Boğaziçi Üniversitesi

Teleiletişim ve Enformatik Teknolojileri Uygulama ve Araştırma Merkezi (TETAM)

Doktora Öğrencileri Seminerleri

28.05.2021 / 10:00-11:30 Yer: Zoom Webinar

Title: eBlocBroker: A Blockchain Based Autonomous Computational and Data Resource Broker

Alper Alimoğlu

Abstract: Blockchain infrastructures based on a peer-to-peer network have emerged as disruptive technologies and have led to the realization of cryptocurrencies (peer-to-peer payment systems) and smart contracts that can be used in a globally trustless manner. Due to their open and public nature, blockchain technologies can have many application areas in e-Science. eBlocBroker is a novel smart contract that is a blockchain-based autonomous computational and data resource broker. It is currently being developed on our Ethereum-based private blockchain network (eBlocPOA), which uses a Proof-of-Authority algorithm as its consensus system and is implemented in Solidity. It will connect: (i) requesters (users) that need to run applications (jobs) utilizing computational and data resources (ii) providers of computational servers on clouds or on personal computers, and (iii) cloud storage for storing and sharing data using IPFS, EUDAT, or Google Drive. The Slurm workload manager is utilized on each cluster for execution of jobs submitted through eBlocBroker. We have implemented and deployed eBlocBroker, for which we present experimental results from demonstrations on eBlocPOA.

Bio: Alper Alimoğlu is a Ph.D. student in Computer Engineering at Boğaziçi University under guidance of Prof. Dr. Can Özturan. He received his M.S. in computer science from Binghamton University, State University of New York. He holds a B.S. in Information Systems Engineering from Dual Degree Program between Binghamton University, State University of New York and Istanbul Technical University. Before joining Boğazici University, he was a research assistant in the department of computer science at Binghamton university. His master thesis subject was Smart Load Balancer: workload time series predictions for data centers. He Implemented machine learning concept that is Echo State Network algorithm to achieve accurate predictions for the short, medium and long term. His current research interest includes Ethereum smart contracts and Blockchain.

Title: Keyord Search

Alican Gök

Abstract: Conventional keyword search (KWS) systems employ automatic speech recognition (ASR) systems to generate word hypotheses in order to locate the input text query in a spoken archive. Training ASR-based systems is a complex process and requires labeled data. Recently, end-to-end (E2E) systems emerged as an alternative to ASR-based systems, requiring only weakly-labeled data. So far, these E2E systems for KWS have either focused on a limited set of keywords or they have only been applied to tasks which are not representative of a realistic, imbalanced and demanding KWS scenario of trying to detect a few hits within hours of speech. To this end, we propose an E2E open-vocabulary KWS system featuring a novel acoustic interval autoencoder and include training and testing strategies to perform well in such a setting. When combined with an ASR-based system, our system provides an improvement of 4% on in-vocabulary and 23% on out-of-vocabulary keywords for the Turkish KWS task from the IARPA Babel program.

Bio: Alican Gök (B.Sc. 2008, M.Sc. 2014) is a PhD candidate in the Electrical-Electronics Engineering department, working with Prof. Murat Saraclar. His current research interests include machine learning, spoken term detection, automatic speech recognition and end-to-end systems.

Title: Temporal Multi-Modal Sensorimotor Prediction via Deep Modality Blending Networks

Muhammet Yunus Şeker

Abstract: Robot learning deals with the problem of equipping an agent with a function to control its motor output to perform a given task. Current research focus on how to approximate this function independent from the task and the embodiment so that the method can be applied on various settings. Learning from demonstration is one of those methods where the agent tries mimic the demonstrated expert behavior by learning a mapping between the given states and actions. As the expert behaviour provides the desired action for each example state, the agent is supervised with direct information. In this work, we propose Deep Modality Blending Networks that combine the advantages of LfD and multi-modal learning in order to improve skill learning, and to achieve easy skill transfer from one modality to another.

Bio: M. Yunus Seker is a first year PhD student in the Computer Engineering department at Bogazici University, under the supervision of Assist. Prof. Emre Ugur. He also recieved his B.S. and M.S. in computer engineering program from Bogazici University. He is a research assistant in Colors Lab (Cognition, Learning and Robotics). He worked as a research assistant in IMAGINE, EU H2020 Project which aims to enable robots to understand the structure of their environment and how it is affected by their actions, between the years of 2017-2020. He is currently working as a scholarship / researcher at TAM Project. His research aim is to develop and enhance advanced methods for Robot Learning (affordance learning, action-effect prediction, learning from demonstration, symbolic learning and planning) using deep neural networks and other state-of-the-art methods.

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