ITG Fachgruppe „Angewandte Informationstheorie”

„ Model-assisted deep learning for communication networks”

Tutorial by Prof. Marius Pesavento and Lukas Schynol

28.05.2024, 16:00-18:00

TU Darmstadt, Institute of Telecommunications
Building S3_06, Room S3|06|052
Merckstraße 25, 64283 Darmstadt

Program of the 41. Meeting, 29.05.2024

— Learning-based optimization in communication systems —

TU Darmstadt, Institute of Telecommunications
Building S3_20, 1st Floor, Room 111
Rundeturmstraße 10, 64283 Darmstadt

8:30 – 8:35	Dirk Wübben, *Department of Communications Engineering, University of Bremen* **Welcome**
8:35 – 8:50	Anja Klein, *Institute of Telecommunications, TU Darmstadt* **Welcome by the host**

Session I

8:50 – 9:10	Friedrich Pyttel, *Communications Engineering Lab, TU Darmstadt* **Age of Information Minimization in Status Update Systems with Imperfect Feedback Channel**
9:10 – 9:30	Luca Schmid, *Communications Engineering Lab, KIT* **Blind Channel Estimation and Joint Symbol Detection with Data-Driven Factor Graphs**
9:30 – 9:50	Ömer Karakas, *Fraunhofer-Institut für Integr. Schaltungen IIS, Erlangen* **Channel Estimation and Equalization for SC-FDMA Using Machine Learning**
9:50 – 10:10	Cagkan Yapar, *Communications and Information Theory Group, TU Berlin* **Deep Learning-Based Pathloss Radio Map Estimation and its Applications**
10:10 – 10:30	**Coffee break**

Session II

10:30 – 10:50	Maximilian Wirth, *Communications Engineering Lab, TU Darmstadt* **Risk-Aware Bandits for Digital Twin Placement in Non-Stationary Mobile Edge Computing**
10:50 – 11:10	Bile Peng, *Institute for Communication Technology, TU Braunschweig* **Distributed Combinatorial Optimization of Downlink User Assignment in mmWave Cell-free Massive MIMO Using Graph Neural Networks**
11:10 – 11:30	Sumedh Dongare, *Communications Engineering Lab, TU Darmstadt* **Two-Sided Learning: A Techno-Economic View of Mobile Crowdsensing under Incomplete Information**

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11:30– 11:50	Yi Wang, *Communications Engineering Lab, TU Darmstadt* **Failure-aware Online Learning in Matching Games for Task Offloading in UAV-Aided Edge Computing and Sensing**
11:50– 12:10	Ahmad Halimi, *Department of Communications Engineering, University of Bremen* **Semantic Communication for Cooperative Multi-Task Processing Over Wireless Networks**
12:10 – 12:50	**Lunch break**

Session III

12:50 – 13:10	Mohamadreza Delbari, *Resilient Communication Systems Lab, TU Darmstadt* **Fast Transition-Aware Reconfiguration of Liquid Crystal-based RISs**
13:10 – 13:30	Christian Eckrich, *Resilient Communication Systems Lab, TU Darmstadt* **Radar Based Humans Localization with Compressed Sensing and Sparse Reconstruction**
13:30 – 13:50	Martin Lima Rocio, *Fraunhofer Institut für Kommunikation, Informationsverarbeitung und Ergonomie (FKIE KOM), Wachtberg* **Genetic Algorithm-based Learning of Information Bottleneck LDPC Decoding Operations**
13:50 – 14:05	Bile Peng, *Institute for Communication Technology, TU Braunschweig* **RISnet: A Scalable Approach for Reconfigurable Intelligent Surface Optimization with Partial CSI**
14:05 – 14:20	Sourav Mukherjee, *Department of Communications Engineering, University of Bremen* **Sparse Incremental Aggregation in Multi-Hop Federated Learning**
14:20 – 14:40	**Coffee break**

Session IV

14:40 – 14:55	Mehdi Abdollahpur, *Department of Communications Engineering, University of Bremen* **Task-aware Compressed Learning for Nanograss Deficiency Recognition Using Angle-Resolved Scatterometry Data**
14:55 – 15:10	Mahmoud Sallam, *Institute of Communications Engineering, University of Ulm* **Low-Complexity Non-Binary LDPC Decoding for 4D Modulation**
15:10 – 15:25	Marcel Kokorsch, *Institute of Computer Science, Julius-Maximilians-Universität Würzburg* Usability Regions of Quantum Repeaters for Depolarization Channels
15:25 – 15:40	Anas Alashqar, *Constructor University, Bremen* **Low Complexity Secure Spatial Modulation for IoT Networks**
15:40 – 15:55	Kagan Akcay, *Communications and Information Theory Group, TU Berlin* **Analytical and Online Optimal Fairness Scheduling for Coded Caching in Multi-AP Wireless Local Area Networks**
15:55 –	**Closing**