Michael Vollmer

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Research Interests

I am a computer scientist who studies functional programming, parallel programming, and programming language design and implementation.

Education

2021 **Indiana University**
PhD in Computer Science
Advisor: Ryan R. Newton

2013 **California State University, Sacramento**
BS in Computer Science

Publications

ESOP 2022 Daniel Marshall, **Michael Vollmer**, Dominic Orchard. **Linearity and Uniqueness: An Entente Cordiale**. *European Symposium on Programming.* April 2022, Munich.

EPTCS 2021 Jack Hughes, **Michael Vollmer**, Dominic Orchard. **Deriving Distributive Laws for Graded Linear Types**. *Electronic Proceedings in Theoretical Computer Science.* December 2021, Virtual.

ICFP 2021 Chaitanya Koparkar, Mike Rainey, **Michael Vollmer**, Milind Kulkarni, and Ryan R. Newton. **Efficient Tree-traversals: Reconciling Parallelism and Dense Data Representations**. *International Conference on Functional Programming.* August 2021, Virtual.

PLDI 2019 **Michael Vollmer**, Chaitanya Koparkar, Mike Rainey, Laith Sakka, Milind Kulkarni, and Ryan R. Newton. **LoCal: A Language for Programs Operating on Serialized Data**. *Programming Language Design and Implementation.* June 2019, Phoenix.

ECOOP 2017 **Michael Vollmer**, Sarah Spall, Buddhika Chamith, Laith Sakka, Milind Kulkarni, Sam Tobin-Hochstadt, and Ryan R. Newton. **Compiling Tree Transforms to Operate on Packed Representations**. *European Conference on Object-Oriented Programming.* June 2017, Barcelona.

PPoPP 2017   **Michael Vollmer**, Ryan G. Scott, Madanlal Musuvathi, and Ryan R. Newton. **SC-Haskell: Sequential Consistency in Languages That Minimize Mutable Shared Heap**. *Symposium on Principles and Practice of Parallel Programming.* February 2017, Austin.

FHPC 2015   **Michael Vollmer**, Bo Joel Svensson, Eric Holk, and Ryan R. Newton. **Metaprogramming and Auto-tuning in the Search for High Performance GPU Code**. *Workshop on Functional High-Performance Computing.* August 2015, Vancouver.

FHPC 2015   Bo Joel Svensson, **Michael Vollmer**, Eric Holk, Trevor L. McDonell, and Ryan R. Newton. **Converting Data-parallelism to Task-parallelism by Rewrites: Purely Functional Programs Across Multiple GPUs**. *Workshop on Functional High-Performance Computing.* August 2015, Vancouver.

Research experience

2022 — Present   **Lecturer** — University of Kent
Lecturer in the School of Computing.

2020 — 2022   **Research Associate** — University of Kent, with Dominic Orchard
Worked on the Granule project, doing research on graded modal types and linear types.

2014 — 2020   **PhD Student** — Indiana University, with Ryan R. Newton
Research on functional programming, parallel programming, and language implementation.

Teaching Experience

Fall 2019   **Instructor** — Programming Language Implementation (Indiana University)
Giving lectures, assigning and marking coursework.

Fall 2018
Fall 2017   **Teaching assistant** — Programming Language Implementation (Indiana University)
Marking coursework, contributing to the open source textbook.

Spring 2016   **Teaching assistant** — Introduction to Computer Science (Indiana University)
Leading discussions and marking coursework.

Industry Experience

Summer 2017   **Microsoft** — Research Intern
Improving performance of program synthesis algorithms using parallelism.

2013 — 2014   **Eyefinity/VSP Global** — Software Engineer
Java Enterprise application development.

2010 — 2013   **CSUS University Union** — Web Developer
Front-end coding using Javascript and JQuery, including experience with mobile websites and responsive layouts.