HiWi / Research Internship (ETIT Forschungspraktikum):

Real-time Digital Signal Processing for Optical Communication

With higher symbol rates and power efficient optical transceivers, the DSP design of powerful and hardware efficient algorithms has become a key factor in optical transmission systems. For the validation of new DSP concepts, FPGAs are the preferred hardware platform. Operating at a few hundreds of megahertz, a major challenge is the implementation of signal processors that are able to deal with tens to hundreds of gigasamples per second. By parallelizing the algorithm structure, it is possible to process such high data rates, while at the same time placing high demands on the computational complexity. In the framework of a research internship/HiWi, we offer tasks in the field of high-speed DSP on an high-end FPGA development board. In the context of an internship we are looking for ambitious students to help us build a real-time communication system. The work comprises the analysis and simulation of algorithms, their implementation and demonstration on an FPGA, as well as the help with the experimental setup of a testbed in the lab. A continuation of the work in a thesis is intended.

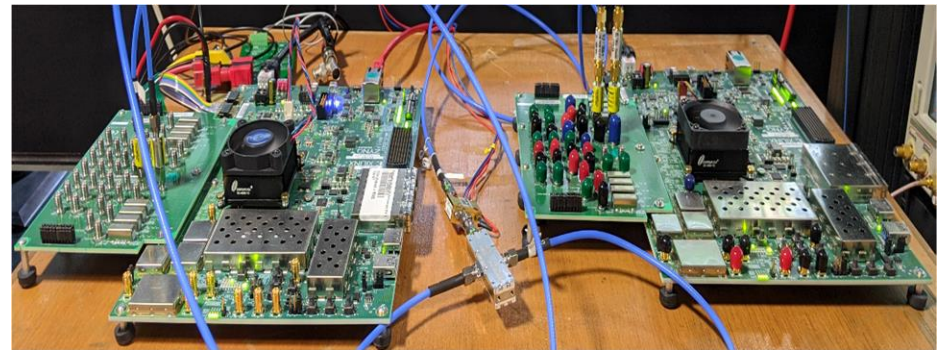**Position:**

- HiWi: 40h/month
- Research internship: ~3 months

Fig. 2 Experimental setup to demonstrate the developed real-time algorithms. Two FPGAs for the transmitter and receiver respectively.

Interested? For more information contact:

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