

ICSSP 2020 Conference Theme

Synergies of AI, Serverless, and Software and Systems Processes

Techniques under the general heading of artificial intelligence (AI) are transforming many industries. Software development and evolution is no exception. These techniques including (but not limited to) Machine Learning (ML) and Deep Learning (DL) are redefining how developers build software products. Machine learning and deep learning are accelerating contemporary software development lifecycles by analyzing huge amounts of data produced and consumed throughout the process. The results of these insights are driving change. How are these techniques changing the way we develop and evolve software systems? How does our perspective on process, our process models and process improvements need to change? Currently, two potential avenues for bringing together AI techniques and software/system processes appear promising.

AI for Software and System Processes: How can ML, DL and other artificial intelligence techniques be integrated into the phases and activities in the software development and evolution lifecycle? Adopting ML and DL is far beyond simply a question of learning to train a model and then apply the model. Software and system engineers need to think deeply about how the ML and DL models can integrate with the existing software and system processes. How will human intelligence be supported and augmented by machine intelligence to improve the quality, effectiveness and efficiency of software and systems processes? With continuous integration and delivery, which are increasingly enabled by automated toolchains and cloud-based hardware provisioning paradigms, these techniques are becoming more accessible and generally adopted.

Software and System Processes for AI: Recent advances ML and DL have stimulated widespread interest in integrating AI capabilities into various kinds of software systems and services. This emergent demand has forced organizations to evolve their development processes. How can software and system engineering processes guide the development and maintenance of ML and DL based software and systems? What are the unique software process challenges that organizations may meet in producing large-scale solutions for the society needs using these techniques?

ICSSP 2020 aims to:

- (1) Explore how advances in machine learning and deep learning can be woven into software and system processes in a way in which learning from a large variety of data and experiences can better create end-to-end software systems;
- (2) Explore how processes can be constructed to improve the development and evolution of ML and DL based software and systems;

(3) Examine the interplay between emerging cloud-based hardware provision paradigms, such as serverless and Function-as-a-Service (FaaS), and software and systems development processes.