

Dr Dimi Racordon, Ph.D.

Curriculum Vitae

Personal Information

Address: 44 Washington Street, Unit 1106
Brookline, MA 02445, USA
Email: dimitri.racordon@gmail.com
Website: <https://kyouko-taiga.github.io/>

Research interests

My research advances methods and techniques that empower developers to write expressive, efficient, and reliable software. I gravitate toward **model checking**, **formal verification**, and **programming language design**, with a particular focus on advanced **type systems**.

Education

- ▶ **Ph.D. in Computer Science**, University of Geneva, Switzerland (2019)
Obtained with the highest possible distinction
Thesis title: *Revisiting Memory Assignment Semantics in Imperative Programming Languages*
Advisor: Didier Buchs
- ▶ **Master in Computer Science**, University of Geneva, Switzerland (2013)
Thesis title: *Model Checking of Gamma Programs with Algebraic Nets*
Advisor: Didier Buchs
- ▶ **Bachelor in Computer Science**, HEPIA, Geneva, Switzerland (2011)

Employment

Northeastern University, USA

- ▶ **Post-doctoral researcher** (2021 - present)
Advisor: Jan Vitek

University of Geneva, Switzerland

- ▶ **Post-doctoral researcher** (2019 - 2021)
Advisor: Didier Buchs
- ▶ **Research and teaching assistant** (2014 - 2019)
Advisor: Didier Buchs
- ▶ **Academic tutor** (2013 - 2014)

HEPIA, Geneva, Switzerland

- ▶ **Research assistant** (2012 - 2013)

Socialease SA

- ▶ **Co-founder and CTO** (2015 - 2019)

Publications

- ▶ **The Val Object Model**
Dave Abrahams, Sean Parent, Dimitri Racordon, David Sankel
In the C++ Standards Committee Papers, 2022
- ▶ **Implementation Strategies for Mutable Value Semantics**
Dimitri Racordon, Denys Shabalin, Daniel Zheng, Dave Abrahams, Brennan Saeta
Journal of Object Technology (JoT) 21(2):1-11, 2022
- ▶ **Toward a Lingua Franca for Memory Safety**
Dimitri Racordon, Aurélien Coet, Didier Buchs
Journal of Object Technology (JoT) 21(2):1-11, 2022
- ▶ **Belief Programming with Map Family Decision Diagrams**
Sylvio Fossasti, Aurélien Coet, Dimitri Racordon
In International Workshop on Implementation, Compilation, Optimization of Object-Oriented Languages, Programs and Systems (ICOOOLPS 2022), co-located with ECOOP
- ▶ **Native Implementation of Mutable Value Semantics**
Dimitri Racordon, Denys Shabalin, Daniel Zheng, Dave Abrahams, Brennan Saeta
In International Workshop on Implementation, Compilation, Optimization of Object-Oriented Languages, Programs and Systems (ICOOOLPS 2021), co-located with ECOOP
- ▶ **Fuel: A Compiler Framework for Safe Memory Management**
Dimitri Racordon, Aurélien Coet, Didier Buchs
In International Workshop on Implementation, Compilation, Optimization of Object-Oriented Languages, Programs and Systems (ICOOOLPS 2021), co-located with ECOOP
- ▶ **From ASTs to Machine Code with LLVM**
Dimitri Racordon
In Companion Proceedings of the International Conference on the Art, Science, and Engineering of Programming (Programming 2021)
- ▶ **Featherweight Swift: A Core Calculus for Swift's Type System**
Dimitri Racordon, Didier Buchs
In ACM SIGPLAN International Conference on Software Language Engineering (SLE 2020)
- ▶ **Solving Schedulability as a Search Space Problem with Decision Diagrams**
Dimitri Racordon, Aurélien Coet, Emmanouela Stachtari, Didier Buchs
In International Symposium on Search-Based Software Engineering (SSBSE 2020)
- ▶ **Functional Block Programming and Debugging**
Dimitri Racordon, Emmanouela Stachtari, Damien Morard, Didier Buchs
In International Workshop on Live Programming (LIVE 2020), co-located with SPLASH
- ▶ **LogicKit: Bringing Logic Programming to Swift**
Dimitri Racordon, Didier Buchs
In Companion Proceedings of the International Conference on the Art, Science, and Engineering of Programming (Programming 2020)
- ▶ **Implementing a language with explicit assignment semantics**
Dimitri Racordon, Didier Buchs
In International Workshop on Virtual Machines and Intermediate Languages (VMIL 2019), co-located with SPLASH

- ▶ **A practical Type System for Safe Aliasing**
 Dimitri Racordon, Didier Buchs
In ACM SIGPLAN International Conference on Software Language Engineering (SLE 2018)
- ▶ **A model Checker Collection for the Model Checking Contest Using Docker and Machine Learning**
 Didier Buchs, Stefan Klikovits, Alban Linard, Romain Mencattini, Dimitri Racordon
In International Conference on Application and Theory of Petri nets and Concurrency (Petri Nets 2018)
- ▶ **Petri Sport: A Sport for Petri Netters**
 Stefan Klikovits, Alban Linard, Dimitri Racordon, Didier Buchs
In International Workshop on Petri Nets and Software Engineering (PNSE 2018), co-located with Petri Nets
- ▶ **Démystifier les concepts informatiques par l'expérimentation**
 Dimitri Racordon, Didier Buchs
In Colloque Francophone de Didactique de l'Informatique (Didapro 2018)
- ▶ **Extracting Formal Specifications to Strengthen Type Behavior Testing**
 Dimitri Racordon, Didier Buchs
In Student Forum of European Dependable Computing Conference (EDCC 2017)
- ▶ **Verifying Multi-Core Schedulability with Data Decision Diagrams**
 Dimitri Racordon, Didier Buchs
In International Workshop on Software Engineering for Resilient Systems (SERENE 2016), co-located with EDCC
- ▶ **TREXMO: a translation tool to support the use of regulatory occupational exposure models**
 Nenad Savic, Dimitri Racordon, Didier Buchs, Bojan Gasic, David Vernez
Annals of occupational hygiene 60(8): 991-1008, 2016
- ▶ **TREXMO: un nouvel outil d'aide à l'utilisation de modèles pour l'évaluation de l'exposition professionnelle.**
 Nenad Savic, Dimitri Racordon, Didier Buchs, Bojan Gasic, David Vernez
In Conférence INRS sur la recherche en santé au travail (2015)
- ▶ **Computing Bounds for Counter Automata**
 Dimitri Racordon, Aurélien Coet, Didier Buchs
Electronic Communication of the European Association of Software Science and Technology (EASST) 72, 2015
- ▶ **Introducing Formal Verification with Lego**
 David Lawrence, Dimitri Racordon, Maximilien Colange, Steve Hostettler, Alban Linard, Edmundo López Bóbeda, Alexis Marechal, Matteo Risoldi, Nicolas Sedlmajer, Didier Buchs
In International Workshop on Fun With Formal Methods (FWFM 2014), co-located with LICS

Invited talks and Keynotes

- ▶ **Val wants to be your friend**
Invited Speaker, CppCon, Aurora, Colorado, September 2022
- ▶ **A Future of Value Semantics and Generic Programming**
Co-speaker, CppNow, Aspen, Colorado, May 2022

Advising

ACM Mentees

- ▶ Ho Han Kit Ivan, 2022
Topic: Programming language design
- ▶ Noah Lev Bartell-Mangel, 2021
Topic: Compiler optimization

Current Ph.D. Students

- ▶ Aurélien Coet, since April 2020 (co-advised with Didier Buchs)
Topic: Model checking approaches for memory safety
- ▶ Damien Morard, since April 2020 (co-advised with Didier Buchs)
Topic: Decision diagrams for high-level Petri nets

Master students

- ▶ Patrick Sardinha, graduated July 2021 (co-advised with Didier Buchs)
Thesis title: A declarative approach to graphic programming
- ▶ Marvin Fourastie, graduated July 2021 (co-advised with Didier Buchs)
Thesis title: FunBlocks Checker
- ▶ Tien-Tso Ning, graduated February 2021 (co-advised with Didier Buchs)
Thesis title: Conversational Modeling from a Process-Oriented Perspective

Bachelor students

- ▶ Nicolas Papale, graduated September 2018 (co-advised with Didier Buchs)
Thesis title: Détection de race condition en Elm avec l'exécution symbolique
- ▶ Patrick Sardinha, graduated February 2016 (co-advised with Didier Buchs)
Thesis title: Probabilistic Leader Election with Anonymous Nodes and No Port Awareness

Teaching

University of Geneva, Switzerland

- ▶ (14X014): Advanced Formal Tools (2014 - 2021)
- ▶ (14X007): Competition and Distribution (2014 - 2021)
- ▶ (12X005): Outils formels de modélisation (2014 - 2021)
- ▶ (11X020): Formation de base en informatique (2020 - 2021)

Service

- ▶ ACM SIPLAN Mentoring Program, since January 2020
- ▶ Organizer of **VIMPL 2023**, co-located with Programming
- ▶ Co-organizer of **REBASE 2021**, co-located with ECOOP
- ▶ Extended Review Committee (ERC) of **OOPSLA 2021**
- ▶ Artifact Evaluation Committee (AEC) of **OOPSLA 2021**
- ▶ Faculty Hiring Committee, University of Geneva, 2019

Outreach

- ▶ Committee for the creation of the high-school computer science program in the canton of Geneva, Switzerland (2020 - 2021)
- ▶ Infoscope (contributor and animator), University of Geneva (2017 - 2020)
- ▶ Nuits de la Sciences, University of Geneva (2016 - 2017)
- ▶ TecDays, University of Geneva (2015)

Industry Funding and Recognition

- ▶ Venture Kick I and II, CHF 30,000 (2018)
- ▶ Foundation for Technological Innovation, CHF 50,000 (2018)
- ▶ MassChallenge finalist (2017)

Selected Open-Source Contributions

- ▶ Val (<https://github.com/val-lang/val>)
- ▶ LogicKit (<https://github.com/kyouko-taiga/LogicKit>)
- ▶ DDKit (<https://github.com/kyouko-taiga/DDKit>)

For a complete list, see my GitHub profile at github.com/kyouko-taiga.