

# Marcin Copik

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## Education

- 2018– **PhD in Computer Science**, *ETH Zürich*.  
Scalable Parallel Computing Lab. Supervisor: Prof. Torsten Hoefler
- 2014–2017 **M.Sc. in Simulation Sciences**, *RWTH Aachen*, Germany, *Grade 1.5*.  
Interdisciplinary program. Major subject: High-Performance Computing
- VIII 2014 **Scuola Matematica Interuniversitaria**, *University of Perugia*, Italy.  
Summer school in mathematics. Courses: Stochastic Processes, Functional Analysis
- 2012–2014 **B.Sc. in Mathematics**, *Silesian University of Technology*, Poland, *GPA 4.6/5.0*.  
Finished two of three years program.
- 2010–2014 **B.Sc. in Computer Science**, *Silesian University of Technology*, Poland, *Grade 5(A)*.  
An engineering degree. Major subject: Software Engineering

## Experience

- 2017, 2018 **Mentor**, *Google Summer of Code*, Organization: The STE||AR Group.
- 2016 – 2017 **Student Assistant**, *Aachen Institute for Advanced Study in Computational Engineering Science*, *High-Performance and Automaton Computing*, Aachen, Germany.  
Benchmarking linear algebra frameworks. C++, Python, Eigen, Blaze, Armadillo, Julia, Matlab
- IV–VIII 2016 **Research Assistant**, *Louisiana State University*, *STE||AR Group*, Baton Rouge, USA.  
Integrating single-source GPU programming in HPX. C++, C++AMP, AMD ROCm, SYCL. Supervisor: Dr Hartmut Kaiser
- 2014 – 2016 **Student Assistant**, *Jülich Supercomputing Centre*, Jülich, Germany.  
Improve and develop new tools for performance analysis of parallel applications at Scalasca. C++, OpenMP, MPI, Qt. Supervisor: Dr Pavel Saviankou
- 2015 **Software Engineer**, *Google Summer of Code*, Organization: The STE||AR Group.  
Integrating single-source GPU programming in HPX. C++, C++AMP, SYCL. Supervisor: Dr Hartmut Kaiser
- 2014 **Software Engineer**, *Google Summer of Code*, Organization: PRISM model checker.  
Improve statistical model checking. Java, Swing. Supervisors: Dr Vojtěch Forejt, Dr Dave Parker
- 2012–2013 **Student Assistant**, *The Institute of Theoretical and Applied Informatics of the Polish Academy of Sciences*, Gliwice, Poland.  
Implementing GPU simulator of Markov Chains, visualization software for the probabilistic timed automata. OpenCL, Java, JavaFX
- 2012–2014 **Student Assistant**, *Silesian University of Technology*, Gliwice, Poland.  
Implementing and improving versions of ICP algorithm for registration of respiratory motion. C++, PCL, VTK  
Supervisor: Dr Dominik Spinczyk

## Projects

- 2018 **Compiler-assisted performance modeling with LLVM and Polly**.  
Collaborators: Torsten Hoefler, Tobias Grosser, Alexandru Calotoiu

## Computer skills

- Programming C++, C, Python, Matlab, Java, R, Julia, Mathematica, Pascal, x86 assembly
- Technologies OpenMP, MPI, OpenCL, CUDA, SYCL, C++AMP, LLVM
- Tools Git, SVN, Mercurial, Make, CMake, autotools
- Experience parallel programming, GPU computing, probabilistic model checking

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## Peer-Reviewed Publications

- 2018 Barthels H., **Copik M.**, Bientinesi P. *The Generalized Matrix Chain Algorithm*. Proceedings of the 2018 International Symposium on Code Generation and Optimization (CGO 2018)
- 2017 **Copik M.**, Kaiser H. *Using SYCL as an Implementation Framework for HPX.Compute*. In Proceedings of the 5th International Workshop on OpenCL (IWOCL 2017).
- 2016 **Copik M.**, Rataj A., Woźna-Szcześniak B. *A GPGPU-based Simulator for Prism: Statistical Verification of Results of PMC [extended abstract]*. The Proceedings of the 25nd International Workshop on Concurrency, Specification and Programming (CS&P 2016)
- 2014 Spinczyk D., Karwan A., **Copik M.** *Methods for abdominal respiratory motion tracking*. Computer Aided Surgery

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## Presentations

- 2017 **Copik M.**, Bientinesi P., Berkels B. *Parallel Prefix Algorithms for the Registration of Arbitrarily Long Electron Micrograph Series*. Supercomputing 2017 Poster, ACM Student Research Competition.
- 2016 **Copik M.**, *HPX and GPU-parallelized STL*. C++Now 2016. Aspen, USA

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## Master thesis

Title *Parallel Prefix Algorithms for the Registration of Arbitrarily Long Electron Micrograph Series*  
Supervisors Prof. Paolo Bientinesi, Prof. Benjamin Berkels  
Description A parallel strategy for image registration based on a distributed prefix sum. C++, MPI, OpenMP  
Grade 1.0(A)

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## Bachelor thesis

Title *GPU-accelerated stochastic simulator engine for PRISM model checker*  
Supervisor Prof. Tadeusz Czachórski  
Description Enhancement of an open-source probabilistic model checker PRISM with a new parallel simulator. GPGPU, OpenCL, Java. Supported by Polish project NCN 4796/B/T02/2011/40  
Grade 5.0(A)

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## References

### **Prof. Torsten Hoefer**

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ETH Zürich  
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### **Prof. Paolo Bientinesi**

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RWTH Aachen  
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### **Dr Hartmut Kaiser**

Adjunct Professor, Department of Computer Science  
Louisiana State University  
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### **Dr Pavel Saviankou**

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Forschungszentrum Jülich  
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