
# Thursday October 28, 2021

10:00am **Opening**

10:05am **Session 1: NDN Past to Present**

Chair: Patrick Crowley (Washington University in St. Louis)

- Lessons Learned Over the Last 10 Years, Lixia Zhang (UCLA)
- NDN Codebase Overview, Beichuan Zhang (University of Arizona)
- Developing Practical E2E Systems and Applications using NDN, Marcin Spoczynski (Intel)

11:05am Break

11:15am **Panel 1: NDN Application Development: Lessons Learned and Next Steps**

Moderator: Davide Pesavento (NIST)
Panelists: Alex Afanasyev (Florida International University)
John DeHart (Washington University in St. Louis)
Peter Gusev (UCLA REMAP)
Xinyu Ma (UCLA)
Kathleen Nichols (Pollere, Inc.)
Marcin Spoczynski (Intel)

12:30pm Break

1:30pm **Session 2: NDN for Data Intensive Applications**

Chair: Lotfi Benmohamed (NIST)

- NDN for Data Intensive Science Experiments (N-DISE): Overview and Recent Developments, Edmund Yeh (Northeastern University)
- NDNc - A lightweight integration of ndn-cxx with NDN-DPDK to achieve high throughput performance in scientific applications, Catalin Iordache (Caltech)
- Exploring rate-based congestion control in NDN, Sichen Song (UCLA)
- NDN-DPDK File Server for Data-Intensive Science Applications, Junxiao Shi (NIST)
- FPGA-Based Acceleration of the NDN Forwarder, Michael Lo (UCLA)

2:30pm **Session 3: Tactical and Wireless**

Chair: Tamer Refaei (MITRE)

- DARPA Secure Handhelds on Assured Resilient networks at the tactical Edge (SHARE) and Mission-Integrated Network Control (MINC), Mary Schurgot (DARPA)
- Towards Unification of Name and Address Based Communication, Mohammed Elbadry (Stony Brook University)
- NEAR Platform: Supporting Augmented Reality Over NDN, Jinghao Zhao (UCLA)

3:30pm Break

3:50pm **Session 4: Short Presentations (Posters/Demos)**

Chair: Jay Misra (NMSU)

- Methods for NDN based data transfer in multi-path networking environments, Xin Tian (Intelligent Fusion Technology, Inc.)
- NDN for Next Generation of Factory Automation, Charif Mahmoudi (Siemens)
- Information Management in the Emerging Edge, Jeff White (Dell)
- NDNts video streaming using QUIC and WebTransport, Junxiao Shi (NIST)
- NDN Play, Varun Patil (UCLA)
- Multiverse: designing a network management system with NDN, Amar Abane (NIST)
- NDN Forwarder Manager Demo, Xinyu Ma (UCLA)

5:00pm Day 1 Closing

## Friday October 29, 2021

10:00am **Session 5: Applications**

Chair: Jeff Burke (UCLA REMAP)

- mGuard: A Secure Real-time Data Distribution System with Fine-Grained Access Control for mHealth Research, Lan Wang (University of Memphis)
- Hydra - A secure, distributed, and federated storage for large science data, Susmit Shannigrahi (Tennessee Tech University)
- Bootstrapping Remote NDN Entity Leveraging CA-based Authentications, Tianyuan Yu (UCLA)

11:00am **Panel 2: NDN beyond NDN: data driven applications and services**

Moderator: Marie-Jose Montpetit (Concordia University)
Panelists: Ike Kunze, (RWTH Aachen University)
Rute Sofia (Fortiss)
Srikathyayani Srikanteswara (INTEL)
Dirk Trossen (Huawei Technologies)

12:00pm Break

1:00pm **Panel 3: Addressing NDN's accessibility challenges through real-world use cases**

Moderator: Susmit Shannigrahi (Tennessee Tech University)
Panelists: F. Alex Feltus (Clemson University)
James Lyke (Air Force Research Lab / UNM)
Christos Papadopoulos (University of Memphis)
Matthias Wahlisch (FU Berlin)
Beichuan Zhang (University of Arizona)

2:15pm Break

2:30pm **Session 6: Network and Transport**

Chair: Christos Papadopoulos (University of Memphis)

- Industrial Applications and NDN, Kathleen Nichols (Pollere, Inc.)
- Considerations for Higher Level Transports over Sync, Varun Patil (UCLA)
- sV2Pc: On Scaling LTE-based Vehicle-to-Pedestrian Communication using NDN, Proyash Podder (Florida International University)
- BLEnD: Improving NDN Performance Over Wireless Links Using Interest Bundling, Md Ashiqur Rahman (University of Arizona)

- Adaptive Duplicate Suppression for Multicasting in a Multi-Access NDN Network, Saurab Dulal (University of Memphis)

4:10pm Closing

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## Panel Abstracts:

- **Panel 1: NDN Application Development: Lessons Learned and Next Steps**

The lessons learned from years of developing and operating "NDN native" applications have been invaluable for the evolution of NDN and continue to play an important role in shaping its future. However, putting together a non-trivial application that takes advantage of NDN's core features (name-based communications, security) remains challenging due to the lack of easy-to-use library APIs and development tools. This panel seeks to (1) identify the major pain points in the current NDN software ecosystem from an application developer's point of view; (2) discuss how we can improve the developer's experience by providing a powerful but at the same time intuitive collection of libraries and tools; (3) distill and prioritize this feedback into a list of action items that can help the NDN community plan future improvements to enhance productivity and attract new developers.

- **Panel 2: NDN beyond NDN: data driven applications and services**

With the advent of artificial intelligence in Networking, IoT and the increasing need for precise telemetry, data is becoming the "currency" of networking. More and more, finding, storing and processing that data are becoming in-network features at the edge and at the core. Many of the required functionalities have been central to NDN for many years. Can there be a better integration? The panel will be a conversation on the move towards data in networking and how it may open a better dialogue between the NDN community and the data-driven application and service developers.

- **Panel 3: Addressing NDN's accessibility challenges through real-world use cases**

As NDN continues to be investigated and used for a diverse set of use cases such as IoT, Big Data, Vehicular Network, and more, it is increasingly being used by users with different levels of technical backgrounds, skills, and interests. Successful integration of these applications with NDN requires a low barrier of entry and an ecosystem that is accessible. This panel will discuss the accessibility challenges in the current NDN ecosystem, how we can make the ecosystem more intuitive, easy to learn and use, and how we can allow the users to easily access, modify, and extend the codebase and core NDN components.

## **Abstracts for Presentations** (compiled in separate document)