

# Eric L. Finster

LECTURER IN COMPUTER SCIENCE · UNIVERSITY OF BIRMINGHAM

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## Current Position

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### University of Birmingham

*Birmingham, UK*

LECTURER

*Sep 2020 - Present*

- Module lead for Functional Programming
- Module lead for Advanced Functional Programming in Agda

## Research Experience

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### University of Cambridge

*Cambridge, UK*

POSTDOCTORAL RESEARCHER

*Apr 2020 - Aug 2021*

- Department of Computer Science
- Supervisor: Dr. Jamie Vicary

### University of Birmingham

*Birmingham, UK*

POSTDOCTORAL RESEARCHER

*Feb 2019 - Mar 2020*

- Department of Computer Science
- Supervisor: Dr. Jamie Vicary

### Inria - Nantes

*Nantes, France*

POSTDOCTORAL RESEARCHER

*Feb 2017 - Feb 2019*

- Supervisor: Dr. Nicolas Tabareau
- Project: ERC - CoqHoTT

### École Polytechnique

*Saclay, France*

POSTDOCTORAL RESEARCHER

*Mar 2015 - Jan 2017*

- Laboratoire d'Informatique (LIX)
- Supervisor: Dr. Eric Goubault
- Project: Tandem

### Inria Paris-Roquencourt

*Paris, France*

POSTDOCTORAL RESEARCHER

*Dec 2013 - Dec 2014*

- Supervisor: Dr. Pierre-Louis Curien
- Team:  $\pi r^2$

### Institute for Advanced Study

*Princeton, United States*

POSTDOCTORAL RESEARCHER

*Sep 2012 - Jul 2013*

- Univalent Foundations Program
- Supervisor: Dr. Vladimir Voevodsky

### École Polytechnique Fédérale de Lausanne

*Lausanne, Switzerland*

POSTDOCTORAL RESEARCHER

*Sep 2010 - Aug 2012*

- Supervisor: Dr. Katheryn Hess

## Education

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### University of Virginia

*Charlottesville, Virginia*

B.S. IN MATHEMATICS

*2004*

- Undergraduate Advisor: Dr. Brian Parshall

### University of Virginia

*Charlottesville, Virginia*

PHD IN MATHEMATICS

*2010*

- Thesis: Stabilization of Homotopy Limits
- Advisor: Dr. Gregory Arone

## Publications

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### Homotopy Type Theory: Univalent Foundations of Mathematics

INDEPENDENTLY PUBLISHED

- Collectively written by the members of the Univalent Foundations Project

*Book*

2013

### Eilenberg-MacLane Spaces in Homotopy Type Theory

LOGIC IN COMPUTER SCIENCE (LICS)

- with Dan Licata

*Proceedings*

2014

### A Mechanization of the Blakers-Massey Theorem in Homotopy Type Theory

LOGIC IN COMPUTER SCIENCE (LICS)

- with Dan Licata, Peter Lumsdaine and Kuen-Bang Hou

*Proceedings*

2016

### A Type Theoretic Definition of Weak $\omega$ -categories

LOGIC IN COMPUTER SCIENCE (LICS)

- with Samuel Mimram

*Proceedings*

2017

### Goodwillie's Calculus of Functors and Higher Topos Theory

JOURNAL OF TOPOLOGY

- with Mathieu Anel, Georg Biedermann, André Joyal

*Article*

2018

### A Generalized Blakers-Massey Theorem

JOURNAL OF TOPOLOGY

- with Mathieu Anel, Georg Biedermann, André Joyal

*Article*

2020

### Types are Internal $\infty$ -groupoids

LOGIC IN COMPUTER SCIENCE (LICS)

- with Mathieu Sozeau and Antoine Allieux

*Proceedings*

2021

### A Cartesian Bicategory of Polynomial Functors in Homotopy Type Theory

MATHEMATICAL FOUNDATIONS OF PROGRAMMING SEMANTICS

- with Samuel Mimram, Thomas Sellier and Maxime Lucas

*Proceedings*

2021

### A Type Theory for Strictly Unital Infinity Categories

LOGIC IN COMPUTER SCIENCE (LICS)

- with David Reutter, Jamie Vicary and Alex Rice

*Proceedings*

2022

### Left-exact localizations of $\infty$ -topoi I: Higher sheaves

ADVANCES IN MATHEMATICS

- with Mathieu Anel, Georg Biedermann, André Joyal

*Article*

2022

### Left-exact Localizations of $\infty$ -Topoi II: Grothendieck Topologies

JOURNAL OF PURE AND APPLIED ALGEBRA (ACCEPTED PENDING REVISION)

- with Mathieu Anel, Georg Biedermann, André Joyal

*Article*

2022

## Preprints

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### Synthetic spectra via a monadic and comonadic modality

ARXIV:2102.04099

- with Dan Licata and Mitchell Riley

*Preprint*

2021

### Globular weak $\omega$ -categories as models of a type theory

ARXIV:2106.04475

- with Samuel Mimram and Thibaut Benjamin

*Preprint*

2021

### A Type Theory for Strictly Associative Infinity Categories

ARXIV:2109.01513 (ACCEPTED FOR SYCO 10)

- with Jamie Vicary and Alex Rice

*Conference Paper*

2022

### Computads for Weak $\omega$ -categories as an Inductive Type

ARXIV:2208.08719

- with Jamie Vicary, Christopher Dean, Ioannis Markakis and David Reutter

*Preprint*

2022

# Seminars and Conference Talks

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<b>Revisiting the Opetopes</b> SCOTTISH CATEGORY THEORY SEMINAR	<i>Glasgow</i> May 2012
<b>Type Theory and the Opetopes</b> HIGHER DIMENSIONAL ALGEBRA, CATEGORIES, TYPES	<i>Ljubljana</i> 2012
<b>The Calculus of Opetopes</b> INSTITUTE FOR ADVANCED STUDY SEMINAR	<i>Princeton</i> Jan 2013
<b>Cohomology in Homotopy Type Theory</b> INSTITUTE FOR ADVANCED STUDY SEMINAR	<i>Princeton</i> Mar 2013
<b>The Language of Opetopic Categories</b> WORKSHOP ON OPETOPES, OPETOPIC SETS AND OPETOPIC CATEGORIES	<i>Warsaw</i> Mar 2013
<b>Opetopic Diagrams as a Language for Higher Categorical Proofs</b> MATHEMATICAL STRUCTURES OF COMPUTATION	<i>Lyon</i> Jan 2014
<b>Opetopic Diagrams as a Language for Higher Categorical Proofs</b> JOURNÉES DE LA FÉDÉRATION DE RECHERCHE EN MATHÉMATIQUES	<i>Paris</i> May 2014
<b>A Survey of Univalent Foundations</b> UNIVERSITÉ PARIS-DIDEROT	<i>Paris</i> Nov 2014
<b>Opetopic Diagrams and Higher Categorical Proof Theory</b> HIGHER-DIMENSIONAL REWRITING AND APPLICATIONS	<i>Warsaw</i> May 2015
<b>Towards an Opetopic Type Theory</b> UNIVERSITY OF STOCKHOLM - RESEARCH SEMINAR	<i>Stockholm</i> May 2015
<b>Higher Categories with Families</b> HOMOTOPY TYPE THEORY WORKSHOP - MAX PLANCK INSTITUTE	<i>Bonn</i> Feb 2016
<b>The Identity of Proofs</b> WORKSHOP, MATHÉMATIQUES ET PHILOSOPHIE DES MATHÉMATIQUES	<i>Toulouse</i> Apr 2016
<b>Opetopic Higher Categories, a Diagrammatic Approach</b> GDR TOPOLOGIE ALGÈBRE	<i>Paris</i> Dec 2016
<b>Left Exact Modalities in Type Theory</b> JOURNÉES NATIONALES GÉOCAL	<i>Nantes</i> Nov 2017
<b>Left Exact Modalities in Type Theory</b> CARNEGIE MELLON LOGIC SEMINAR	<i>Pittsburgh</i> Feb 2018
<b>Left Exact Modalities in Type Theory</b> CAMBRIDGE LOGIC SEMINAR	<i>Cambridge</i> Mar 2018
<b>The Catt Proof Assistant</b> JOURNÉES PPS	<i>Fontainebleau</i> Jun 2018
<b>The Cotopological Tower</b> GDR TOPOLOGIE ALGÈBRE	<i>Montpellier</i> Oct 2018
<b>Egalité et identité dans les fondements des mathématiques</b> LE MÊME ET L'AUTRE: IDENTITÉ, ORTHOGONALITÉ, TYPES	<i>Lyon</i> Nov 2018
<b>Journées PPS</b> TOWARDS HIGHER UNIVERSAL ALGEBRA IN TYPE THEORY	<i>Paris</i> Nov 2018
<b>Homotopy Type Theory Electronic Seminar</b> TOWARDS HIGHER UNIVERSAL ALGEBRA IN TYPE THEORY	<i>Online</i> Dec 2018
<b>Workshop on Geometry in Modal Homotopy Type Theory</b> A TYPE THEORETIC VIEW OF GOODWILLIE CALCULUS	<i>Pittsburgh</i> Mar 2018

## Program Committees

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2011	<b>Organizer</b> , Young Topologists' Meeting	<i>Lausanne</i>
2015	<b>Scientific Committee</b> , UF/HoTT	<i>Warsaw</i>
2016	<b>Scientific Committee</b> , UF/HoTT	<i>Porto</i>
2021-...	<b>Organizer</b> , YaMCATS (Yokshire and Midlands Category Theory Seminar)	<i>United Kingdom</i>