

“DSAI – The Center for Digital Signal Processing with AI”

Abstract:

Fraunhofer IIS has a long track record in digital signal processing and its applications in media coding and data transmission, starting with MP3 and digital radio. The application of Artificial intelligence (AI) in signal processing offers a whole range of new approaches in these application fields such as acoustic frontends, visual 3D reconstruction, speech and video coding and joint channel-source coding for communication. Therefore, the Center for Digital Signal Processing using Artificial Intelligence (DSAI) was founded, combining our domain expertise with data driven methods such as DNNs, SNNs, and generative methods.

The talk will start by demonstrating challenges in the aforementioned research fields followed by an overview of current state-of-the-art solutions. This is followed by short introductions on possible data based approaches before insights into the our proposed AI methods are given. Eventually, The tradeoff between performance and complexity for classical vs. AI-methods will be discussed.