Samuel Gruetter: Curriculum Vitae

Education

April 2017	Expected to receive an MSc in Computer Science from the Swiss Federal Institute of Technology in Lausanne (EPFL), with specialization in "Foundations of Software" GPA: 5.73* (excluding MSc thesis because not yet completed)
10/2016 – 03/2017	MSc thesis project at Prof. Andrew Appel's lab at Princeton University
2014 – Summer 2015	3 semesters of MSc Research Scholars Program at EPFL: Taking the standard Master's program in Computer Science and in parallel, working part-time as a research assistant at Prof. Martin Odersky's Programming Methods Lab (the "Scala Lab")
Summer 2014	Oregon Programming Languages Summer School on Types, Logic, Semantics, and Verification, at University of Oregon
2010 – 2013	Bachelor in Computer Science at EPFL, GPA: 5.51*
2006 – 2010	High school at Gymnasium Bern–Kirchenfeld, type Maths/Physics, GPA: 5.81*. Spring semester 2008 at Gymnase Auguste Piccard, Lausanne

Research Experience

Verifying AES	(in progress) Using the "Verified Software Toolchain" (VST) to prove in Coq that a C implementation of the AES encryption algorithm meets a high-level functional specification written in Coq, and using this as a case study to improve the proof automation tactics of VST
DOT	Worked on the "Dependent Object Types" project, a formalization of the core of Scala's type system. Proofs on paper and using the proof assistants Twelf and Coq [3]. Wrote a mechanized type safety proof in Coq of gDOT, a variant of the Dependent Object Types Calculus [4], and studied how Scala relates to DOT [6]
Leon termination	Contributed to the function termination checker of Leon, a tool for verification and synthesis of Scala programs, by generalizing the existing termination measures [5]
Dotty	Contributed to dotty, a new Scala compiler serving as a research platform to investigate new language concepts and compiler technologies for Scala
Structural Types	Designed, explored and implemented a simple structurally typed language in PLT redex [1]

Publications

WadlerFest 2016	N. Amin, S. Grütter, M. Odersky, T. Rompf, and S. Stucki. The essence of dependent object types. In *WadlerFest*, 2016. Springer LNCS 9600, pp 249-272.
IOI Journal 2016	S. Grütter, D. Graf, and B. Schmid. Watch them Fight! Creativity Task Tournaments of the Swiss Olympiad in Informatics. In *Olympiads in Informatics*, 2016, Vol. 10, pp 73-85.

Awards

SOI 2010	ranked 1st at Swiss Olympiad in Informatics
SPO 2010	ranked 1st at Swiss Olympiad in Philosophy
SWERC 2012	ranked 7th at Southwestern Europe Regional Contest of ACM International Collegiate Programming Contest
hc2 2013	ranked 3rd at Helvetic Coding Contest

Industry Experience

Accenture, 2012	Java Summer Internship at Accenture in Bangalore (India), developed a web interface with JSF/Enterprise JavaBeans monitoring hundreds of servers and databases
Netcetera, 2015	6 months Software Engineering Internship at Netcetera AG, Berne, working in a scrum team, developing an expert tool for defining and maintaining the fare zone plans and ticket pricing for all Swiss public transport associations, with a Java/Oracle DB/Spring backend and an AngularJS frontend being migrated from JavaScript to TypeScript

Opensource Experience

RxScala	Main contributor of RxScala (Reactive Extensions for Scala), a library for composing asynchronous and event-based programs using observable sequences. RxScala is an adapter for the RxJava library by Netflix. Integrated into the Netflix repository [2] in 2013, still an active opensource project now

Teaching Experience

MOOC TA	Teaching assistant for the “Principles of Reactive Programming” course on Coursera, a massive open online course with more than 40'000 students. Developed RxScala, the library on which the programming assignments were based, helped develop and test the assignments, and answered forum questions
EPFL TA	Teaching assistant for the BSc class “Introduction to Logic Systems”, helping students with questions about the exercises
SOI lecturer	Gave lectures at workshops of the Swiss Olympiad in Informatics, teaching basic algorithms (such as graphs, scanline, dynamic programming) to high school students

Other

Study Foundation	Admitted to the complementary learning program of the Swiss Study Foundation
hc2 organizer	Helped organize the Helvetic Coding Contest 2014
SOI organizer	Helped organize the Swiss Olympiad in Informatics since 2011, leader of the Swiss delegation to the International Olympiad in Informatics 2013

Languages

German	native
English	fluent (TOEFL: 107/120, Cambridge Certificate of Proficiency in English)
French	fluent
Latin	took 5 years of Latin in high school, finished with a Latin grade of 6*

Contact

Permanent address	Mattenstrasse 19a, 3073 Gümligen, Switzerland
US address	11 Euclid Ave, c/o D. and M. Rucko, Kingston NJ 08528, USA
E-Mail	samuel.gruetter@epfl.ch

* Swiss grades: 1 = lowest, 4 = pass, 6 = best

Links

[1] BSc semester project "Explorations of type systems", Spring 2013
https://github.com/samuelgruetter/type-systems-spring13/blob/master/doc/report.pdf

[2] RxScala (Reactive Extensions for Scala)
https://github.com/ReactiveX/RxScala

[3] MSc semester project “Machine-checked typesafety proofs”, Spring 2014
https://github.com/samuelgruetter/typesafety-proofs-spring14/blob/master/report.pdf

[4] Report “Dependent Object Types With Existential Quantification Over Objects”, July 2015
https://github.com/samuelgruetter/dot-calculus/tree/master/doc/gDOT-and-exDOT

[5] Report “Improving Leon’s Termination Checker”, June 2015
https://documents.epfl.ch/users/k/ks/ksgruett/www/files/LeonTermination.pdf

[6] MSc optional semester project “Connecting Scala to DOT”, Spring 2016
https://github.com/samuelgruetter/dot-calculus/blob/master/doc/Connecting-Scala-to-DOT