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Research Interests:

Concurrent and distributed systems, multi-core architectures, new memory technologies, blockchains.

Education

- 2012 - 2017 **École Polytechnique Fédérale de Lausanne, (EPFL)**, Lausanne, Switzerland
PhD in Computer Science
Thesis: Universally scalable concurrent data structures.
Advisor: Prof. Rachid Guerraoui
- 2010 - 2012 **École Polytechnique Fédérale de Lausanne, (EPFL)**, Lausanne, Switzerland
MSc in Computer Science, 5.63/6 GPA
Thesis: Scalability and Performance of Large Scale Distributed Systems in Tacc.
Advisor: Prof. Rachid Guerraoui
- 2006 - 2010 **Technical University of Cluj-Napoca**, Cluj-Napoca, Romania
BSc in Computer Science, 9.59/10 GPA
Thesis: Ant Inspired Method for Automatic Web Service Composition and Selection.
Advisor: Prof. Ioan Salomie

Experience

- **Oct 2017 - present.** Postdoctoral researcher.
IBM Research, Zurich, Switzerland.
Area of research: blockchain technologies, byzantine consensus.
- **Sep 2012 - 2017.** Doctoral assistant.
DCL (Distributed Computing Laboratory), EPFL, Switzerland.
Topic: concurrent data structures; synchronization; durable data structures; concurrency control.
- **Summer 2016.** Research intern.
Microsoft Research, Cambridge, UK.
Topic: concurrent data structures for non-volatile RAM.
- **Summer 2015.** Research intern.
VMware Research Group, Palo Alto, CA.
Topic: design of a scalable distributed serializable transaction system.
- **Sep 2011 - Mar 2012.** Software engineering intern.
OptumSoft Inc., Menlo Park, CA.
Topic: large-scale key-value store using TACC, a development platform for distributed applications.
- **Summer 2011, Summer 2012.** Research intern.
DCL (Distributed Computing Laboratory), EPFL, Switzerland.
Topic: explicit message-passing consensus protocols in large multi-cores.
- **2008-2010.** Student research assistant.
DSRL (Distributed Systems Research Lab) Technical University of Cluj-Napoca, Romania.
Topic: biologically-inspired methods for automatic web service composition and discovery.
- **Summer 2009.** Research intern.
Laboratoire de l'Informatique du Parallelisme, Ecole Normale Supérieure de Lyon, France.
Topic: modeling the computation and communication-related characteristics of a heterogeneous multi-core in the context of the development of a scheduler for streaming applications.

Main Publications

- Chrysoula Sthakopoulou, Tudor David, and Marko Vukolic. **Mir-BFT: High Throughput BFT for Blockchains**, in submission, available on arXiv, 2019.
- Tudor David, Aleksandar Dragojevic, Rachid Guerraoui, and Igor Zablotchi. **Log-Free Concurrent Data Structures**, USENIX Annual Technical Conference (ATC), 2018.
- Marcos K. Aguilera, Tudor David, Rachid Guerraoui, and Junxiong Wang. **Locking Timestamps Versus Locking Objects**, Symposium on Principles of Distributed Computing (PODC), 2018.
- Tudor David and Rachid Guerraoui. **Concurrent Search Data Structures Can Be Blocking and Practically Wait-Free**, 28th Symposium on Parallelism in Algorithms and Architectures (SPAA), 2016.

- Tudor David, Rachid Guerraoui and Vasileios Trigonakis. **Asynchronized Concurrency: The Secret to Scaling Concurrent Search Data Structures**, 20th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), 2015.
- Tudor David, Rachid Guerraoui and Maysam Yabandeh. **Consensus Inside**, 15th International Middleware Conference (Middleware), 2014, **Best Paper Award**.
- Tudor David, Rachid Guerraoui and Vasileios Trigonakis. **Everything You Always Wanted to Know about Synchronization but Were Afraid to Ask**, Symposium on Operating Systems Principles (SOSP), 2013.

Patents

- Aleksandar Dragojevic and Tudor David, **Memory management in non-volatile memory**, US Patent App. 15/638,164, 2018.

Achievements and Distinctions

- EPFL Teaching Assistant Award, 2017;
- VMware Academic Graduate Fellowship, 2015 - 2016;
- Best paper award, ACM Middleware Conference, 2014;
- EPFL Fellowship, 2012 - 2013;
- Merit Scholarship, Technical University of Cluj-Napoca (TUCN), 2008 - 2010;
- Study Scholarship, Technical University of Cluj-Napoca (TUCN), 2006 - 2008;
- Accepted to TUCN without mandatory admission exam due to outstanding results at national competitions during high school.
- Entered about 100 Contests and Olympics in Sciences (Physics, Math, Computer Science) (2000 - 2006); 2 times second prize at the National Physics Olympiad.

Professional Service

- **Shadow PC member:** EuroSys Conference on Computer Systems 2015 (heavy PC member).
- **External reviewer:** SPAA 2017.
- **Reviewer:** Distributed Computing, 2018.

Teaching Experience

Teaching assistant:

- **Information, Calcul, Communication**, Undergraduate Course, EPFL, 2014, 2015, 2016 (in French);
- **System-Oriented Programming**, Undergraduate Course, EPFL, 2014, 2015 (in French);
- **Concurrent Algorithms**, Graduate Course, EPFL, 2013 - 2014 (in English);
- **Programmation II**, Undergraduate Course, EPFL, 2013 (in French);
- **Mathématiques II**, Undergraduate Course, UNIL, 2016 (in French);
- **Mathématiques - Mise à niveau**, Undergraduate Course, EPFL, 2017 (in French).

Lecturing:

- **Concurrent Algorithms**, Graduate Course, EPFL, 2016 - taught a subset of the lectures.
- **Distributed Algorithms**, Graduate Course, EPFL, 2018 - invited lecturer.

Mentoring:

- Co-supervised 2 Masters theses, 6 semester project students, 3 interns.

Software projects

- ASCYLIB (github.com/LPD-EPFL/ASCYLIB): a concurrent data structure library;
- libnvram (<http://dcl.epfl.ch/site/nvram>): an NVRAM concurrent data structure library;
- liblock (github.com/tudordavid/liblock): a portable lock algorithm library;
- ConsensusInside (github.com/LPD-EPFL/consensusinside): message-passing consensus for multi-cores.

Languages

- **English:** fluent (C2); **French:** good (B2); **German:** basic (A2); **Romanian:** native.