant Steiner Trees

Yigal Bejerano (Bell-Labs, Alcatel-Lucent, USA); Suman Jana (University of Texas at Austin, USA); Pramod Koppol (Bell Labs, Alcatel-Lucent, USA)
pp. 119-127

Demonstration setup

Room: Bay

Posters with Tea

Rooms: [Island 2, Bay](#)

Chair: Damla Turgut (University of Central Florida, USA)

Intrusion Detection in Computer Networks Using Optimum-Path Forest Clustering

Kelton Costa (UNESP, Brazil); Clayton Pereira (UNESP - Univ Estadual Paulista, Brazil); Rodrigo Nakamura (Unesp Univ Estadual Paulista, Brazil); Joao Papa (UNESP - Univ Estadual Paulista, Brazil)
pp. 128-131

A Study of P2P Traffic Localization by Network Delay Insertion

HyunYong Lee (The University of Tokyo, Japan); Akihiro Nakao (University of Tokyo, Japan)
pp. 132-135

Automatic Generation of Extended Dependency Graphs for Network Security

Heiko Günther (Fraunhofer FKIE, Germany); Marko Jahnke (Fraunhofer Inst. for Communication, Information Processing and Ergonomics (FKIE), Germany)
pp. 136-139

A Key Distribution Protocol for Wireless Sensor Networks

Adrian Herrera (Defence Science & Technology Organisation, Australia); Wen Hu (Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia)
pp. 140-143

On Bandwidth Reservation for Optimal Resource Utilization in High-performance Networks

Poonam Dharam (University of Memphis, USA); Qishi Wu (University of Memphis & Oak Ridge National Laboratory, USA); Michelle Mengxia Zhu (Southern Illinois University Carbondale, USA)
pp. 144-147

HydroNode: a Low Cost, Energy Efficient, Multi Purpose Node for Underwater Sensor Networks

David Pinto (Universidade Federal de Minas Gerais, Brazil); Sadraque Viana (Universidade Federal de Minas Gerais, Brazil); José Augusto Miranda Nacif (Universidade Federal de Viçosa, Brazil); Luiz F. M. Vieira (Universidade Federal de Minas Gerais, Brazil); Marcos A. M. Vieira (Federal University of Minas Gerais, Brazil); Alex Borges Vieira (Universidade Federal de Juiz de Fora, Brazil); Antonio Otávio Fernandes (Federal University of Minas Gerais, Brazil)
pp. 148-151

On the Distribution of Inter Contact Time for DTNs

Yuting Hu (Beihang University, P.R. China); Haiquan Wang (Beihang University, P.R. China); Chunhe Xia (Beihang University, P.R. China); Weiguo Li (Beihang University, P.R. China); Ying Yang (Beihang University, P.R. China)
pp. 152-155

Reliable Communications in Aerial Sensor Networks by Using A Hybrid Antenna

Kai Li (University of New South Wales, Australia); Nadeem Ahmed (University of New South Wales, Australia); Salil Kanhere (The University of New South Wales, Australia); Sanjay Jha (University of NSW, Australia)
pp. 156-159

A New Design of the IEEE 802.11 MAC Layer to Enhance the Scalability of the DMS Service

Yousri Daldoul (LaBRI - University of Bordeaux 1 & France Telecom - Orange Labs, France); Djamel-Eddine Meddour (Orange Labs, France); Toufik Ahmed (University of Bordeaux-1 / CNRS-LaBRI, France)
pp. 160-163

A Secure Monitoring and Control System for Wireless Sensor Networks

Michael Riecker (Technische Universität Darmstadt, Germany); Rainer Thome (Technische Universität Darmstadt, Germany); Dingwen Yuan (Technische Universität Darmstadt, Germany); Matthias Hollick (Technische Universität Darmstadt & Secure Mobile Networking Lab, Center for Advanced Security Research Darmstadt, Germany)
pp. 164-167

Timed Redirection: HTTP Request Coalescing to Reduce Energy Use of Hybrid Web Servers

Mehrgan Mostowfi (University of South Florida, USA); Ken Christensen (University of South Florida, USA); SangHak Lee (Korea Electronics Technology Institute, Korea); Jungmee Yun (Korea Electronics Technology Institute, Korea)
pp. 168-171

Application-aware Adaptive Duty Cycle-based Medium Access Control for Energy Efficient Wireless Data Transmissions

Yang Song (Dublin City University, Ireland); Bogdan Ciubotaru (Dublin City University, Ireland); Gabriel-Miro Muntean (Dublin City University, Ireland)
pp. 172-175

A Context-aware Cross-layer Energy-efficient Adaptive Routing Algorithm for WLAN Communications

Ruiqi Ding (Dublin City University, Ireland); Gabriel-Miro Muntean (Dublin City University, Ireland)
pp. 176-179

A Wireless Mesh Sensor Network for Hazard and Safety Monitoring At the Port of Brisbane

Amin Ahmadi (National ICT Australia (NICTA), Australia); Abbas Bigdeli (National ICT Australia, Australia); Mahsa Baktashmotlagh (University of Queensland & NICTA, Australia); Brian C Lovell (NICTA, Australia)
pp. 180-183

Active Breadcrumbs: Aggressive Distribution Method of In-network Guidance Information for Content-Oriented Networks

Masayuki Kakida (Osaka Prefecture University, Japan); Yosuke Tanigawa (Osaka Prefecture University, Japan); Hideki Tode (Osaka Prefecture University, Japan)
pp. 184-187

Information Fusion Techniques Applied to Shared Sensor and Actuator Networks

Claudio M. de Farias (Universidade Federal do Rio de Janeiro, Brazil); Luci Pirmez (Federal University of Rio de Janeiro, Brazil); Flávia Coimbra Delicato (Federal University of Rio de Janeiro, Brazil); Igor L. Dos Santos (Universidade Federal do Rio de Janeiro, Brazil); Albert Zomaya (The University of Sydney, Australia)
pp. 188-191

DYAMAND: DYnamic, Adaptive Management of Networks and Devices

Jelle Nelis (Ghent University - IBBT, Belgium); Tom Verschueren (Ghent University, Belgium); Dieter Verslype (Ghent University - IBBT, Belgium); Chris Develder (Ghent University - IBBT, Belgium)
pp. 192-195

Strategies for Automatic Labelling of Web Traffic Traces

Luis Miguel Torres (Universidad Pública de Navarra, Spain); Eduardo Magaña (Universidad Pública de Navarra, Spain); Mikel Izal (Public University of Navarra (UPNA), Spain); Daniel Morato (Universidad Pública de Navarra, Spain)
pp. 196-199

On the Impact of Wireless Network Traffic Location and Access Technology on Mobile Device Energy Consumption

Ramona Trestian (Dublin City University & IBM, Ireland); Olga B. Ormond (Dublin City University, Ireland); Gabriel-Miro Muntean (Dublin City University, Ireland)
pp. 200-203

Applying Temporal Feedback to Rapid Identification of BitTorrent Traffic

Jason But (Swinburne University, Australia); Philip Branch (Swinburne University of Technology, Australia)
pp. 204-207

Decision Centric Identification and Rank Ordering of Security Metrics

Moazzam Khan (Georgia Institute of Technology, USA); Mohammad Omer (Georgia Institute of Technology, USA); John A. Copeland (Georgia Institute of Technology, USA)
pp. 208-211

DELTA: Delta Encoding for Less Traffic for Apps

Nikolai Samteladze (University of South Florida, USA); Ken Christensen (University of South Florida, USA)
pp. 212-215

LT-OLSR: Attack-Tolerant OLSR Against Link Spoofing

Yuseok Jeon (The Attached Institute of ETRI, Korea); Tae-Hyung Kim (The Attached Institute of ETRI, Korea); Yuna Kim (Pohang University of Science and Technology, Korea); Jong Kim (Pohang University of Science and Technology, Korea)
pp. 216-219

Modelling Packet Loss in RTP-based Streaming Video for Residential Users

Martin Ellis (University of Glasgow, United Kingdom); Dimitrios P. Pazaros (University of Glasgow, United Kingdom); Theodore Kypraios (University of Nottingham, United Kingdom); Colin Perkins (University of Glasgow, United Kingdom)
pp. 220-223

Protecting IEEE 802.11s Wireless Mesh Networks Against Insider Attacks

Andreas Reinhardt (Technische Universität Darmstadt, Germany); Daniel Seither (Technische Universität Darmstadt, Germany); Andre König (TU Darmstadt, Germany); Ralf Steinmetz (Technische Universität Darmstadt, Germany); Matthias Hollick (Technische Universität Darmstadt & Secure Mobile Networking Lab, Center for Advanced Security Research Darmstadt, Germany)
pp. 224-227

On the Feasibility of Secure Application-Layer Communications on the Web of Things

Jorge Granjal (University of Coimbra, Polo 2 & Dep. Informatics Engineering, Portugal); Edmundo Monteiro (University of Coimbra, Portugal); Jorge Sá Silva (University of Coimbra, Portugal)

pp. 228-231

A Cross Layer Approach to the Novel Distributed Scheduling Protocol and Event-triggered Controller Design for Cyber Physical Systems

Hao Xu (Missouri University of Science and Technology, USA); Sarangapani Jagannathan (Missouri University of Science and Technology, USA)

pp. 232-235

A Differential Game Theoretic Model for Real-Time Spectrum Pricing in Cognitive Radio Networks

Dong Hao (Kyushu University, Japan); Atsushi Iwasaki (Kyushu University, Japan); Makoto Yokoo (Kyushu University, Japan)

pp. 236-239

Cache Isolation and Thin Provisioning of Hypervisor Caches

Vidya Suryanarayana (Wichita State University, USA); Karthik Mylar Balasubramanya (Wichita State University, USA); Ravi Pendse (Wichita State University, USA)

pp. 240-243

Flow-Path: An AllPath Flow-based Protocol

Elisa Rojas (Universidad de Alcalá (UAH) Madrid, Spain); Guillermo Ibáñez (Universidad de Alcalá. Escuela Politécnica Superior, Spain); Diego Rivera (Universidad de Alcalá, Spain); Juan A. Carral (Universidad de Alcalá. Escuela Politécnica Superior, Spain)

pp. 244-247

Plugging the Leaks Without Unplugging Your Network in the Midst of Disaster

Aaron Goldman (Georgia Institute of Technology, USA); Selcuk Uluagac (Georgia Institute of Technology & The School of ECE, USA); Raheem Beyah (Georgia Institute of Technology, USA); John A. Copeland (Georgia Institute of Technology, USA)

pp. 248-251

An Optimised Dynamic Resource Allocation Algorithm for Cloud's Backbone Network

Ilhem Fajjari (Ginkgo Networks & University Pierre et Marie Curie, France); Nadjib Aitsaadi (University of Paris-Est Creteil - UPEC, France); Guy Pujolle (University Pierre et Marie Curie - Paris 6, France); Hubert Zimmermann (Ginkgo Networks, France)

pp. 252-255

Distributed Data Filtering in Logistics Wireless Sensor Networks Based on Transmission Relevance

Sebastian Zöller (Technische Universität Darmstadt, Germany); Andreas Reinhardt (Technische Universität Darmstadt, Germany); Ralf Steinmetz (Technische Universität Darmstadt, Germany)

pp. 256-259

Towards an Architecture for Mobile Healthcare

Paul J Dillon (University of Pittsburgh, USA); Taieb Znati (University of Pittsburgh, USA)

pp. 260-263

TDMA for Wireless Passive Backscatter Networks: An Information Theoretic Approach

Aditya V Padaki (Missouri University of Science and Technology, USA); Maciej Zawodniok (Missouri University of Science and Technology, USA)

pp. 264-267

Autonomous Dynamic Transmission Scheduling Based on Neighbor Node Behavior for Multihop Wireless Networks

Daiki Nobayashi (Kyushu Institute of Technology, Japan); Yutaka Fukuda (Kyushu Institute of Technology, Japan); Takeshi Ikenaga (Kyushu Institute of Technology, Japan)

pp. 268-271

Power-Aware Routing in Networks with Delay and Link Utilization Constraints

Gongqi Lin (Curtin University of Technology, Australia); Sieteng Soh (Curtin University of Technology, Australia); Mihai M Lazarescu (Curtin University, Australia); Kwan-Wu Chin (University of Wollongong, Australia)

pp. 272-275

Resource and Query Aware, Peer-to-Peer-Based Multi-Attribute Resource Discovery

Herath Mudiyansele Nelanga Dilum Bandara (Colorado State University & University of Moratuwa, USA); Anura P Jayasumana (Colorado State University, USA)

pp. 276-279

Detecting Protocol Switching Covert Channels

Steffen Wendzel (University of Hagen & Augsburg University of Applied Sciences, Germany);
Sebastian Zander (Swinburne University of Technology, Australia)
pp. 280-283

Time Series Matrix Factorization Prediction of Internet Traffic Matrices

Yunlong Song (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Min
Liu (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Shaojie Tang
(Illinois Institute of Technology, USA); Xufei Mao (Tsinghua University, P.R. China)
pp. 284-287

An Opportunistic Multicast Routing Protocol for Wireless Mesh Networks

Abdoulmenim Bilh (University of New South Wales, Australia); Chun Tung Chou (University of New
South Wales, Australia)
pp. 288-291

Performance Evaluation of Sub 1 GHz Wireless Sensor Networks for the Smart Grid

Stefan Aust (NEC Communication Systems, Ltd., Japan); Venkatesha Prasad (Delft University of
Technology, The Netherlands); Ignas G.M.M. Niemegeers (Delft University of Technology, The
Netherlands)
pp. 292-295

Distributed Client-Server Assignment

Thuan Duong-Ba (Oregon State University, USA); Thanh Nguyen (Oregon State, USA)
pp. 296-299

Detecting Covert Communication on Android

Michael Hansen (Indiana University, USA); Raquel Hill (Indiana University, USA); Seth Wimberly
(Indiana University, USA)
pp. 300-303

A Modular and Power-Intelligent Architecture for Wireless Sensor Nodes

David Riley (University of Maryland Baltimore County & Mantaro Product Development Services,
USA); Mohamed Younis (University of Maryland Baltimore County, USA)
pp. 304-307

An RSSI-Based Navigation Algorithm for a Mobile Robot in Wireless Sensor Networks

Antonio Ramos de Carvalho, Jr. (FUCAPI - Research and Technological Innovation Center, Brazil);
Afonso Ribas (FUCAPI - Research and Technological Innovation Center, Brazil); Vilar F da Camara
Neto (FUCAPI - Research and Technological Innovation Center, Brazil); Eduardo Freire Nakamura
(FUCAPI - Research and Technological Innovation Center, Brazil); Carlos Maurício Figueiredo
(FUCAPI - Research and Technological Innovation Center, Brazil)
pp. 308-311

***Models and Algorithms for Elastic-Demand Network Equilibrium Problems in Communication
Networks with Multicast Sessions***

Xuefeng Ma (Beijing University of Aeronautics and Astronautics, P.R. China); Jinpeng Huai (Beijing
University of Aeronautics and Astronautics, P.R. China); Bo Li (Beijing University of Aeronautics and
Astronautics, P.R. China); Hanwen Wang (Beijing University of Aeronautics and Astronautics, P.R.
China); Ye Jiao (Beijing University of Aeronautics and Astronautics, P.R. China)
pp. 312-315

Unravel the Characteristics and Development of Current IPv6 Network

Fuliang Li (Tsinghua University, P.R. China); Changqing An (Tsinghua University, P.R. China); Jiahai
Yang (Tsinghua University, P.R. China); Jianping Wu (Tsinghua University, P.R. China); Zejia Chen
(Tsinghua University, P.R. China)
pp. 316-319

Half-Symmetric Lens Based Localization Algorithm for Wireless Sensor Networks

Noureddine Lasla (Research Center on Scientific and Technical Information (CERIST), Algeria);
Abdelouahid Derhab (Centre de Recherche sur l'Information Scientifique et Technique (CERIST),
Algeria); Abdelraouf Ouadjaout (Research Center on Scientific and Technical Information (CERIST),
Algeria); Miloud Bagaa (Center of Research on Scientific and Technical Information (CERIST),
Algeria); Adlen Ksentini (University of Rennes 1 / IRISA Lab, France); Nadjib Badache (CERIST,
Algeria)
pp. 320-323

Resiliency Taxonomy of Routing Protocols in Wireless Sensor Networks

Ochirkhand Erdene-Ochir (Orange Labs, France); Marine Minier (Insa de Lyon, France); Fabrice Valois (INSA Lyon, France); Apostolos Kountouris (France Telecom, France)
pp. 324-327

Achieving End-to-End Goals of WSN Using Weighted Cognitive Maps

Amr El Mougny (Queen's University, Canada); Mohamed Ibnkahla (Queen's University, Canada)
pp. 328-331

A Novel Dynamic Q-Learning-Based Scheduler Technique for LTE-Advanced Technologies Using Neural Networks

Ioan Sorin Comsa (University of Bedfordshire & University of Applied Sciences of Western Switzerland, Switzerland); Sijing Zhang (University of Bedfordshire, United Kingdom); Mehmet Emin Aydin (University of Bedfordshire, United Kingdom); Pierre Kuonen (University of Applied Sciences of Western Switzerland, Switzerland); Jean-Frederic Wagen (University of Applied Science of Fribourg, Switzerland)
pp. 332-335

On the Performance of Sensor Node Repositioning Under Realistic Terrain Constraints

Izzet F Senturk (Southern Illinois University Carbondale, USA); Kemal Akkaya (Southern Illinois University Carbondale, USA)
pp. 336-339

Novel Assessment Metric and Countermeasures for Traffic Attack Threats in Wireless Sensor Networks

Yousef Ebrahimi (University of Maryland Baltimore County, USA); Mohamed Younis (University of Maryland Baltimore County, USA)
pp. 340-343

An Evaluation of Fairness Among Heterogeneous TCP Variants Over 10Gbps High-speed Networks

Lin Xue (Louisiana State University, USA); Suman Kumar (Troy University, USA); Cheng Cui (Louisiana State University, USA); Seung-Jong Park (Louisiana State University, USA)
pp. 344-347

Efficient Traffic Flow Measurement for ISP Networks

Qinghua Wu (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Zhenyu Li (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Jianhua Yang (Institute of Computing Technology, CAS, P.R. China); Gaogang Xie (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Kavé Salamatian (LISTIC PolyTech, Université de Savoie Chambéry Annecy, France)
pp. 348-351

17:00 - 17:00

LCN Tuesday - End of the technical program

18:45 - 19:00

Watch the Sunset at the beach

19:00 - 22:00

Conference Banquet

Chair: Ken Christensen (University of South Florida, USA)

Wednesday, October 24

08:00 - 08:45

Registration

08:45 - 08:50

Opening

Rooms: Beach, Gulf, Palm

Chair: Ehab S. Elmallah (University of Alberta, Canada)

08:50 - 09:00

Welcome: Evan Butterfield, IEEE Computer Society, Director of Products and Services

Rooms: Beach, Gulf

Chair: Ehab S. Elmallah (University of Alberta, Canada)

09:00 - 10:00

Keynote 2: Prof. Mark Crovella, Boston University

A Fine-Grained Distance Metric for Analyzing Internet Topology

Rooms: Beach, Gulf

Chair: Tom Pfeifer (Waterford IT Consulting, Ireland)

Abstract: One of the defining properties of small worlds is the prevalence of short paths connecting node pairs. Unfortunately, as a result the usual notion of distance is not particularly helpful in distinguishing neighborhoods in such graphs. This is the case, for example, when analyzing the interdomain routing system of the Internet.

We describe a motivating problem that requires a finer-grained notion of distance. The problem is quite simple to state: how can any given network operator in the Internet determine which paths pass through its network? Surprisingly, the nature of Internet routing makes this question rather hard to answer.

To address this problem, we define a new distance metric on graph nodes. This metric has useful and interesting properties: it is easy to compute and understand, it can be used to sharply distinguish neighborhoods in networks, and it remains useful even in small-world networks. We show how we use this metric to address our motivating problem, and more generally how it can be used for visualization and dimensionality reduction of complex networks.

10:00 - 10:30

Coffee break

10:30 - 12:10

3A: Delay Tolerant Networks and VANETs

Room: Beach

Chair: Kemal Akkaya (Southern Illinois University Carbondale, USA)

10:30 Characterization and Modeling in Large-scale Urban DTNs

Chunhe Xia (Beihang University, P.R. China); [Dong Liang](#) (Beihang University, P.R. China); Haiquan Wang (Beihang University, P.R. China); Min Luo (Beihang University, P.R. China); Weifeng Lv (Beijing University of Aeronautics and Astronautics, P.R. China)
pp. 352-359

10:55 A Geolocation-based Vertical Handover Decision Algorithm for Vehicular Networks

[Johann M Márquez-Barja](#) (DISCA - Universidad Politecnica de Valencia & CTVR Telecommunications Research Center - Trinity College Dublin, Spain); Carlos T. Calafate (Universidad Politécnica de Valencia, Spain); Juan-Carlos Cano (Universidad Politecnica de Valencia, Spain); Pietro Manzoni (Universidad Politécnica de Valencia, Spain)
pp. 360-367

11:20 LPS and LRF: Efficient Buffer Management Policies for Delay and Disruption Tolerant Networks

[Juliano Fischer Naves](#) (Universidade Federal Fluminense, Brazil); Igor Monteiro Moraes (Universidade Federal Fluminense, Brazil); Celio Albuquerque (Fluminense Federal University, Brazil)
pp. 368-375

11:45 Mobility Based Dynamic TXOP for Vehicular Communication

Hikmat El Ajaltouni (University of Ottawa & Paradise Research Laboratory, Canada); [Azzedine Boukerche](#) (University of Ottawa, Canada); Richard W. Pazzi (University of Ontario Institute of Technology, Canada)
pp. 376-383

3B: Transport Protocols

Room: Gulf

Chair: Matthias Frank (University of Bonn, Germany)

10:30 Modeling and Optimizing Transport-Support Workflows in High-performance Networks

Daqing Yun (The University of Memphis, USA); Qishi Wu (University of Memphis & Oak Ridge National Laboratory, USA); Patrick Brown (Southern Illinois University, USA); Michelle Mengxia Zhu (Southern Illinois University Carbondale, USA)
pp. 384-391

10:55 Enhancing TCP with Cross-layer Notifications and Capacity Estimation in Heterogeneous Access Networks

[Laila Daniel](#) (University of Helsinki, Finland); Markku Kojo (University of Helsinki, Finland)
pp. 392-400

11:20 Performance of On-Off Traffic Stemming From Live Adaptive Segmented HTTP Video Streaming

[Tomas Kupka](#) (University of Oslo, Norway); Pål Halvorsen (Simula Research Laboratory & Department of Informatics, University of Oslo, Norway); Carsten Griwodz (Simula Research Laboratory, Norway)
pp. 401-409

11:45 Characterizing Cyberlocker Traffic Flows

Aniket Mahanti (University of Auckland, New Zealand); [Niklas Carlsson](#) (Linköping University, Sweden); Martin Arlitt (University of Calgary, Canada); Carey Williamson (University of Calgary, Canada)
pp. 410-418

3C: MAC and PHY

Room: Palm

Chair: Jens Toelle (Fraunhofer FKIE / University of Bonn, Germany)

10:30 Robust MAC-layer Rate Control Mechanism for 802.11 Wireless Networks

Wei Yin (The University of Queensland, Australia); [Peizhao Hu](#) (NICTA, Australia); Jadwiga Indulska (The University of Queensland, Australia); Marius Portmann (University of Queensland, Australia); Jonathan Guerin (University of Queensland, Australia)

pp. 419-427

10:55 Network Coding Based SVC Multicast Over Broadband Wireless Networks

Hao Zhou (University of Science and Technology of China, P.R. China); Yusheng Ji (National Institute of Informatics, Japan); Yu Gu (National Institute of Informatics, Japan); Baohua Zhao (, P.R. China)

pp. 428-435

11:20 Distributed Decode and Forward Beamforming

Chris Walsh (Colorado School of Mines, USA); Douglas Hakkarinen (Colorado School of Mines, USA); Tracy Camp (Colorado School of Mines, USA)

pp. 436-444

11:45 Flexible Resource Allocation for Multicast in OFDMA Based Wireless Networks

Xin Zhao (The University of New South Wales, Australia); Sanjay Jha (University of NSW, Australia)

pp. 445-452

12:10 - 13:30

Lunch break

13:30 - 15:10

4A: Wireless Sensor Networks: Routing

Room: Beach

Chair: Katrin Reitsma (Motorola Solutions, USA)

13:30 Efficient Geocasting to Multiple Regions in Large-Scale Wireless Sensor Networks

Cuong Truong (Universität zu Lübeck, Germany); Kay Römer (University of Lübeck, Germany)

pp. 453-461

13:55 Near-Optimal Routing for Contour Detection in Wireless Sensor Networks

Venkat Pulimi (University of Saskatchewan, Canada); Tuhin Paul (University of Saskatchewan, Canada); Kevin G Stanley (University of Saskatchewan, Canada); Derek Eager (University of Saskatchewan, Canada)

pp. 462-469

14:20 Adaptive HELLO for the Neighborhood Discovery Protocol

Raphael Ernst (University of Bonn, Germany); Peter Martini (University of Bonn, Germany)

pp. 470-478

14:45 Maximizing Network Lifetime Via 3G Gateway Assignment in Dual-Radio Sensor Networks

Xu Xu (The Australian National University, Australia); Weifa Liang (The Australian National University, Australia); Tim Wark (CSIRO, Australia); Jaein Jeong (Cisco Systems & UC Berkeley, USA)

pp. 479-486

4B: Cloud Computing and Data Centers

Room: Gulf

Chair: Tim Strayer (BBN Technologies, USA)

13:30 Network Capabilities of Cloud Services for a Real Time Scientific Application

Dilip Kumar Krishnappa (University of Massachusetts Amherst, USA); Eric Lyons (University of Massachusetts Amherst, USA); David Irwin (University of Massachusetts, Amherst, USA); Michael Zink (University of Massachusetts Amherst, USA)

pp. 487-495

13:55 An Integrated Resource Allocation Scheme for Multi-Tenant Data-center

Mohan Gurusamy (National University of Singapore, Singapore); Tho Ngoc Le (National University of Singapore, Singapore); Dinil Mon Divakaran (National University of Singapore, Singapore)
pp. 496-504

14:20 A Distributed Energy Saving Approach for Ethernet Switches in Data Centers

Weisheng Si (University of Western Sydney, Australia); Javid Taheri (The University of Sydney, Australia); Albert Zomaya (The University of Sydney, Australia)
pp. 505-512

14:45 Large-Scale Measurement and Analysis of One-Way Delay in Hybrid Multicast Networks

Sebastian Meiling (Hamburg University of Applied Sciences, Germany); Thomas C. Schmidt (Hochschule für Angewandte Wissenschaften Hamburg, Germany); Matthias Wählisch (Freie Universität Berlin, Germany)
pp. 513-520

4C: Quality of Service

Room: Palm

Chair: Salil Kanhere (The University of New South Wales, Australia)

13:30 How's My Network? Predicting Performance From Within a Web Browser Sandbox

Murad Kaplan (Worcester Polytechnic Institute, USA); Mihajlo Zeljkovic (Worcester Polytechnic Institute, USA); Mark Claypool (Worcester Polytechnic Institute, USA); Craig Wills (Worcester Polytechnic Institute, USA)
pp. 521-528

13:55 A Real-Time Services Performance and Interference Mitigation for Femtocell Scenarios in LTE Networks

Mauricio Iturralde (University of Paris 11 & LRI, France); Tara Ali Yahya (University Paris Sud 11, France); Anne Wei (Conservatoire National des Arts et Metiers, France); André-Luc Beylot (IRIT Toulouse, France)
pp. 529-536

14:20 KBAC: Knowledge-Based Admission Control

Doreid Ammar (INRIA & LIP, ENS Lyon, France); Thomas Begin (Université de Lyon 1, France); Isabelle Guérin Lassous (Université de Lyon - LIP, France); Ludovic Noirie (Alcatel-Lucent France, France)
pp. 537-544

14:45 Impact of Network Conditions on Delay-Stable Communications in Closed Industrial Control Networks

David A Miller (Iowa State University, USA); Ahmed E. Kamal (Iowa State University, USA)
pp. 545-550

15:10 - 15:40

Tea break

15:40 - 17:45

5A: Wireless Sensor Networks: Optimization and Energy Efficiency

Room: Beach

Chair: Mohamed Younis (University of Maryland Baltimore County, USA)

15:40 Inference in Wireless Sensor Networks Based on Information Structure Optimization

Wei Zhao (Purdue University Indianapolis, USA); Yao Liang (Indiana University Purdue University Indianapolis, USA)
pp. 551-558

16:05 Optimization Trade-Offs in the Design of Wireless Sensor and Actor Networks

Hyunbum Kim (The University of Texas at Dallas, USA); Jorge A. Cobb (The University of Texas at Dallas, USA)
pp. 559-567

16:30 On Using Game Theory to Balance Energy Consumption in Heterogeneous Wireless Sensor Networks

Xiao-Hui Lin (Shenzhen University & The University of Hong Kong, P.R. China); Hui Wang (Shenzhen University, P.R. China)
pp. 568-576

16:55 Energy Efficient Data Survivability for WSNs Via Decentralized Erasure Codes

Louai Al-Awami (Queen's University, Canada); Hossam S. Hassanein (Queen's University, Canada)
pp. 577-584

17:20 An Approach for Bounding Breach Path Detection Reliability in Wireless Sensor Networks

Mohamed H Shazly (University of Alberta, Canada); Ehab S. Elmallah (University of Alberta, Canada); Janelle Harms (University of Alberta, Canada)
pp. 585-592

15:40 - 17:20

5B: Overlay and P2P Networks

Room: Gulf

Chair: Oliver P. Waldhorst (Karlsruhe Institute of Technology (KIT), Germany)

15:40 MP-DNA: A Novel Distributed Replica Placement Heuristic for WMNs

Zakwan Al-Arnaout (Victoria University of Wellington, New Zealand); Jonathan Hart (Victoria University of Wellington, New Zealand); Qiang Fu (Victoria University of Wellington, New Zealand); Marcus Freen (Victoria University of Wellington, New Zealand)
pp. 593-600

16:05 Dynamic File Bundling for Large-scale Content Distribution

Song Zhang (University of Calgary, Canada); Niklas Carlsson (Linköping University, Sweden); Derek Eager (University of Saskatchewan, Canada); Zongpeng Li (University of Calgary, Canada); Anirban Mahanti (NICTA, Australia)
pp. 601-609

16:30 CDN Request Routing to Reduce Network Access Cost

Varun Khare (University of Arizona, USA); Beichuan Zhang (University of Arizona, USA)
pp. 610-617

16:55 A Tale of Nine Internet Exchange Points: Studying Path Latencies Through Major Regional IXPs

Mohammad Zubair Ahmad (University of Central Florida, USA); Ratan Guha (University of Central Florida, USA)
pp. 618-625

5C: Performance Modeling and Evaluation

Room: Palm

Chair: Nils Aschenbruck (University of Osnabrück, Germany)

15:40 Safe Cities. A Participatory Sensing Approach

Jaime Ballesteros (Florida International University, USA); Mahmudur Rahman (Florida International University, USA); Bogdan Carbutar (Florida International University, USA); Naphtali Rische (Florida International University, USA)
pp. 626-634

16:05 HOPSCOTCH: An Adaptive and Distributed Channel Hopping Technique for Interference Avoidance in Wireless Sensor Networks

Dingwen Yuan (Technische Universität Darmstadt, Germany); Michael Riecker (Technische Universität Darmstadt, Germany); Matthias Hollick (Technische Universität Darmstadt & Secure Mobile Networking Lab, Center for Advanced Security Research Darmstadt, Germany)
pp. 635-642

16:30 Agnostic Broadcast Rendezvous for Cognitive Radio Networks Using Channel Hopping

Raphael M. Guedes (Federal University of Rio de Janeiro, Brazil); Marcel W. R. da Silva (Federal University of Rio de Janeiro, Brazil); Pedro S. Coutinho (Federal University of Rio de Janeiro, Brazil); José F. de Rezende (Federal University of Rio de Janeiro, Brazil)
pp. 643-650

16:55 Wireless Multi-Rate Scheduling: From Physical Interference to Disk Graphs

Olga Goussevskaia (UFMG, Brazil); Luiz F. M. Vieira (Universidade Federal de Minas Gerais, Brazil); Marcos A. M. Vieira (Universidade Federal de Minas Gerais, Brazil)
pp. 651-658