

JOHN H. KASTNER

jkastner.info \diamond github.com/john-h-kastner

EDUCATION

University of Maryland, College Park
Master of Science in Computer Science

May 2021
GPA: 3.930

University of Maryland, College Park
Bachelor of Science in Computer Science
Minor in Geographic Informational Sciences

December 2018
GPA: 3.775

EXPERIENCE

Amazon Web Services

Applied Scientist

January 2022 – Present

- Designed and implemented in Rust a type system for an interpreted expression language for authorization policies.
- Designed and implemented a differential random testing solution for testing the behavior of a distributed service.

Correct Computation

Software Development Engineer

August 2020 – December 2021

Software Development Intern

June 2020 – August 2020

- Developed static analysis and refactoring tool in C++ for converting legacy C code to into Checked C.
- Manipulated abstract syntax tree for the C language using the LLVM and Clang compiler infrastructure.
- Developed scripts in Python to automate processing of large codebases using the tool.

University of Maryland Department of Computer Science

Graduate Teaching Assistant — Introduction to Compilers

January 2019 – May 2020

Undergraduate Teaching Assistant — Organization of Programming Languages

August 2017 – December 2018

- Guided students as they completed course projects involving programming language and compiler design using technologies including Racket, X86 assembly language, OCaml, Ruby, Prolog, and Rust.
- Instructed discussion sessions consisting of approximately 20 students.

University of Maryland Department of Computer Science

Graduate Research Assistant

May 2019 – May 2020

Undergraduate Research Assistant

May 2018 – December 2018

- Developed a JavaScript application for visualizing temporal trends in geospatial and textual data.
- Developed Android and IOS applications using Google Maps SDK for an geospatial and textual data visualization system.
- Implement in Python and evaluated a cluster assisted content extraction technique.
- Supported back-end system for application implemented in Ruby and Perl with a PostgreSQL database.

Clearly Energy

Software Development Intern

June 2017 – August 2017

- Implemented an API handling data import and export using the Django Python web framework.
- Designed and implemented a web interface using AngularJS.

PUBLICATIONS

- [1] Craig Disselkoben, Aaron Eline, Shaobo He, Kyle Headley, Michael Hicks, Kesha Hietala, **John H. Kastner**, Anwar Mamat, Matt McCutchen, Neha Rungta, Bhakti Shah, Emina Torlak, and Andrew Wells. How we built cedar: A verification-guided approach. *FSE* 2024, 2024. [10.1145/3663529.3663854](https://doi.org/10.1145/3663529.3663854).
- [2] Joseph W. Cutler, Craig Disselkoben, Aaron Eline, Shaobo He, Kyle Headley, Michael Hicks, Kesha Hietala, Eleftherios Ioannidis, **John H. Kastner**, Anwar Mamat, Darin McAdams, Matt McCutchen, Neha Rungta, Emina Torlak, and Andrew M. Wells. Cedar: A new language for expressive, fast, safe, and analyzable authorization. *Proc. ACM Program. Lang.*, 8(OOPSLA1), 2024. [10.1145/3649835](https://doi.org/10.1145/3649835).
- [3] Aravind Machiry, **John H. Kastner**, Matt McCutchen, Aaron Eline, Kyle Headley, and Michael Hicks. C to checked c by 3c. *Proceedings of the ACM on Programming Languages*, 6(OOPSLA1), 2022. [10.1145/3527322](https://doi.org/10.1145/3527322).
- [4] **John H. Kastner** and Hanan Samet. Visualizing spatiotemporal keyword trends in online news articles. *SIGSPATIAL '20*, 2020. [10.1145/3397536.3422339](https://doi.org/10.1145/3397536.3422339).
- [5] Hanan Samet, Yunheng Han, **John H. Kastner**, and Hong Wei. Using animation to visualize spatio-temporal varying covid-19 data. *COVID-19*, 2020. [10.1145/3423459.3430761](https://doi.org/10.1145/3423459.3430761).