

Jared Wright

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Education

PhD (Computer Science)	University of Colorado-Boulder	2016-ongoing
BS (Computer Science)	Cornell University	2012-2016

Talks

Wright, Jared (2016), "Online Verification-Validation", *Midwest Verification Day 2016*

Teaching

CSCI 3155: Principles of programming languages
University of Colorado, Boulder. Fall 2017. Teaching Assistant.

Departmental Service

Activites: PhD Recruitment Day Organization, Spring 2017

Ongoing Research

My ongoing work is in support of the [Online Verification-Validation \(OVV\)](#) project. This project uses insights from the PL field to make program analysis viable in highly dynamic environments, where it typically struggles. By leveraging performance gains from [incremental computation](#), program analyses are *interleaved* with program execution, allowing for verification of assertions not dischargeable by simple static analysis. For background, see [A Vision for Online Verification-Validation](#), GPCE 2016.

Additionally, I am assisting in the development of [IODyn](#), an incremental collections library written in Rust. IODyn exposes standard APIs for sequences, finite maps, sets and graphs, but is implemented using [Adapton](#), providing significant performance gains in environments well-suited for incremental computing.

Interests

My primary interests are in programming language design - how programming languages can be designed, extended, or improved to enhance the experience of the typical user. I especially enjoy thinking about how programming languages can be designed to "bake in" (as much as possible) properties that users have typically dealt with, such as type safety, performance, and security. This informs several of my active research areas - incremental computation provides built-in performance gains, while the vision of the OVV project is to significantly expand the ability to provide security guarantees.

I am also interested in some topics from CS theory. I have always been fascinated by graph and network algorithms, and believe this is a fruitful direction for applying my work in incremental computation. For example, in a course project, I extended work done on [cascading failures in the power grid](#) by considering how to best defend such a network from attack. Since this involves a lot of similar but expensive simulations, incremental computation could greatly improve this analysis.

Lastly, I am very interested in several topics from linguistics, primarily semantics, semiotics, and pragmatics. While this has slightly fallen by the wayside during my CS research, my fascination with natural language led me to the PL field and comprises a lot of my relaxation reading list.

Outside academia, I enjoy chess, soccer, football, and poker.