



Evgenii Kotelnikov, Ph.D.

Date of birth: 15 February 1990
Current location: Gothenburg, Sweden
Language proficiency: English (fluent), Russian (native), Swedish (intermediate)

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Main competences

Formal methods Automated reasoning Functional programming Software verification Databases Cloud C

C++ Java Scala Haskell Python

Work experience

[LinkedIn profile](#)

Ericsson AB

August 2019 to now 📅

Software developer

Gothenburg, Sweden 📍

- Implement new features for the control plane of [SGSN-MME](#).
- Develop the cloud infrastructure, including storage, networking and logging, for [Packet Core Controller](#) — Ericsson's 5G solution.

Linux Erlang C Bash Python Kubernetes Docker

Chalmers University of Technology

September 2013 to September 2018 📅

Doctoral researcher

Gothenburg, Sweden 📍

- Conducted research in the areas of automated theorem proving, formal methods and functional programming.
- Published and presented academic results in peer-reviewed conferences and workshops.
- Actively contributed to [Vampire](#), a state-of-the-art automated theorem prover for first-order logic.
- Reviewed paper submission for [SCSS 2014](#), [FM 2015](#), [LPAR-20](#), [CPP 2016](#), [CICM 2016](#), [FM 2016](#), [PSI-2017](#), [TACAS 2018](#), [FM 2018](#) and [iFM 2018](#).
- Assisted to preparing assignments, conducting consultation sessions and grading exams in the following courses.
 - Databases (2014 📅, 2015 📅, 2016 📅, 2017 📅, 2018 📅)
 - Algorithms and Datastructures (2014 📅)
 - Functional Programming (2014 📅, 2015 📅, 2016 📅, 2017 📅, 2018 📅)
- Developed and maintained a homework submission system in the Computer Science department used annually by approx. 1000 students and 20 faculty members.

Java Haskell Python PostgreSQL Oracle Database

Amazon Web Services

March 2017 to June 2017 📅

Applied scientist intern

New York, USA 📍

Developed tools for static analysis of AWS virtual private cloud networks at the [Automated Reasoning Group](#). Among these tools are [Zelkova](#) and [Tiros](#).

Scala Python Datalog Vampire Z3

Yandex Inc.

March 2011 to August 2013 📅

Software developer

Saint-Petersburg, Russia 📍

- Developed the back end of high-load web search services, including an in-house performant database solution capable of serving up to 400 requests per second.
- Developed information retrieval tools and web crawlers.
- Developed an app recommendation system for [Yandex.Store](#).

Java Scala Akka Oracle Database MongoDB Redis

Motorola Solutions Inc.

July 2010 to December 2010 📅

Software engineering intern

Saint-Petersburg, Russia 📍

Designed a specification language for low-level telecom protocols and implemented a toolchain for it.

Scheme C Python Wireshark

Freelance

2005 to 2010 📅

Web developer

Remote 📍

Developed front end and back end of commercial websites.

PHP MySQL HTML CSS JavaScript jQuery

Education

Doctor of philosophy (Ph.D.)

September 2013 to September 2018 📅

[Chalmers University of Technology](#), Department of Computer Science

Gothenburg, Sweden 📍

Thesis titled “[Automated Theorem Proving with Extensions of First-Order Logic](#)”

Ph.D. supervisors [Laura Kovács](#) and [Andrei Voronkov](#)

Explored ways to make automated theorem provers more efficient for applications by extending the logic they support.

The applications include automation of proof assistants and static analysis of software and networks.

Automated theorem proving First-order logic Program analysis Vampire

Master of science (M.Sc.)

September 2011 to July 2013 📅

[Saint-Petersburg State University](#), Department of Applied Mathematics

Saint-Petersburg, Russia 📍

Thesis titled “**Syntactical Extensions of Scala for Effectful Computations**”

Scala Metaprogramming Monads Computational effects

Bachelor of science (B.Sc.)

September 2007 to July 2011 📅

[Saint-Petersburg State University](#), Department of Applied Mathematics

Saint-Petersburg, Russia 📍

Thesis titled “**Source Code Generation Based on Language Grammar Description**”

Source code generation Context-free grammars Algebraic data types Scheme

Summer & winter schools

[Marktoberdorf Summer School 2016](#): Dependable Software Systems Engineering

August 2016 📅

Summer School 2014: Verification Technology, Systems & Applications ([VTSA'2014](#))

October 2014 📅

Advanced Winter School on Reasoning Engines for Rigorous System Engineering ([ReRiSE'14](#))

February 2014 📅

Public software projects

[GitHub profile](#)

vampire

An award-winning automated [theorem prover](#) for first-order logic.

C++ 175 KLOC

scala-workflow

An extension to Scala for boilerplate-free syntax for effectful computations.

Scala 1.5 KLOC

atp

Haskell bindings to automated theorem provers.

Haskell 1.7 KLOC

voogie

A verification conditions generator for the Boogie intermediate verification language.

Haskell 2 KLOC

atomizer

A static analysis tool for finding misfit atoms in large Erlang code bases.

Erlang 1.2 KLOC

fire

A submission system for homework assignments.

Python HTML CoffeeScript Docker 30 KLOC

List of publications

[Google Scholar profile](#)

Reachability Analysis for AWS-based Networks

2019 📅

A. Gacek, J. Backes, B. Cook, N. Rungta, S. Bayless, C. Dodge, C. Varming, A.J. Hu, B. Kocik, [E. Kotelnikov](#), J. Kukovec, S. McLaughlin, J. Reed, J. Sizemore, M. Stalzer, P. Srinivasan, P. Subotic, B. Whaley, Y. Wu and T. Kahsai
Proceedings of the 31st International Conference On Computer Aided Verification

TFX: The TPTP Extended Typed First-order Form

2018 📅

G. Sutcliffe and E. Kotelnikov

Proceedings of the 6th Workshop on Practical Aspects of Automated Reasoning

A FOOLish Encoding of the Next State Relations of Imperative Programs

2018 📅

E. Kotelnikov, L. Kovács and A. Voronkov

Proceedings of the 9th International Joint Conference on Automated Reasoning

A Clausal Normal Form Translation for FOOL

2016 📅

E. Kotelnikov, L. Kovács, M. Suda and A. Voronkov

Proceedings of the 2nd Global Conference on Artificial Intelligence

The Vampire and the FOOL

2016 📅

E. Kotelnikov, L. Kovács, G. Reger and A. Voronkov

Proceedings of the 5th ACM SIGPLAN Conference on Certified Programs and Proofs

A First Class Boolean Sort in First-Order Theorem Proving and TPTP

2015 📅

E. Kotelnikov, L. Kovács and A. Voronkov

Conferences on Intelligent Computer Mathematics

Type-Directed Language Extension for Effectful Computations

2014 📅

E. Kotelnikov

Proceedings of the Fifth Annual Scala Workshop

Embeddable Framework for Syntax-Safe Source Code Generation

2012 📅

E. Kotelnikov

Proceedings of the 2012 Joint International Conference on Human-Centered Computer Environments