# Paul Krogmeier

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Pursuing a PhD in computer science from the University of Illinois at Urbana-Champaign.

## Education

### Graduate

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| **University of Illinois at Urbana-Champaign** | **Urbana** |
| *PhD Computer Science, **GPA: N/A*** | *2018–present* |
| **Purdue University** | **West Lafayette** |
| *M.Eng. Computer Engineering, **GPA: 3.99*** | *2016–2018* |

### Undergraduate

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| **Purdue University** | **West Lafayette** |
| *B.S. Computer Engineering, **GPA: 4.0*** | *2012–2016* |
| **EAFIT University** | **Medellín, Colombia** |
| *Study Abroad, Compilers and Operating Systems courses* | *Spring 2015* |

## Publications

Krogmeier, P. M. and Kidd, S. and Delaware, B. Towards Context-Aware Data Refinement. Fourth International Workshop on Coq for Programming Languages, January 2018.

## Experience

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| **Purdue Programming Languages Group** | **West Lafayette, IN** |
| *Research Assistant (advised by Benjamin Delaware)* | *Aug 2017–Jul 2018* |

- Modeled the syntax and semantics of the Fiat specification language with a deep embedding in the Coq proof assistant.
- Developed a mechanized proof of Fiat's type safety.
- Formalized a logical relations proof strategy for validity of refinement from Fiat specifications to implementations.

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| **Purdue University ECE Department** | **West Lafayette, IN** |
| *Discrete Math Teaching Assistant–ECE 369* | *Aug 2017–Dec 2017* |

- Verified reference exam solutions and graded student exams.
- Organized weekly office hours and help sessions.

**Oregon Programming Languages Summer School**                   **Eugene, Oregon**
*Student Participant*                                                      *Jun 2017*

- Experimented with leading research software and techniques: Idris and PLT Redex.
- Attended research lectures from experts in Programming Languages and Formal Methods.

**Purdue University – Machine Learning for SAT Project**         **West Lafayette, IN**
*Research Assistant*                                               *Jan 2017–May 2017*

- Studied the source code for the MiniSat SAT solver.
- Implemented online thompson sampling algorithm to learn reward function over SAT variables.
- Tested usefulness of the extension against plain MiniSat.

**Purdue University – E-Lab**                                      **West Lafayette**
*Student Programmer*                                              *Sep 2016–Dec 2016*

- Programmed Torch7 CNNs to solve image classification problems.
- Experimented with RNNs to study problems in speech recognition.

**APOLO Scientific Computing Center**                            **Medellín, Colombia**
*Programming Internship*                                          *May 2016–Jul 2016*

- Developed software to produce client usage reports for a Linux Rocks cluster administrative team.
- Wrote and debugged Python scripts to generate reports on cluster load and usage characteristics. This involved learning the APIs for the TORQUE and SLURM resource management tools.
- Met weekly with development team to discuss progress.

**Purdue University – Open Ag Data Alliance**                     **West Lafayette**
*Embedded Systems Programmer*                                     *May 2014–Jul 2014*

- Developed C code for a wireless, embedded semi-truck weight sensing application.
- Interfaced Nordic system-on-chip to air pressure sensor over $I^2C$.
- Programmed communication between Android app and system-on-chip using Bluetooth Low Energy stack.

## Coursework

**Graduate**
MA 570 – Mathematical Logic
MA 511 – Linear Algebra with Applications
CS 477 – Formal Software Development
CE 642 – Information Theory and Source Coding
CE 573 – Compilers and Translator Systems
CE 608 – Computational Models and Methods
CE 600 – Probabilities and Random Processes
CS 565 – Programming Languages
CS 590 – Artificial Intelligence and Causal Inference
CS 584 – Theory of Computation and Complexity
CS 573 – Data Mining

**Undergraduate**
CE 368 – Algorithms and Data Structures
CE 369 – Discrete Math
CE 364 – Python and Bash Scripting Lab
CE 337 – ASIC Design Laboratory
CE 437 – Computer Architecture
CE 477 – Digital Systems Senior Design

## Skills

- **Programming Languages:**
  High proficiency: Ocaml, C/C++, Python
  Medium proficiency: Haskell, Java, Matlab, Verilog
  Basic exposure: Idris, Racket, x86 ISA, MIPS ISA, Lisp, Jekyll/HTML/(S)CSS
- **Research Software:** Coq, Rosette, Sketch
- **Natural Languages:** Fluent in Spanish, German, and English (native)

## Awards and Honors

- **UIUC Wing Kai Cheng Fellowship:** August 2018
- **Purdue Ross Fellowship:** May 2016
- **Phi Beta Kappa:** May 2016
- **Graduated "with highest distinction" (top in class, Purdue ECE):** May 2016
- **100K Strong in the Americas Scholarship:** August 2014