

# Eric Hayden Campbell

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Cornell University  
PhD Candidate, Department of Computer Science  
430 Gates Hall  
Ithaca, NY 14853, U.S.A.

ehc86@cornell.edu  
www.ericthewry.github.io

## Education **Cornell University**

Ph.D. in Computer Science, Expected May 2023

M.Sc. in Computer Science, December 2020

**Research Interests:** Network Verification, Program Synthesis, Semantics  
2019 NSF GRFP Fellow

## **Pomona College**

B.A.s in Computer Science & Mathematics, May 2017

**Thesis:** Infiniteness and Linear Temporal Logic

## Selected Research

### **Avenir: Managing Data Plane Heterogeneity via Control Plane Synthesis**

Eric Hayden Campbell, Bill Hallahan, Priya Srikumar, Carmelo Cascone, Jed Liu, Vignesh Ramamurthy, Hossein Hojjat, Robert Soulé, Ruzica Piskac, and Nate Foster  
*NSDI 2021*

### **Weakest Inference of Control Plane Specifications**

Eric Hayden Campbell, Hossein Hojjat, Nate Foster  
*In Review, PLDI 24*

### **A Database-Theoretic Foundation for Networks**

Eric Hayden Campbell, Christoph Koch, Nate Foster  
*In Production*

### **Kleene Algebra Modulo Theories**

Michael Greenberg, Ryan Beckett, and Eric Hayden Campbell  
*PLDI 2022, Distinguished Paper Award*

### **Π4: Dependently-Typed Data Plane Programming**

Matthias Eichholz, Eric Hayden Campbell, Matthias Krebs, Nate Foster, Mira Mezini  
*POPL 2022*

### **How to Avoid Making a Billion-Dollar Mistake:**

#### **Type-Safe Data Plane Programming with SafeP4**

Matthias Eichholz, Eric Hayden Campbell, Nate Foster, Guido Salvaneschi, Mira Mezini  
*ECOOP 2019*

## Industry

### **Fujitsu Laboratories of America**

Research Intern, Property Inference for Legacy Networks  
*Sunnyvale, CA*. May 2018 - Aug 2018

## Further Publications

### **Epistemic Semantics in Guarded String Models**

Eric Hayden Campbell and Mats Rooth

*SCiL 2021*

### **Injecting Finiteness to Prove Completeness for Finite Linear Temporal Logic**

Eric Hayden Campbell and Michael Greenberg

*arXiv:2107.06045*, July 2021

### **Constructing Integer Matrices with Integer Eigenvalues**

Christopher Towse and Eric Hayden Campbell

*The Mathematical Scientist*, June 2016

## Invited Talks

### **Avenir: Managing Data Plane Diversity with Control Plane Synthesis:**

- *VLCS Seminar*. EPFL. Oct 23.
- *Tech Talk*. Intel. May 2022.
- *Tech Talk*. Intel. March 2022.
- *Computer Aided Verification*. P4 Verification Workshop. July 2021.
- *Simons Institute*. Synthesis of Models and Systems. May 2021
- *Networked Systems Design & Implementation*. April 2021
- *Synthesis Discussion Group*. Yale University. September 2020
- *P4 Expert Roundtable Series*. How is P4 Evolving as a language?. April 2020

### **Epistemic Semantics in Guarded String Models**

- *Scientific Computing in Linguistics*. February 2021

## Outreach

### **Jane Street AMP**

Advanced CS Instructor & Course Design, *CS3*, 2022-2023

### **4H Career Explorations Conference**

Workshop Designer & Leader, *Networking and Security*, 2018-2022

### **Expand Your Horizons Conference**

Workshop Leader, *Googling With Paper Airplanes*, 2017-2019

### **Originate, Inc**

Counselor, *Approachable Web Design*, 2015

## Teaching

### **Computer Science Department, Cornell University**

TA, OOP and Data Structures, Spring 2018, *Teaching Excellence Award*

TA, OOP and Data Structures, Fall 2017

### **Computer Science Department, Pomona College**

TA, Databases Systems, Spring 2017

TA, Programming Languages, Fall 2016

Head TA, Intro to CS, Spring 2016

TA, Intro to CS, Fall 2015

## Guest Lectures

**Responsible AI**. Enrepreneurship: Growth Hacking. *Hult Business*. June 2023

**SafeP4**. Network Programming. *Cornell CS*. Oct 2019

**Decidability of KAT**. Intro To Kleene Algebra. *Cornell CS*. March 2019

**Responsibilities for Correctness**. FWS: Ethics. *Cornell Philosophy*. Feb 2019