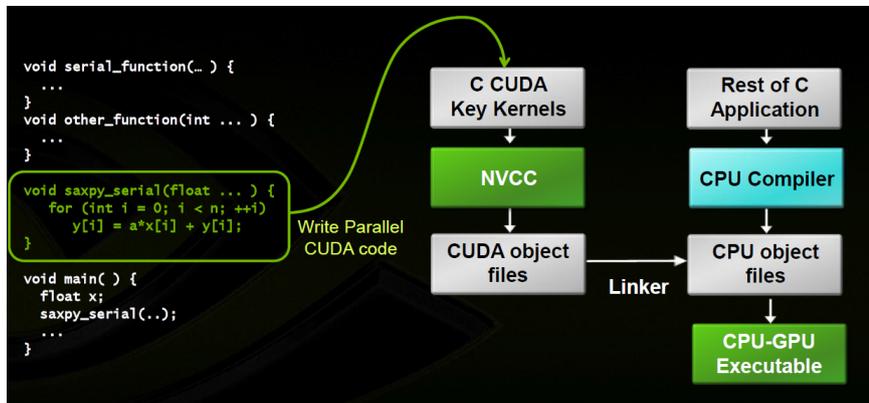


Student Research Assistant

Efficient parallelized algorithm design



Compile and run CUDA C++ Programs. ©Nvidia

Parallelization offered by CUDA programming allows significant performance improvements in cases where each iteration of an algorithm is independent of its past execution. This allows its widespread use for perception and fusion tasks. However, in optimization and decision making, where a solver iteration typically depends on previous solutions, the utilization of GPU-approaches are not straightforward.

The student research assistant will get algorithms that are implemented in C++ or in Python and will implement its elementary operations in CUDA. The C++ and CUDA implementations will be benchmark and based on the results obtained by profiling, potential improvements will be discussed and in case be implemented.

The student should ideally:

- + be able to think analytically
- + has experience with the CUDA library (if not is proficient in C++ and Linux)
- + is interested in the fundamentals of optimization and decision making under uncertainty.

Some extra information:

- + The student should start working ASAP
- + A workload of at least 40 hours / month is expected
- + Student shall work remote. A laptop with a Linux OS and GPU might be lend, if required
- + A thesis opportunity on the same topic is possible
- + Student enrolled in School of Informatics or School of Electrical Engineering are welcome, as well
- + This advertisement is written in English to address a more broad spectrum of students.

Please attach a brief Résumé and your transcript of records while applying!

Institute of Measurement and Control Systems (MRT)
Prof. Dr.-Ing. Christoph Stiller

Advisor:

Ö. Sahin Tas, M.Sc.

Programming language(s)¹:

C++ proficient
CUDA proficient
Python elementary

System, Framework(s):

Linux, Git, CUDA

Required skills:

- Work on your own

Language(s):

German, English

For more information please contact:

Ömer Sahin Tas

Web: bit.ly/2xFkiwZ

Phone: +49 721 9654-262

Email: sahin.tas@kit.edu

Or directly send in your application including your current grades as well as our questionnaire!



¹ skill levels:

beginner < 500 lines of code (LOC)
advanced 500 – 5000 LOC
proficient > 5000 LOC