Paid Internship of Computer Science MSc. - NVIDIA

Tasks

- Development of back-end pipeline for advanced image processing with polarimetric data of human tissue.
- Backbone framework open for modular extensions from multiple concurrent data-streams (snapshots, videos, etc.).
- Working with a high performance platform for next-generation AI medical instruments: NVIDIA Clara AGX + Holoscan SDK.
- Integration of ML/AI designs for real-time translational applications in SNSF-funded HORAO project.

We are looking for a highly motivated MSc student in computer science to help us developing a fully functional research prototype for Mueller polarimetric imaging (MPI) system to be employed on human tissues for surgical analyses, feedback and visualisations. The development will be supervised by PD Dr. Richard McKinley, in strong collaboration with the NVIDIA Holoscan Team.

This is a unique internship opportunity to bridge the gap between academia and industry within a fully translational research project in collaboration with Inselspital and University of Bern.

Qualifications

- BSc. Computer Science, (SW) Engineering, or similar

Essential Skills

- Hands-on and proven experience with codebase development and repository management (Python, GitHub).
- Advanced knowledge of linear algebra, scientific computing packages and computer vision concepts for image processing (numPy, sciPy, openCV).
- Familiarity with established ML/AI frameworks (SciKitLearn, Pandas, PyTorch, TensorFlow).
- Memory optimisation and parallelisation of models and routines.
- Knowledge of profiling tools for benchmarking on CPUs and GPUs.
- Good knowledge of English language.

Preferred Skills

- Familiarity with CPU-based parallelisation libraries (openMP).
- Familiarity with GPU and AI-model libraries for deployment (CUDA, CuDNN, TensorRT, Onnx/Runtime).
- Experience with real-time digital image processing of camera video-streams using high performance computing devices.
- Familiarity with NVIDIA tools, SDKs, NGC catalog, model zoo.
- Experience with Docker images and containerisation.
- Front-end development for a fully end-to-end processing pipeline (real-time visualisation, GUI).
- Proficient knowledge of English language.

Temporary/Starting

3-6 months; (50-) 100% (part-) or full-time. Starting March 1st 2024 or later.

References

HORAO website: https://horao.eu

To apply, please send your CV to David.Hasler@insel.ch and RichardIain.McKinley@insel.ch