



Karlsruhe Institute of Technology



Institute for Beam Physics and
Technology

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2018-2020

KIT

Physics (M.Sc)

Bayesian optimization of injection efficiency at KARA storage ring

2020-present

KIT

Doctoral Researcher

Accelerator control with machine learning methods at FLUTE

Involvement in RL:

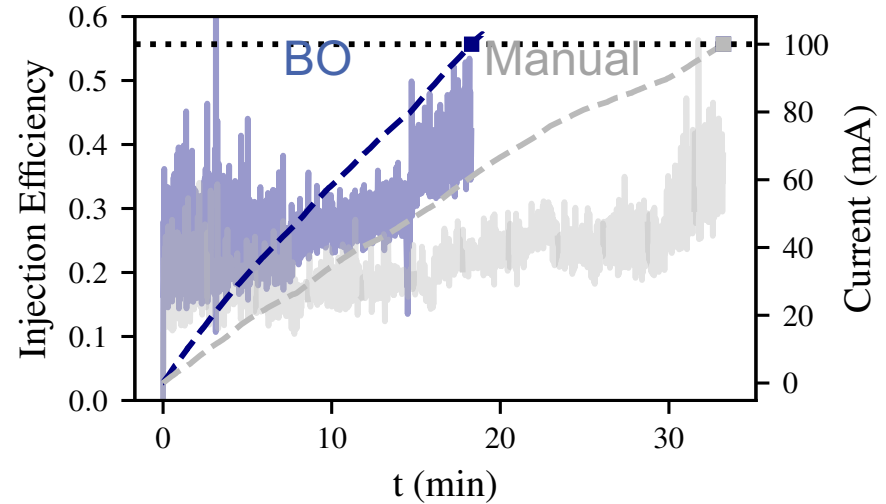
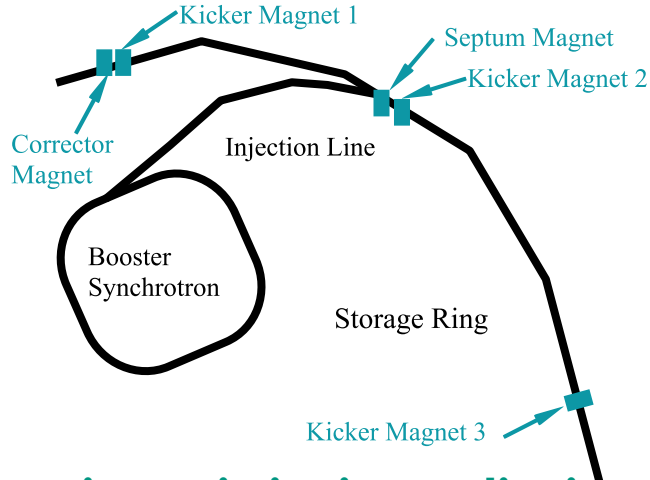
- Autonomous accelerator project with DESY
 - Automatic steering and focusing of beam
- Automatic beam control for FLUTE (ongoing)
 - THz radiation optimization

I'm interested in:

- Real world RL applications
- Generalizable RL agent
- Synergy between optimization and tuning
- Advanced RL approaches (hierarchical RL, multi-agent RL...)

Previous experience with machine learning

Bayesian Optimization (BO) for Injection optimization at KARA

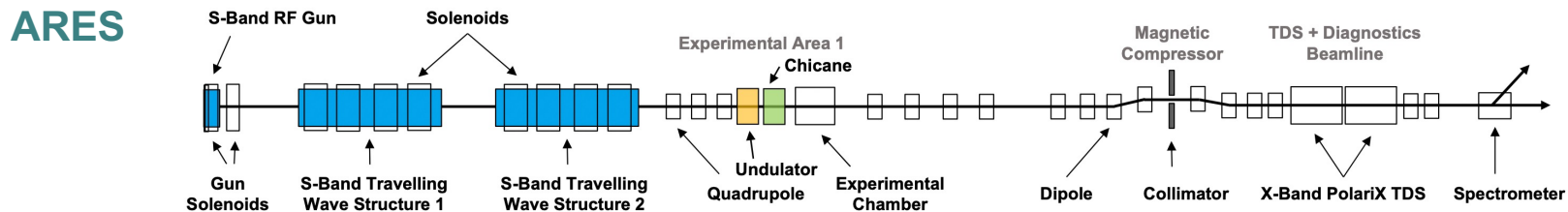
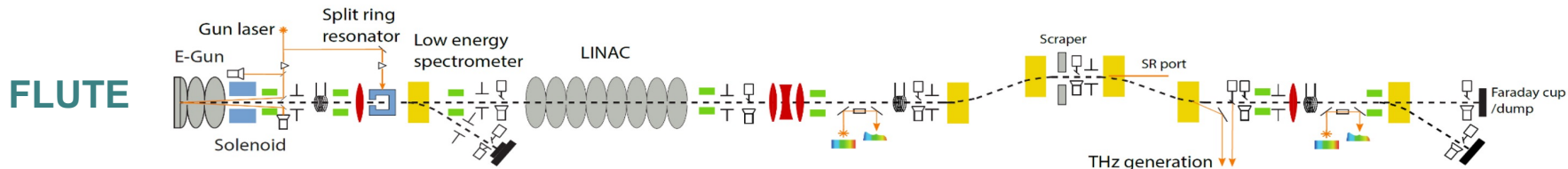


Other Bayesian optimization applications:

- Transverse beam tuning at ARES (benchmark to RL)
- SASE tuning at EuXFEL
- Simulation parameter optimization for THz generation

What I'm working on

Autonomous Accelerator Project



Transfer RL agents to similar tasks (same goal, different lattice)

- Domain Randomization
- (Future) Meta-RL