Eric Finster

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PERSONAL INFORMATION

Eric Finster
Born 3 Octobre 1980, La Cañada, California, USA
Nationality: American
Email: ericfinster@gmail.com
https://github.com/ericfinster
Fluent in French

EDUCATION

Bachelor of Arts, Mathematics
University of Virginia, 2004

Doctor of Philosophy, Mathematics
University of Virginia, 2010
Thesis Advisor: Gregory Arone
Thesis Title: *Stabilization of Homotopy Limits*

AREAS OF INTEREST

Type Systems, Programming Language Semantics,
Topology, Homotopy Theory, Higher Category Theory,
Formal Proof Theory

PROGRAMMING LANGUAGES

C/C++, x86 asm, Java, Scala, Javascript,
Haskell, Ocaml, Python, Agda, Coq

MOTIVATION

My reasearch has focused mainly on the suprising connection which has emergered between programming language theory, specifically dependent type systems, and the mathematical discipline of *homotopy theory*, a branch of topology in which I did my thesis work. First proposed by the Field's Medal winning mathematician Dr. Vladimir Voevodsky around 2006, this circle of ideas has revolutionized our understanding of the theory of equality in type theory, resulting in a major influx of new ideas from modern mathematics.

RESEARCH EXPERIENCE	2010 - 2012 - *Postdoctoral Researcher* Ecole Polytechnique Féderale de Lausanne Supervisor: Dr. Kathryn Hess

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2010 - 2012 - *Postdoctoral Researcher*
Ecole Polytechnique Féderale de Lausanne
Supervisor: Dr. Kathryn Hess

2012 - 2013 - *Postdoctoral Researcher*
Institute for Advanced Study
Univalent Foundations Program
Supervisor: Dr. Vladimir Voevodsky

2013 - 2014 - *Postdoctoral Researcher*
Inria Paris-Roquencourt
Team: πr^2
Supervisor: Dr. Pierre-Louis Curien

2014-2016 - *Postdoctoral Researcher*
Ecole Polytechnique
Laboratoire d'Informatique (LIX)
Projet: Tandem
Supervisor: Dr. Eric Goubault

2017-2019 - *Postdoctoral Researcher*
Inria - Nantes
Projet: ERC - CoqHott
Team: Gallinette
Supervisor: Dr. Nicolas Tabareau

2019-Present - *Postdoctoral Researcher*
University of Birmingham
Supervisor: Dr. Jamie Vicary

PUBLICATIONS

Homotopy Type Theory: Univalent Foundations of Mathematics
Collective Book Project, 2013
https://homotopytypetheory.org/book/

Eilenberg-MacLane Spaces in Homotopy Type Theory
Logic in Computer Science (LICS) 2014
with Dan Licata

A Mechanization of the Blakers-Massey Theorem in Homotopy Type Theory
Logic in Computer Science (LICS) 2016
with Dan Licata, Peter Lumsdaine, et Kuen-Bang Hou

A Type Theoretic Definition of Weak ω-categories
Logic in Computer Science (LICS) 2017
with Samuel Mimram

Goodwillie's Calculus of Functors and Higher Topos Theory
Journal of Topology, Volume 11, Issue 4
with Mathieu Anel, Georg Biedermann, André Joyal

A Generalized Blakers-Massey Theorem
ArXiv Preprint, 1703.09050
with Mathieu Anel, Georg Biedermann, André Joyal

STUDENT SUPERVISION	Independent Study of Dimitrios Economou, 2016 University of Colorado, Boulder with Matthew Hammer Thesis project of Thibaut Benjamin, 2017 Ecole Polytechnique with Samuel Mimram Thesis project of Antoine Allioux, 2018 Inria Paris-Roquencourt with Mathieu Sozeau et Yves Guiraud
INTERNATIONAL INVITATIONS AND COLLABORATIONS	Stockholm University Oct-Nov 2015 collaboration with Dr. Peter Lumsdaine Wesleyan University Mar-May 2017 collaboration with Dr. Dan Licata Carnegie Mellon University February 2018 collaboration with Dr. Steve Awodey University of Regensburg March 2018 collaboration with Dr. Denis-Charles Cisinski
MISCELLANEOUS	Organiser, *Young Topologist's Meeting*, Lausanne 2011 Scientific Committee, *UF/HOTT* Warsaw, 2015 Scientific Committee, *UF/HOTT* Porto, 2016 Scientific Committee, *GETCO* Paris, 2020

SEMINARS AND CONFERENCES

Revisiting the Opetopes
Scottish Category Theory Seminar
Glasgow, May 2012

Type Theory and the Opetopes
Higher Dimensional Algebra, Categories, Types
Ljubljana, 2012

The Calculus of Opetopes
Institute for Advanced Study
Princeton, January 2013
https://video.ias.edu/1213/univalent/0131-EricFinster

Cohomology in Homotopy Type Theory
Institute for Advanced Study
Princeton, March 2013
https://video.ias.edu/univalent/1213/0306-EricFinster

The Language of Opetopic Categories
Workshop on Opetopes, Opetopic Sets and Opetopic Categories
Warsaw, March 2013

Opetopic Diagrams as a Language for Higher Categorical Proofs
Mathematical Strutures of Computation
Lyon, January 2014

Opetopic Diagrams as a Language for Higher Categorical Proofs
Journées de la Fédération de Recherche en Mathématiques
Institute Henri Poincaré, Paris, May 2014

A Survery of Univalent Foundations
Université Paris-Diderot
Paris, November 2014
https://www.youtube.com/watch?v=z3IBvmrcObg

Opetopic Diagrams and Higher Categorical Proof Theory
Higher-Dimensional Rewriting and Applications
Warsaw, May 2015

Towards an Opetopic Type Theory
Invited Researcher Seminars
Stockholm, October 2015 (2 lectures)

Higher Categories with Families
Homotopy Type Theory Workshop
Max Planck Institute, Bonn, Feb 2016

The Identity of Proofs
Workshop, Mathématiques et Philosophie des Mathématiques
Toulouse, April 2016

Opetopic Higher Categories, a Diagrammatic Approach
GDR Topologie Algebrique
Paris, December 2016

Left Exact Modalities in Type Theory
Journées Nationales Géocal
Nantes, November 2017

Left Exact Modalities in Type Theory
Carnegie Mellon Logic Seminar
Pittsburgh, February 2018

Left Exact Modalities in Type Theory
Cambridge Logic and Semantics Seminar
Cambridge, March 2018

The Catt Proof Assistant
Journées PPS
Fontainebleau, June 2018

The Cotopological Tower
GDR Topologie Algebrique
Montpellier, October 2018

Egalité et identité dans les fondements des mathématiques
Le Même et l'autre: identité, orthogonalité, types
Lyon, November 2018

Towards Higher Univeral Algebra in Type Theory
Journées PPS
IRIF, Paris, Nov 2018

Towards Higher Univeral Algebra in Type Theory
Homotopy Type Theory Electronic Seminar
Online, December 2018
`https://www.youtube.com/watch?v=hlCVHVtAlqQ`

A Type Theoretic View of Goodwillie Calculus
Workshop on Geometry in Modal Homotopy Type Theory
Carnegie-Mellon, Pittsburgh, March 2019
`https://www.youtube.com/watch?v=bcUk4l6B8jI`
`https://www.youtube.com/watch?v=xIHq6XcVEBE`