Aymeric Fromherz

Curriculum Vitae

1 place Jules Ferry
92120, Montrouge, France
+33-6-98-88-76-85
aymeric.fromherz@inria.fr

Education

2017-2021 **PhD**, *Electrical and Computer Engineering*, Carnegie Mellon University.
A Proof-Oriented Approach to Low-Level, High-Assurance Programming
coadvised by Bryan Parno and Corina Pasareanu

2014–2015, 2016–2017 **Master (M.Sc.)**, *Computer Science*, Paris, Summa cum laude.
MPRI (Master Parisien de Recherche en Informatique)

2014–2015 **Licence (B.Sc.)**, *Mathematics*, École Normale Supérieure, Paris.

2013–2014 **Licence (B.Sc.)**, *Computer Science*, École Normale Supérieure, Paris, Summa cum laude.

2011–2013 **Preparatory classes**, *MPSI/MP* (Maths-Physics)*, Lycée du Parc, Lyon.

2011 **Baccaulauréat (French high school diploma)**, *Scientific*, Cité Scolaire Internationale, Lyon, Summa cum laude.

Professional appointments

2022-now **Inria Starting Faculty Position**, *Prosecco Team*, Inria, France.

2021-2022 **Postdoctoral Researcher**, *Prosecco Team*, Inria, France.

Summer 2020 **Research Intern**, *Supervised by Nikhil Swamy*, Microsoft Research, Redmond, WA, USA.

Summer 2019 **Research Intern**, *Supervised by Nikhil Swamy*, Microsoft Research, Redmond, WA, USA.

Sept 2015–June 2016 **Development and Formal Proof of a MicroKernel**, ProvenRun, Paris, France, Engineer position.

Honors and Awards

2022 **ACM SIGSAC Dissertation Award**.

2022 **A.G. Milnes Award**, *Carnegie Mellon University*, Awarded to a graduating ECE Ph.D. student for the Ph.D. thesis work judged to be of the highest quality and which has had, or is likely to have, significant impact in his or her field..

2019 **Cylab Presidential Fellow**.

2017 **Fondation Monahan Fellow**.

2017 **Google Summer of Code**, Java Pathfinder, Mentor.

2016 **Google Summer of Code**, Java Pathfinder, Student.

2013 **Admission at the École Normale Supérieure, Paris**, National exam for computer science majors, ranked 13th.

2011 **Abitur**, (German high school diploma).

Publications

FastVer2: A Provably Correct Monitor for Concurrent, Key-Value Stores Arvind Arasu, Tahina Ramananandro, Aseem Rastogi, Nikhil Swamy, Aymeric Fromherz, Kesha Hietala, Bryan Parno, Ravi Ramamurthy *Under submission*

Self-Repairing Neural Networks: Provable Safety for Deep Networks via Dynamic Repair, Klas Leino, Aymeric Fromherz, Ravi Mangal, Matt Fredrikson, Bryan Parno, Corina Pasareanu *Workshop on Formal Methods for ML-Enabled Autonomous Systems (FoMLAS), 2022*

Turning Catala into a Proof Platform for the Law, Alain Delaët, Denis Merigoux, Aymeric Fromherz, *Programming Languages and the Law (ProLaLa), 2022*

Steel: Proof-oriented Programming in a Dependently Typed Concurrent Separation Logic, Aymeric Fromherz, Aseem Rastogi, Nikhil Swamy, Sydney Gibson, Guido Martínez, Denis Merigoux, Tahina Ramananandro *International Conference on Functional Programming (ICFP), 2021*

Fast Geometric Projections for Local Robustness Certification, Aymeric Fromherz, Klas Leino, Matt Fredrikson, Bryan Parno, Corina Pasareanu, *International Conference on Learning Representations (ICLR), Spotlight Paper, 2021*

HACLxN: Verified Generic SIMD Crypto (for All Your Favourite Platforms), Marina Polubelova, Karthikeyan Bhargavan, Jonathan Protzenko, Benjamin Beurdouche, Aymeric Fromherz, Natalia Kulatova, Santiago Zanella-Béguelin, *ACM Conference on Computer and Communications Security (CCS), 2020*

SteelCore: An Extensible Concurrent Separation Logic for Effectful Dependently Typed Programs, Nikhil Swamy, Aseem Rastogi, Aymeric Fromherz, Denis Merigoux, Danel Ahman, Guido Martinez, *International Conference on Functional Programming (ICFP), 2020*

Steel: Scaling up Memory Reasoning for F*, Aymeric Fromherz, Denis Merigoux, *Automated Deduction for Separation Logics (ADSL), 2020*

EverCrypt: A Fast, Verified, Cross-Platform Cryptographic Provider, Jonathan Protzenko, Bryan Parno, Aymeric Fromherz, Chris Hawblitzel, Marina Polubelova, Karthikeyan Bhargavan, Benjamin Beurdouche, Joonwon Choi, Antoine Delignat-Lavaud, Cédric Fournet, Tahina Ramananandro, Aseem Rastogi, Nikhil Swamy, Christoph Wintersteiger, and Santiago Zanella-Beguelin, *IEEE Symposium on Security and Privacy (Oakland), 2020*

Symbolic Pathfinder for SV-COMP - (Competition Contribution), Yannic Noller, Corina S. Pasareanu, Aymeric Fromherz, Xuan-Bach D. Le, Willem Visser, *International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), 2019*

A Verified, Efficient Embedding of a Verifiable Assembly Language, Aymeric Fromherz, Nick Giannarakis, Chris Hawblitzel, Bryan Parno, Aseem Rastogi, and Nikhil Swamy, *Symposium on Principles of Programming Languages (POPL), 2019*

Static Value Analysis of Python Programs by Abstract Interpretation, Aymeric Fromherz, Abdelraouf Ouadjaout, Antoine Miné, *NASA Formal Methods Symposium (NFM), 2018*

Symbolic Arrays in Symbolic Pathfinder, Aymeric Fromherz, Kasper S. Luckow, Corina S. Pasareanu, *Java PathFinder Workshop, 2016*

Technical Reports

Layered Indexed Effects. Foundations and Applications of Effectful Dependently Typed Programming, Aseem Rastogi, Guido Martínez, Aymeric Fromherz, Tahina Ramananandro, Nikhil Swamy

Teaching Experience

Spring 2019 **Secure Software Systems**, 18-732, *Carnegie Mellon University*, Head Teaching Assistant

Spring 2018 **Secure Software Systems**, 18-732, *Carnegie Mellon University*, Head Teaching Assistant

Professional Service

Program Committee member. JFLA' 23, USENIX Security' 23, USENIX Security' 22

Artifact Evaluation Committee member. ICFP' 22, ICFP' 21, POPL'21, ICFP'20, ISSTA'20

External Reviewer. ESOP'21, POPL'20, CPP'20, ESOP'20, FSE'19