

# **2018 IEEE 43rd Conference on Local Computer Networks (LCN 2018)**

**Chicago, Illinois, USA  
1 – 4 October 2018**



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Sunday, September 30

Sunday, September 30 17:00 - 19:00

REG: Welcome Reception and Early Registration

Chair: Kemal Akkaya (Florida International University, USA)

Monday, October 1

Monday, October 1 8:00 - 9:00

REG-M: Registration

Monday, October 1 9:00 - 9:20

WS-OM-WELCOME: OnMove: Opening and Welcome

Room: Salon ABC

Chair: Karl Andersson (Luleå University of Technology, Sweden)

Monday, October 1 9:00 - 10:00

WS-SA-Keynote: SenseApp: Keynote

Understand Cities Through Measurement and Embedded Intelligence

**Charlie Catlett (Argonne National Laboratory and the University of Chicago, USA)**

Room: Salon D

Chair: Salil S Kanhere (UNSW Sydney, Australia)

Global urbanization, quality of life in cities-from air quality to mobility to equitable opportunity-and reducing negative impacts of cities on the natural environment are among the grand challenges of the 21st century. Within these challenges are critical research questions, suggesting that partnerships between the scientific community and city planners, designers, and operators-as well as city dwellers-will be essential. Catlett will discuss a series of collaborative interactions between the science community in Chicago and the City of Chicago, including the motivation and process behind the NSF-funded Array of Things project and how it is being replicated in other cities.

Monday, October 1 9:20 - 10:00

WS-OM1: Paper session 1

Room: Salon ABC

Chair: Lyes Khoukhi (University of Technology of Troyes, France)

**Performance Analysis of Anomaly Based Network Intrusion Detection Systems.....N/A**

Zainal Abedin (USTC, Bangladesh); Mohammad Shaharia Bhuyan (University of Science & Technology Chittagong, Bangladesh); Kazy Noor E Alam Siddiquee (University of Science and Technology Chittagong, Bangladesh); Razuan Karim (University of Science and Technology, Chittagong, Bangladesh); Mohammad Shahadat Hossain (University of Chittagong, Bangladesh); Karl Andersson (Luleå University of Technology, Sweden)

**Tracking-based Cooperative Caching in VANETs for Social Networking.....N/A**

Sara A. Elsayed (Queen's University, Canada); Sherin Abdelhamid (Queen's University & Ain Shams University, Canada); Ahmad M. Nagib and Hossam S. Hassanein (Queen's University, Canada)

Monday, October 1 10:00 - 10:30

CB1: Coffee break

Monday, October 1 10:30 - 11:30

WS-OM-Keynote: OnMove: Keynote

Robust Crowdsensing for Intelligent Road Services

**Pr. Hossam Hassanein**

Room: Salon ABC

Chair: Soumaya Cherkaoui (Université de Sherbrooke, Canada)

The success of intelligent transportation systems (ITS) relies on their ability to provide drivers and municipalities with accurate real-time information. Crowdsourcing has been shown effective in navigation systems where traffic congestion information is updated by drivers. Robust Crowdsensing for Intelligent Road Services presents a framework to collect crowd-based information, monitoring road conditions and hazards; and, driver-based information, including driving style, preferences, skills and experience, to build representative driver profiles. Our proposed system, iDriveSense, integrates sensor technologies available in both the vehicles and the driver smartphones to provide advanced, robust localization and accurate monitoring of vehicle dynamics and driver behavior. Robustness is achieved through calibration and cross-referencing on two levels: a single-driver level and a cloud multi-driver level. Moreover, we design efficient route selection algorithms based on driver preferences, supported by road conditions monitored and reported in real time. This includes learning route preferences based on monitoring both the routes taken by drivers, and the drivers' competence levels on different road types.

Monday, October 1 10:30 - 12:00

WS-SA1: SenseApp: Practical Issues in Building Sensor Network Applications

Room: Salon D

Chair: Andreas Reinhardt (TU Clausthal, Germany)

**YetiOS: An Adaptive Operating System for Wireless Sensor Networks.....N/A**

Roberto Rodriguez-Zurrutero, Francisco Tirado-Andrés and Alvaro Araujo (Universidad Politécnica de Madrid, Spain)

**Effective but Lightweight Online Selftest for Energy-Constrained WSNs.....N/A**

Ulf Kulau, Daniel Szafranski and Lars C Wolf (Technische Universität Braunschweig, Germany)

**EpiFi: An In-Home IoT Architecture for Epidemiological Deployments.....N/A**

Philip Lundrigan, Kyeong T Min, Neal Patwari, Sneha Kumar Kasera, Kerry Kelly, Jimmy Moore, Miriah Meyer, Scott C Collingwood, Flory Nkoy, Bryan Stone and Katherine Sward (University of Utah, USA)

Monday, October 1 11:30 - 12:30

WS-OM2: OnMove - paper session 2

Room: Salon ABC

Chair: Lyes Khoukhi (University of Technology of Troyes, France)

**A Belief Rule Based Flood Risk Assessment Expert System Using Real Time Sensor Data Streaming.....N/A**

Ahmed Afif Monrat and Raihan Ul Islam (Luleå University of Technology, Sweden); Mohammad Shahadat Hossain (University of Chittagong, Bangladesh); Karl Andersson (Luleå University of Technology, Sweden)

**Hybrid Approach for Disaster Recovery Using P2P Communications in Android.....N/A**

Hakan Yatbaz, Berkem Cinar, Ali Gokdemir and Enver Ever (Middle East Technical University Northern Cyprus Campus, Turkey); Fadi Al-Turjman (Antalya Bilim University, Turkey); Huan X Nguyen (Middlesex University, United Kingdom (Great Britain)); Adnan Yazici (Middle East Technical University, Turkey)

**Paving the Way for Connected Cars with Adaptive AUTOSAR and AGL.....N/A**

Stefan Aust (NEC Communication Systems, Ltd., Japan)

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LB1: Lunch on your own

Monday, October 1 13:30 - 14:30

WS-5GIOT1: 5G-IoT: Paper session 1

Room: Salon D

Chair: Eyuphan Bulut (Virginia Commonwealth University, USA)

***The Role of 5G Networks in the Field of Medical Sciences Education.....N/A***

Yoney Kirsal Ever (Faculty of Engineering, Near East University, Nicosia, Mersin 10, Turkey); Amala Rajan (Dubai Women's College, United Arab Emirates)

***Dynamically Shared Wide-Area Cellular Communication for Hyper-dense IoT Devices.....N/A***

Eyuphan Bulut (Virginia Commonwealth University, USA); Ismail Güvenç (North Carolina State University, USA)

***Packet Dropping and Decoding Statistics for Linear Network Coded Broadcast with Feedback.....N/A***

Rajarshi Roy (Indian Institute of Technology, Kharagpur, India); Sovanjoyoti Giri (IIT Kharagpur, India)

WS-CN-Keynote: COGNINETS: Keynote

On Deep Learning Deployment Solutions for IoT Cognition: Opportunities and Challenges

Pr. Sameh Sorour

Room: Salon ABC

Chair: Abd-Elhamid M. Taha (Alfaisal University, Saudi Arabia)

Monday, October 1 14:30 - 15:30

WS-CN1: COGNINETS: Paper session 1

Room: Salon ABC

Chair: Abd-Elhamid M. Taha (Alfaisal University, Saudi Arabia)

***An Overview of Cognitive Network Solutions.....N/A***

Abd-Elhamid M. Taha (Alfaisal University, Saudi Arabia)

***Performance Bounds of Secondary User's Transmission Under Fading Channel.....N/A***

Jun Zheng and Li Yu (Huazhong University of Science & Technology, P.R. China)

***Adversarial Attacks on Cognitive Self-Organizing Networks: The Challenge and the Way Forward.....N/A***

Muhammad Usama (Information Technology University, Pakistan); Junaid Qadir (Information Technology University (ITU), Punjab, Lahore, Pakistan); Ala Al-Fuqaha (Western Michigan University, USA)

Monday, October 1 15:30 - 16:00

CB2: Tea break

Monday, October 1 16:00 - 17:30

NSWMD: NSWMD

NSWMD: Paper session

Room: Salon D

Chair: Amjad Gawanmeh (Khalifa University, United Arab Emirates)

***An Android Wear OS Framework for Sensor Data and Network Interfaces.....N/A***

Bashkim Berzati (Heinrich-Heine University, Germany); Andre Ippisch and Kalman Graffi (Heinrich Heine University Düsseldorf, Germany)

**Modeling Context-Adaptive Energy-Aware Security in Mobile Devices.....N/A**

Sriram Sankaran (Amrita University, India); [Swapnoneel Roy](#) and Preeti Singh (University of North Florida, USA); Ramalingam Sridhar (University at Buffalo, USA)

**Supporting Seamless Connectivity in Drone-assisted Intelligent Transportation Systems.....N/A**

Nico Saputro (Florida International University, USA & Parahyangan Catholic University, Indonesia); [Kemal Akkaya](#) (Florida International University, USA); Selcuk Uluagac (Florida International University & Electrical and Computer Engineering, USA)

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Chair: Sharief Oteafy (DePaul University, USA)

Tuesday, October 2

Tuesday, October 2 8:00 - 9:00

REG-Tu: Registration

Tuesday, October 2 9:00 - 9:30

LCN-Welcome: Opening and Welcome

**Kemal Akkaya**

Room: Salon ABCD

Chair: Kemal Akkaya (Florida International University, USA)

Tuesday, October 2 9:30 - 10:30

LCN-Keynote1: Sensor-less Sensing: The Future of Ubiquitous Context-Awareness

**Prof. Moustafa Youssef**

Room: Salon ABCD

Chair: Soumaya Cherkaoui (Université de Sherbrooke, Canada)

RF-based device-free (DF) context-awareness is an emerging field that enables the detection, tracking, and identification of entities that do not carry any devices nor participate actively in the sensing process using the already installed wireless infrastructure. The DF concept utilizes the fact that RF characteristics are functions of the surrounding environment. Changes in the received physical signals can be used to identify the presence of humans and objects, track them, as well as identify their characteristics. DF systems are attractive for many practical applications including intrusion detection and tracking, sensor-less sensing, low cost surveillance, home automation, and interactive visual display systems for museums and retail stores. Based on its characteristics, DF sensing fits the vision of ubiquitous computing, where each device in the environment can be potentially used to sense the human behavior. In this talk, I will cover different DF systems used for intrusion detection, localization, activity recognition, among others based on ubiquitous wireless technologies such as WiFi, FM, and cellular networks. The talk ends by a road-map for open research challenges and future directions.

Tuesday, October 2 10:30 - 11:00

CB3: Coffee break

Tuesday, October 2 11:00 - 12:30

LCN-Plenary: 1: Plenary session: Best Paper Candidates

Room: Salon ABCD

Chair: Karl Andersson (Luleå University of Technology, Sweden)

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Tuesday, October 2 13:30 - 15:30

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Room: **Salon EFG**

Chair: Kyong Jin Shim (Singapore Management University, Singapore)

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Patrick Lieser and Nils Richerzhagen (Technische Universität Darmstadt, Germany); Michal Lipinski (TU Darmstadt, Germany); Clemens Krug (Technische Universität Darmstadt, Germany); Tobias Meuser (Technical University of Darmstadt, Germany); Björn Richerzhagen and Ralf Steinmetz (Technische Universität Darmstadt, Germany)

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[Fabian Marquardt](#) (University of Bonn, Germany)

**EPredictor: An Experimental Platform for Community Evolution Prediction Tests.....N/A**

[Narimene Dakiche](#) (Ecole Nationale Supérieure d'Informatique (ESI), Algeria); Fatima Benbouzid-Si Tayeb (Ecole Nationale Supérieure d'Informatique (ESI ex INI) & Laboratoire des Méthodes de Conception de Systèmes (LMCS), Algeria); Karima Benatchba (Ecole nationale Supérieure d'Informatique, Algeria); Yahya Slimani (University of Manouba & Institut Supérieur des Arts MultiMedia, Tunisia); Abdelouahab Khelifati and Hadjer Chabane (Ecole Nationale Supérieure d'Informatique (ESI), Algeria)

**Resilient Machine-to-Machine Communication for an Information-centric Industrial IoT.....N/A**

Cenk Gündogan, Peter Kietzmann and Thomas C. Schmidt (Hamburg University of Applied Sciences, Germany); Martine Lenders, Hauke Petersen and Matthias Wählisch (Freie Universität Berlin, Germany); Michael Frey and Felix Shzu-Juraschek (MSA Safety)

**Mitigation of Flooding and Slow DDoS Attacks in a Software-Defined Network.....N/A**

[Thomas Lukaseder](#) (Ulm University, Germany); Shreya Ghosh (Heritage Institute of Technology, India); Frank Kargl (Ulm University, Germany)

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[Matthias Frank](#) (University of Bonn, Germany)

**Application-based QoS Support with P4 and OpenFlow: A Demonstration Using Chameleon.....N/A**

[Divyashri Bhat](#) (University of Massachusetts, USA); Jason Anderson (University of Chicago, USA); Paul Ruth (UNC-CH, USA); Michael Zink (University of Massachusetts Amherst, USA); Kate Keahey (Argonne National Lab, USA)

**LCN-P1: Poster Session 1 with Tea**

Room: **Salon EFG**

Chair: Adel Ben Mnaouer (Canadian University Dubai & Faculty of Engineering and Architecture, United Arab Emirates)

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Cenk Gündogan, Peter Kietzmann and Thomas C. Schmidt (Hamburg University of Applied Sciences, Germany); Matthias Wählich (Freie Universität Berlin, Germany)

Tuesday, October 2 18:00 - 22:00

LCN-CB: Conference Banquet

Wednesday, October 3

Wednesday, October 3 8:00 - 9:00

REG-W: Registration

Wednesday, October 3 9:00 - 10:30

LCN-N2W: N2Women Meeting

Room: Salon ABCD

Chair: Soumaya Cherkaoui (Université de Sherbrooke, Canada)

Wednesday, October 3 10:30 - 11:00

CB4: Coffee break

Wednesday, October 3 11:00 - 12:00

LCN-Keynote2: Security and Privacy Considerations for Legacy and Future IoT Systems

Klara Nahrstedt

Room: Salon ABCD

Chair: Kemal Akkaya (Florida International University, USA)

For several years now, IoT (Internet of Things) sensors and their corresponding cyber-infrastructure systems have been in place in various application domains including scientific instrumentation, power grid, health-care and others, becoming legacy IoT systems to care for by many IoT cyber-infrastructure providers. Furthermore, with the development of new sensing IoT devices, new IoT services and systems are emerging, waiting to be deployed. In this talk, we examine security challenges that are coming up with the legacy IoT systems, and discuss possible solutions via edge computing to enable older IoT devices serve longer in various IoT application domains. We present a concrete example, the BRACELET edge-cloud solution, to illustrate the protection of aging IoT devices in scientific instrumentation domain. We also elaborate on security and privacy threats in future IoT systems, give examples, and discuss the "good and bad" with new sensors/IoT devices in health-care domain.

Wednesday, October 3 12:00 - 12:30

LCN-2019: Invitation to LCN 2019

Room: Salon ABCD

Chair: Kemal Akkaya (Florida International University, USA)

Wednesday, October 3 12:30 - 13:30

LB3: Lunch

Wednesday, October 3 13:30 - 15:00

LCN-3A: 3A: Adaptive networking applications

Room: Rock River

Chair: Kyong Jin Shim (Singapore Management University, Singapore)

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Chairs: Sharief Oteafy (DePaul University, USA), Damla Turgut (University of Central Florida, USA)

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Chair: Suleyman Uludag (The University of Michigan - Flint, USA)

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## LCN-P2: Poster Session 2 with Coffee

Room: Salon EFG

Chair: Matthias Frank (University of Bonn, Germany)

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Wednesday, October 3 16:30 - 18:00

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Chair: Eyuphan Bulut (Virginia Commonwealth University, USA)

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Thursday, October 4

Thursday, October 4 8:00 - 9:00

REG-Th: Registration

Thursday, October 4 9:00 - 10:30

LCN-Panel: What Blockchain offers for Networking Community: From Fundamental Research Challenges to Opportunities for its Applications

Room: Salon ABCD

Chair: Kemal Akkaya (Florida International University, USA)

Moderator: Dr. Kemal Akkaya, Florida International University, Miami, FL

Panelists:

- Dr. Salil Kanhere, University of New South Wales, Australia
- Dr. Nikita Borisov, University of Illinois Urbana-Champaign, IL
- Dr. Klaus Wehrle, RWTH Aachen, Germany

Thursday, October 4 11:00 - 13:00

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Room: Salon ABC

Chair: Kyong Jin Shim (Singapore Management University, Singapore)

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Room: Ohio River

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Thursday, October 4 10:30 - 11:00

## CB5: Coffe Break