Title: User-to-BS Assignment and Mobilty Optimization in Heterogeneous Networks
Öykü Tuncel

Abstract: Mobility optimization and resource allocation play very important role on the performance of next generation networks. In our study, user assignment and resource allocation optimization problems were jointly studied in nonorthogonal multiple access (NOMA) enabled heterogeneous networks where the macro and pico base stations (BSs) serve their connected users with OFDMA and the femto BSs (FBSs) are capable of serving their users with NOMA protocol. The joint problem of user and resource allocation is formulated with the aims of maximizing the sum rate and fairness among tiers and users. In order to solve the problems in a distributed manner joint range expansion (RE) and resource allocation algorithms are proposed. Our studies also cover mobility optimization for heterogeneous networks where the self organzing networks use cases mobility load balancing incorporates with mobility robustness optimization functionality. We give an optimization framework that is capable to make user-to-BS and resource-to-user assignment that maximize load balance between BSs and sub-bands. Also distibuted algorithms that approach the performance of optimization framework while avoiding inappropriate handover-based radio link failures (RLFs) so that mobility optimization is handled.
Bio: Öykü Tuncel graduated from Electrical and Electronics Engineering at FMV Işık University and completed her M.Sc. degree on telecommunication option in Electrical and Electronics Engineering at Boğaziçi University. Currently, she is a PhD candidate in the same department at Boğaziçi University and since 2016, she has been supported from DPT/TAM project. She studies on Long-Term Evolution (LTE) /4G/5G networks. Her main research areas of interest include network and mobility management, performance evaluation of heterogeneous LTE networks, user assignment and resource allocation, load balancing and interference managenement and non-orthogonal multiple access.

Title: Using Renewable Energy Sources in Hybrid Cloud Radio Access Networks
Turgay Pamuklu

Abstract: Cloud is a promising technology to reduce energy consumption in Radio Access Networks (RAN). However, the necessity of enormous bandwidth capacity between the Remote Radio Head and the Center Site leads to find hybrid solutions. One solution is to split digital processes between the central site and local sites to reduce the bandwidth consumption. In this presentation, I will show an example of this kind of solution which also use renewable energy sources to minimize brown energy consumption.
Bio: Turgay Pamuklu graduated from Istanbul Technical University of Electronics Engineering (BS) and Computer Engineering (MSc) in 2005 and 2010. He has been continuing his Ph.D. in Bogazici University, Computer Engineering. He is working on energy-efficiency problems and green techniques in Radio Access Networks. His research interests include computer networks, optimization problems, and renewable energies. He also worked as an R&D Engineer in TUBITAK about 11 years.

Title: Sign Language Recognition
Ahmet Alp Kındıroğlu

Abstract: Compared to the problem of action recognition where the videos show a large amount of variety, sign language gestures adhere to a given protocol of frontal poses, where different signs are differentiated through varying hand shapes, upper body joint positions and trajectories. The timing of the gestures on the other hand is more critical. In this study, we seek to improve the performance of existing sign language recognition classification methods through the incorporation of temporal registration prior to classification. To align sign language gestures using the movement-hold model proposed by Lidell et. al.(Lidell 1980), we use hand speed, hand shape and body coordinate features with dynamic time warping, canonical time warping and generalized canonical time warping approaches to perform alignment and key frame selection. The proposed alignment method is further improved through a task selection scheme performed with spectral clustering. The aligned gestures are then used with 3d convolutional neural network classifiers a considerable improvement is observed in user independent isolated sign language recognition performance.
Bio: Ahmet Alp Kındıroglu graduated from Sabancı University Department of Computer Science and Engineering in 2008. He graduated from Boğaziçi University in 2011 with a master's degree in Computer Engineering. Since 2011, he has been continuing his education as a doctoral candidate with the thesis topic "Independent Sign Language Recognition from the User", under the consultancy of Lale Akarun in the same department. He worked as a research assistant at Boğaziçi University Computer Engineering Department between the years of 2011-2017 and is currently working as a scholarship / researcher at DPT / TAM Project. His main research areas of interest include computer vision, transfer of learning, sequence alignment, sign language recognition, personality analysis and deep neural networks. He has completed and is still a part of Tübitak and Santez on these topics.

Title: Spatial Task Allocation in Search & Rescue
Okan Aşık

Abstract: Search and rescue strategies are developed by human experts using the knowledge gathered from previous disasters. However, these procedures are not formally validated and does not follow scientific approach. We develop a decision-theoretic multi-agent planning approach for search and rescue tasks. Although, multi-agent decision-theoretic approaches fails to scale, we use the spatial property of tasks to reduce the complexity of the problem. We also reduce the algorithmic complexity due to the multiple agents by using decentralized planning as if they are the only in the world. We validate our approach using the RoboCup Rescue Agent Simulator.
Bio: Okan Aşık is a PhD Candidate in Computer Engineering, Boğaziçi University. His research interests are scalable multi-agent planning, search and rescue task allocation, visual robot behavior programming, robotics simulators. He is a RoboCupper since 2011 in Standard Platform League until 2015 and in Rescue Agent Simulation League now. He is also a contributor in open-source JdeRobot VisualStates project.