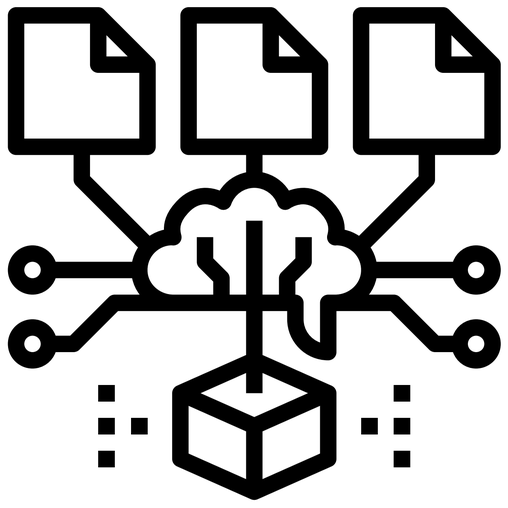
Helmholtz AI Consultants at Helmholtz-Zentrum Dresden-Rossendorf

Peter Steinbach

Scientific Computing Group, Dept. of Information Services and Computing, HZDR, Dresden, Germany

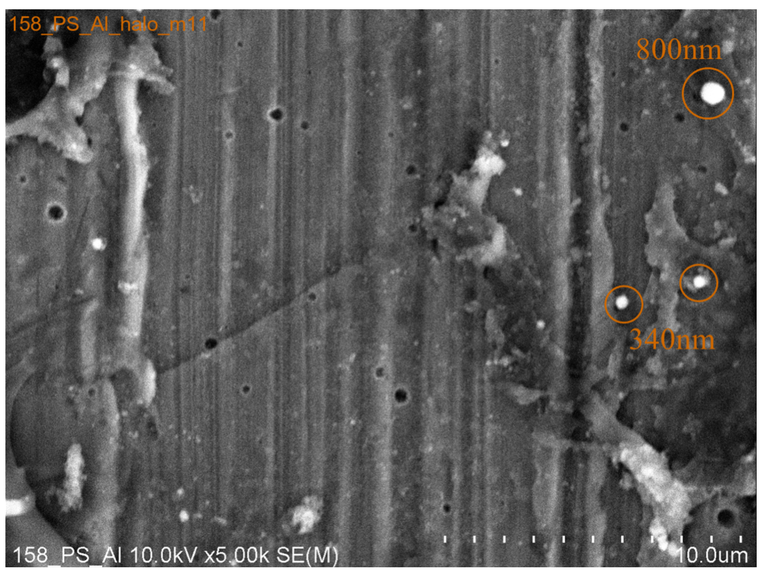


by flaticon.com:becris

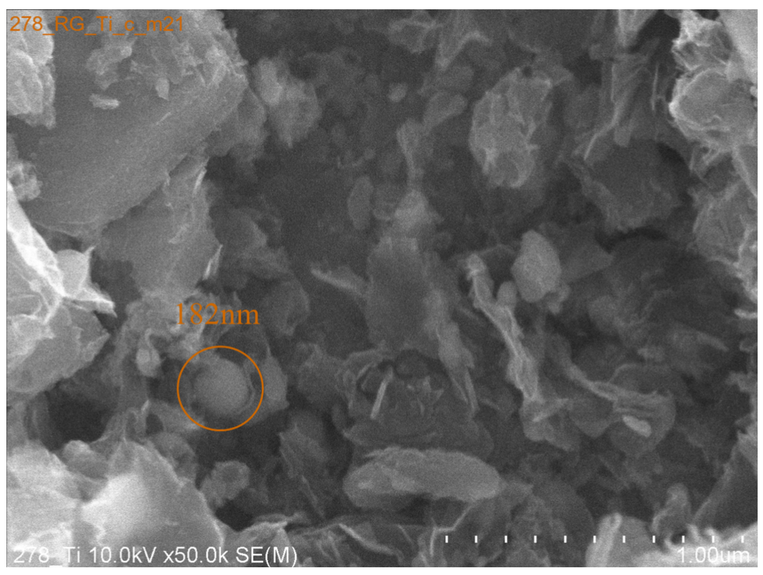
Disseminate AI Methods in Matter Research

- supporting all stages of a AI project (planning, processing, training, deployment)
- interests and expertise:
  - ▷ pattern recognition (segmentation, localization)
  - ▷ uncertainty estimation
  - ▷ self-supervised denoising

Pilot Voucher: Localizing Diamonds



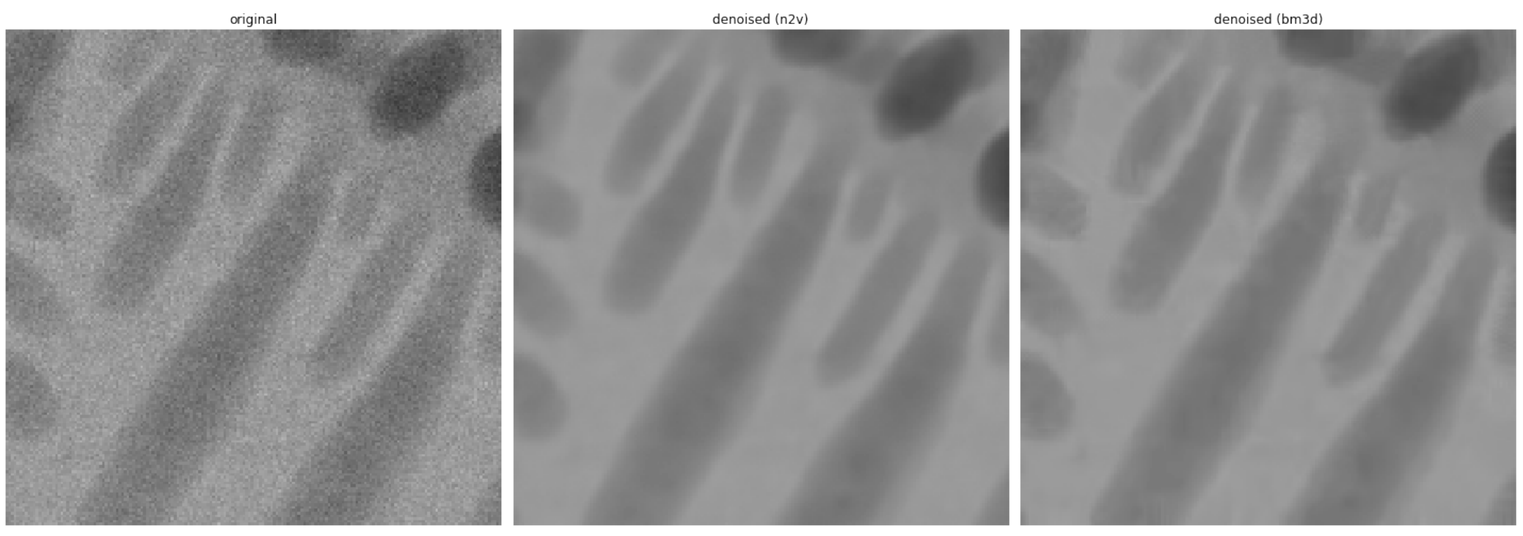
HZDR/A. Schuster



HZDR/A. Schuster

- **data:** Scanning Electron Microscope images from plasma condensates emulating the atmosphere on Mercury
- **goal:** localize diamonds
- **status:** voucher on hold due to anisotrope transforms discovered in labelled images
- **next:** find suitable tools to re-label or re-annotate images
- **collaborator:** HZDR

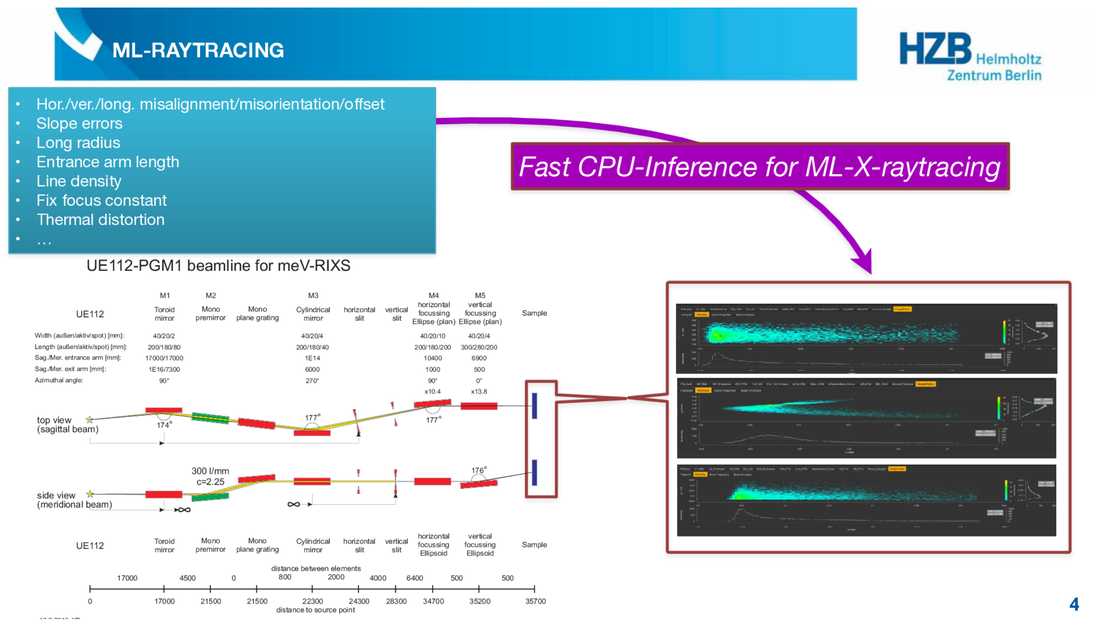
Pilot Voucher: Groundtruth-free Denoising



HZDR/D. Kotik

- **data:** radiograms of liquid metals becoming solid
- **goal:** denoise to improve segmentation of developing tip without groundtruth
- **status:** AI driven denoising without groundtruth with github.com/juglab/n2v
- **next:** fully unsupervised noise removal with github.com/juglab/ppn2v
- **collaborator:** HZDR

Pilot Voucher: Predicting Beam Positions



HZB/G. Hartmann

- **data:** simulations of beamline hardware predicting beam positions
- **goal:** decrease latency of inference to μsec scale or better
- **status:** revising architecture motivated by SqueezeNet, MobileNet etc
- **collaborator:** Helmholtz-Zentrum Berlin