# Patrick Flick

*Georgia Institute of Technology*
*Atlanta, Georgia, USA*
*(404) 974 6741*
*patrick.flick@gmail.com*

*PhD student in Computational Science, interested in High Performance Computing, Graph Algorithms, String Algorithms, Pattern Matching*

## Education

2014– **Ph.D. in Computational Science & Engineering**,
*Georgia Institute of Technology*.
*Current GPA:* 4.0
*Research:* High Performance Computing, Bioinformatics, String Algorithms
*Advisor:* Srinivas Aluru

2011–2014 **Master's Degree in Computer Science**,
*Karlsruhe Institute of Technology, Germany*.
*GPA:* 1.0 (4.0/4.0 equivalent)
*Specializations:* Algorithm Engineering, Parallel Computing
*Thesis:* Analysis of human tissue-specific protein-protein interaction networks
*Minor:* Biology (genetics and molecular biology)

2012–2013 **ERASMUS exchange**,
*Chalmers University of Technology, Sweden*.
Studied Computer Science, Bioinformatics and Biotechnology

2008–2011 **Bachelor's Degree in Computer Science**,
*Karlsruhe Institute of Technology, Germany*.
*GPA:* 1.0 (4.0/4.0 equivalent)
*Thesis:* Parallel sorting as malleable job
*Minor:* Physics

## Awards & Scholarships

2016 **Reproducibility Award**.
*Awarded by:* Supercomputing 2016

2015 **Best Student Paper**.
*Awarded by:* Supercomputing 2015

2012 **Deutschlandstipendium**.
*Awarded by:* Karlsruhe Institute of Technology

2012 **ERASMUS scholarship**.
*Awarded by:* Karlsruhe Institute of Technology

## Publications

2015 P. Flick, S. Aluru. "Parallel Distributed Memory Construction of Suffix and Longest Common Prefix Arrays". *Supercomputing 2015*, **Best Student Paper**

2015 P. Flick, C. Jain, T. Pan, S. Aluru. "A Parallel Connectivity Algorithm for de Bruijn Graphs in Metagenomic Applications". *Supercomputing 2015*, **Reproducibility Award at SC16**

2013 P. Flick, P. Sanders, J. Speck, "Malleable Sorting". *IEEE 27th International Parallel and Distributed Processing Symposium*, 2013

## Research & Projects

2014– **Text and Genome Indexing on parallel distributed systems**,
*Georgia Institute of Technology*.
Suffix Array, LCP Array, and Suffix Tree construction on parallel distributed memory clusters. Implementation in C++11 and MPI.
*Advisor:* Srinivas Aluru
*GitHub:* github.com/patflick/psac

2015– **mxx**.
a C++/C++11 template library for MPI, providing typesafe C++11 bindings for MPI, and implementations for common parallel patterns and algorithms.
*GitHub:* github.com/patflick/mxx

2013–2014 **Tissue-specific protein interaction networks**,
*Chalmers University of Technology*.
Protein expression and its role in celltype specific protein-protein interaction networks.
*Advisors:* Prof. Dr. Alexandros Stamatakis *(KIT)*, Jr.prof. Dr. Henning Meyerhenke *(KIT)*, Francesco Gatto, PhD, Prof. Jens Nielsen, PhD, dr.tech.
*GitHub:* github.com/patflick/tsppi

2011–2012 **Malleable sorting**,
*Karlsruhe Institute of Technology*.
Development and implementation of a parallel sorting algorithm that can change the number of working threads during run-time.
*Advisors:* Prof. Dr. Peter Sanders, Jochen Speck

## Experience

05/2016–08/2016 **Research Intern**,
*Lawrence Berkeley National Laboratory*.
High Performance Computing for analysis of PacBio long reads.

08/2015 **Argonne Training Program for Extreme-Scale Computing**,
*Argonne National Labs*.
Two-week training program covering programming methods, languages, and tools for designing, implementing, and executing computational science applications on current high-end computing systems.

06/2015–07/2015 **Performance Applications Engineering Intern**,
*AMD, Sunnyvale*.
OpenCL GPU programming and parallel algorithms development.
Programming in OpenCL, C++, node.js, opencl.js

04/2010–07/2010 **Teaching Assistant**,
*Karlsruhe Institute of Technology*.
TA for the undergraduate class Algorithms I

07/2008–03/2010 **Student Employee**,
*Yello Strom GmbH, Köln*.
Various programming and data analysis tasks using C#, R, Matlab, SAS and SQL.

## Skills

Languages **German** (native), **English** (professional proficiency)

Programming C++ (MPI, OpenMP, PThreads, C++11), C, Python, OpenCL, Java, SQL, C#, Haskell