

Marek Felšöci

12 Rue Fonfrède | 33800 Bordeaux | France

☎ +33 5 33 05 12 61 | 📞 +33 7 81 17 58 79 | ✉ marek@felsoci.sk | 📄

<https://www.felsoci.sk>

Education

University of Strasbourg

2017 - 2019

MASTER'S DEGREE IN COMPUTER SCIENCE AND ENGINEERING

Strasbourg, France

- **Fields:** Compilation and optimization, Parallel computing, Distributed systems and grids, Embedded and real-time systems, Electronics, Performance evaluation, Networking protocols, Routing, Security, Internet of Things
- **With honors** (mention Bien)

University of Strasbourg

2014 - 2017

BACHELOR'S DEGREE IN COMPUTER SCIENCE

Strasbourg, France

- **Fields:** Programming, Data structures and algorithms, Language theory, Logic, Graph theory, Operating systems, Web development, Database management
- **With honors** (mention Assez Bien)

Lycée Pilote Innovant International

2012 - 2014

INTERNATIONAL HIGH SCHOOL

Jaunay-Clan, France

- Scientific section with emphasis on mathematics
- **With honors** (mention Assez Bien)

Gymnázium M. R. Štefánika

2011 - 2013

BILINGUAL FRENCH-SLOVAK HIGH SCHOOL

Košice, Slovakia

- Accepted in Lycée Pilote Innovant International after the first year.

Research

HiePACS team, French National Institute for Research in Computer science and Automation (Inria)

Since 2020

PH.D. THESIS: FAST SOLVERS FOR HIGH-FREQUENCY AEROACOUSTICS

Bordeaux, France

- develop efficient methods for solving large coupled FEM/BEM linear systems arising from aeroacoustic problems
- industrial context of Airbus
- **Supervised by:** Guillaume Sylvand and Emmanuel Agullo

Scientific and Parallel Computing team, ICube Laboratory

01/2019 - 07/2019

RESEARCH INTERN

Illkirch-Graffenstaden, France

- Work on XFOR, a new data reuse-oriented programming structure for loop optimizations.
- Implant the XFOR structure into Clang/LLVM compiler.
- Propose a strategy of parallelization for the XFOR structure.
- **Supervised by:** Prof. Philippe Claus

Scientific and Parallel Computing team, ICube Laboratory

05/2018 - 08/2018

RESEARCH INTERN

Illkirch-Graffenstaden, France

- Extended the algorithm for automated data reuse distance optimization implemented in the XFOR structure programming assistant XFOR-WIZARD.
- Resolved critical issues in XFOR-WIZARD causing incorrect dependency analysis results.
- **Supervised by:** Prof. Philippe Claus

Industry

Mageek

05/2017 - 08/2017

DEVELOPMENT INTERN

Strasbourg, France

- Worked on an online website builder system in a team of 3 members.
- Developed back-end and front-end of the application.
- Designed and implemented application's database model.

United States Steel Košice

06/2015

DEVELOPMENT INTERN

Košice, Slovakia

- Developed websites for the corporate network.
- Created an automated data archiving script solution.

Projects

Parallel computational kernels for matrix multiplication

2 members

UNIVERSITY PROJECT

- Implemented multiple parallel computational kernels for matrix multiplication using the nVidia CUDA technology.

Parallelization strategy for labyrinth generation

individual

UNIVERSITY PROJECT

- Proposed and implemented a parallelization strategy for labyrinth generation process using the MPI technology.

StenC language compiler

2 members

UNIVERSITY PROJECT

- Developed a simple DSL compiler from scratch which allows to easily apply stencils to images.

Embedded Snake game

4 members

UNIVERSITY PROJECT

- Developed and deployed a joystick controlled version of Snake on the Texas Instruments MSP432 board.

Embedded video player

2 members

UNIVERSITY PROJECT

- Configured, cross-compiled and deployed Linux kernel together with a video player on the Texas Instruments OMAP-L138 board.

Backy

PERSONAL PROJECT

- Developed an intuitive, straightforward and multi-platform file backup solution in C++.

Slovoca

PERSONAL PROJECT

- Developed a custom dictionary manager in C# to help me with learning of foreign languages.

Expertise

Programming

- C, C++, C#, Java, Python, Caml, Elisp, Prolog, MIPS

Compilation

- LLVM, Clang, Lex and Yacc

Parallelization

- POSIX and Windows threads, OpenMP, MPI, CUDA

Polyhedral optimization

- ISL, OpenScop, Polly, ClooG, Clan, Candi

Scripting

- Bash, Batch, PowerShell

Web development

- JavaScript, react.js, PHP, node.js

Databases

- PL/SQL, MySQL, MongoDB

Network administration

- Juniper, Cisco, IPv4 and IPv6

Miscellaneous

- Unix and Windows systems, GDB, Valgrind, Git, Subversion, L^AT_EX, GNS3, Arduino

Language skills

French (bilingual), **English** (fluent ~ C1), **Slovak** (mother tongue), **Czech** (mother tongue), **German** (basic skills ~ A1), **Ukrainian** (intermediate ~ B1)

Free-time activities

learning new foreign languages, reading (detective and fantasy novels, linguistics and history-related books), biking