PRELIMINARY PROGRAM

FOR THE

25TH SYMPOSIUM ON COMMUNICATIONS AND VEHICULAR TECHNOLOGY IN THE BENELUX SCVT 2018

Monday, November 12, 2018
Cultuur en congrescentrum Het Pand
Onderbergen 1, 9000 Gent

GHENT UNIVERSITY, GHENT, BELGIUM
http://sites.ieee.org/benelux-comvt/symposium

Time	Communication Systems and Networks
9:30-10:00	Welcome
10:00-11:00	Keynote 1
11:00-11:15	Break
11:15-12:35	Paper presentations (20 min/paper, 4 papers)
12:35-13u30	Lunch
13:30-14:30	Keynote 2
14:30-15:15	Poster session
15:15-15:30	Break
15:30-16:10	Paper presentations (20 min/paper, 2 papers)
16:10-17:00	Keynote 3
17:00-17:15	Closure + best paper award announcement

KEYNOTE 1

Wireless Networks Optimization: Model-Based, Data-Driven, or Both?

Marco Di Renzo

Recently, deep learning has received significant attention as a technique to design and optimize wireless communication systems and networks. The usual approach to use deep learning consists of acquiring large amount of empirical data about the system behavior and employ it for performance optimization (data-driven approach). We believe, however, that the application of deep learning to communication networks design and optimization offers

more possibilities. As opposed to other fields of science, such as image classification and speech recognition, mathematical models for communication networks optimization are very often available, even though they may be simplified and inaccurate. We believe that this a priori expert knowledge, which has been acquired over decades of intense research, cannot be dismissed and ignored. In the present work, in particular, we put forth a new approach that capitalizes on the availability of (possibly simplified or inaccurate) theoretical models, in order to reduce the amount of empirical data to use and the complexity of training artificial neural networks (ANNs). We concretely show, with the aid of some examples, that synergistically combining prior expert knowledge based on analytical models and data-driven methods constitutes a suitable approach towards the design and optimization of communication systems and networks with the aid of deep learning based on ANNs.

KEYNOTE 2

Synthetic Molecular Communication: Fundamentals, Challenges, and Results
Robert Schober

Synthetic molecular communication is an emerging research area offering many interesting and challenging new research problems for engineers, biologists, chemists, and physicists. Synthetic molecular communication is widely considered to be an attractive option for communication between nano-devices such as (possibly artificial) cells and nano-sensors. Possible applications of nano-communication networks include targeted drug delivery, health monitoring, environmental monitoring, and "bottom-up" manufacturing. The IEEE and ACM have recently founded several new conferences and journals dedicated to this exciting new and fast growing research area. In this talk, we will give first a general overview of the areas of synthetic molecular communication and nano-networking. Components of synthetic molecular communication networks, possible applications, and the evolution of the field will be reviewed. We will focus particularly on diffusion based synthetic molecular communication, identify the relevant basic laws of physics, and discuss their implications for communication system design. Subsequently, typical communication engineering design and signal processing problems will be discussed. In particular, methods for intersymbol interference mitigation will be investigated in some detail. Furthermore, preliminary experimental results will be provided. In the last part of the talk, we will discuss some research challenges in synthetic molecular communication.

KEYNOTE 3

Pozyx Ghent

Important Dates

- ~~September 1, 2018~~ September 16, 2018: Submission of the extended abstracts
- October 1, 2018: Notifications of acceptance
- October 27, 2018: Submission of the camera-ready abstracts

Awards

A best student paper award will be given. To qualify for the award, a student has to be the first author of the paper and present the paper himself/herself.

Chapter Executive Committee

- **Chair**: Heidi Steendam, Ghent University
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- Bhavani Shankar, University of Luxembourg
- Claude Oestges, Université Catholique de Louvain
- Bruno Quoitin, Université de Mons
- Mamoun Guenach, Bell Labs, Nokia Belgium

Local Organization

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