

# Kyle Headley

PhD Student

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## Interest

I am interested in program organization and structure. This can include language forms for organization and common data structures, but also type systems and emerging structures ones like those in data flow for incremental computation and other program analyses.

## Education

PhD (Computer Science)	University of Alabama at Birmingham	2022 (Expected)
MS (Computer Science)	University of Colorado Boulder	2017
BS (Computer Science)	University of Maryland	2015
BA (Philosophy)	University of Maryland	2015

## Publications

### *A DSL embedded in Rust*

Kyle Headley.

Implementation and Application of Functional Languages (**IFL 2018**).  
Lowell, Massachusetts. September 2018.

### *The Random Access Zipper: Simple, Purely-Functional Sequences*

Kyle Headley, Matthew A. Hammer.

Trends in Functional Programming (**TFP 2016**).  
College Park, Maryland. June 2016.

### *Incremental Computation with Names*

Matthew A. Hammer, Joshua Dunfield, Kyle Headley, Nicholas Labich, Jeffrey S. Foster, and Michael Hicks.

Object-Oriented Programming, Systems, Languages, and Applications (**OOPSLA 2015**).  
Pittsburgh, USA. October 2015.

## Student Internships

Mozilla, Servo web browser (June 2016–September 2016)  
*Graduate Research Intern*

## Awards

2nd Place Student Research Competition Graduate (**PLDI 2017**)

2nd Place Student Research Competition Undergrad (**ICFP 2015**)

## Teaching

Programming Languages (TA and Lab Instructor)  
University of Alabama at Birmingham, CS401/501 Spring 2019  
Principles of Programming Languages (TA and Lab Instructor)  
University of Colorado Boulder, CSCI3155 Fall 2018

## Service

Student Volunteer Co-Chair (**ICFP**), Spring 2021  
Senator, UAB Graduate Student Government (**GSG**), Spring 2019  
Student Volunteer Co-Captain (**PLDI**), Spring 2018  
Student Volunteer (**POPL**), January 2018 2016

## Talks

*Visualizing Abstract Abstract Machines*  
Scheme Workshop (**ICFP 2019**)  
Berlin, Germany. August 2019  
Embedding a DSL in Rust  
Implementation and Application of Functional Languages (**IFL 2018**)  
Lowell, Massachusetts. September 2018  
Speed and Simplicity for Incremental Sequence Computation  
Incremental Computation Workshop (**PLDI 2017**)  
Barcelona, Spain. June 2017  
The Random Access Zipper: Simple, Purely-Functional Sequences  
Trends in Functional Programming (**TFP 2016**)  
College Park, Maryland. June 2016.  
Correct-by-Construction Interactive Software  
Off the Beaten Track (**OBT 2016**)  
St. Petersburg, Florida. January 2016  
*Sparse Adaption*  
Student Research Competition, 3rd Round, Undergraduate (**ICFP 2015**)  
Vancouver, Canada. September 2015

## Posters

*Using Rust's Type-level Language*  
International Conference on Functional Programming (**ICFP 2019**)  
Berlin, Germany. August 2019  
*IODyn: A High-level Language for Incremental Computation*  
Symposium on Principles of Programming Languages (**POPL 2018**)  
Los Angeles, California. January 2015  
*Speed and Simplicity for Incremental Sequence Computation*  
Programming Language Design and Implementation (**PLDI 2017**)  
Barcelona, Spain. June 2017

*Random Access Zipper*

Programming Language Design and Implementation (**PLDI 2016**)  
Santa Barbara, California. June 2016

*Sparse Adapton*

International Conference on Functional Programming (**ICFP 2015**)  
Vancouver, Canada. September 2015

Last updated: November 19, 2019