

# Alex Hubers

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## Career Summary

I am a Ph.D. candidate at the University of Iowa who is passionate about functional programming, programming languages, and teaching. I am very interested in teaching positions at small, liberal arts schools, where I can also continue my research with undergraduates. My active research interest is in expressing extensible data types using row types. Broadly, I am interested in how to statically- and safely-type highly expressive programs that permit wide code reuse. I am also interested in how row type systems can aid other active areas of research, such as: algebraic effects and effect handlers; bidirectional programming with lenses and prisms; and session types.

## Education

- 2020–present. Ph.D. in Computer Science, The University of Iowa, Iowa City, IA. (Ongoing)
- 2015 B.A. in Computer Science and Mathematics, Cornell College, Mount Vernon, IA. *Summa Cum Laude*.

## Research Experience

### **Research Assistant. The University of Iowa, Iowa City, IA. Sep. 2020–present**

- Topics: programming languages, functional programming, type theory.
- Advisors: Dr. J. Garrett Morris & Dr. Aaron Stump.
- Funded under NSF award #2044815.

### **Undergraduate Research Assistant. Oregon State University, Corvallis, OR. Summers 2013 & 2014**

- Topic: Privacy protection in teleoperated robotics
- Supervisor: Dr. Bill Smart
- Funded by NSF Research Experience for Undergrads 2014.

## Publications & Talks

### **Refereed Conference Publications**

- Alex Hubers and J. Garrett Morris. Generic programming with extensible data types: Or, making ad hoc extensible data types less ad hoc. *Proc. ACM Program. Lang.*, 7 (ICFP), aug 2023. doi: 10.1145/3607843. URL [HTTPS://DOI.ORG/10.1145/3607843](https://doi.org/10.1145/3607843)
- Pedro Abreu, Benjamin Delaware, Alex Hubers, Christa Jenkins, J. Garrett Morris, and Aaron Stump. A type-based approach to divide-and-conquer recursion in coq. *Proc. ACM Program. Lang.*, 7(POPL):61–90, 2023. doi: 10.1145/3571196. URL [HTTPS://DOI.ORG/10.1145/3571196](https://doi.org/10.1145/3571196)
- Apoorv Ingle, Alex Hubers, and J. Garrett Morris. Partial type constructors in practice. In Nadia Polikarpova, editor, *Haskell '22: 15th ACM SIGPLAN International Haskell Symposium, Ljubljana, Slovenia, September 15 - 16, 2022*, pages 95–107. ACM, 2022. doi: 10.1145/3546189.3549923. URL [HTTPS://DOI.ORG/10.1145/3546189.3549923](https://doi.org/10.1145/3546189.3549923)

- Leo Bowen-Biggs, Suzanne Dazo, Yili Zhang, Alexander Hubers, Matthew Rueben, Ross T. Sowell, William D. Smart, and Cindy M. Grimm. A method for establishing correspondences between hand-drawn and sensor-generated maps. In *Social Robotics - 8th International Conference, ICSR 2016, Kansas City, MO, USA, November 1-3, 2016, Proceedings*, pages 1003–1013, 2016. doi: 10.1007/978-3-319-47437-3\\_98. URL [HTTPS://DOI.ORG/10.1007/978-3-319-47437-3\\_98](https://doi.org/10.1007/978-3-319-47437-3_98)
- Alexander Hubers, Emily Andrulis, Levi Scott, Tanner Stirrat, Ruonan Zhang, Ross T. Sowell, Matthew Rueben, Cindy M. Grimm, and William D. Smart. Using video manipulation to protect privacy in remote presence systems. In *Social Robotics - 7th International Conference, ICSR 2015, Paris, France, October 26-30, 2015, Proceedings*, pages 245–254, 2015. doi: 10.1007/978-3-319-25554-5\\_25. URL [HTTPS://DOI.ORG/10.1007/978-3-319-25554-5\\_25](https://doi.org/10.1007/978-3-319-25554-5_25)

### Refereed Artifact Submissions

- Divide & Conquer Recursion Examples in Coq—artifact for ABREU ET AL. (2023). [HTTPS://GITHUB.COM/ASTUMP/DC-RECURSION-EXAMPLES](https://github.com/astump/dc-recursion-examples). Awarded available, functional, and reusable badges by POPL’23 artifact evaluation committee.
- An Intrinsic Mechanization of System  $R\omega$  in Agda—artifact for HUBERS AND MORRIS (2023). [HTTPS://GITHUB.COM/IAFP/R0MEGA-ICFP23-ARTIFACT](https://github.com/IAFP/R0MEGA-ICFP23-ARTIFACT). Awarded available, functional, and reusable badges by ICFP’23 artifact evaluation committee.

### Recorded Conference Talks

- I presented HUBERS AND MORRIS (2023) at ICFP’23 in Seattle, Washington. [HTTPS://WWW.YOUTUBE.COM/LIVE/DOzFRUEDB-w?si=JRZAgsBoD40GsDZs&t=22265](https://www.youtube.com/live/DOzFRUEDB-w?si=JRZAgsBoD40GsDZs&t=22265).

### Professional Experience

#### GetMyBoat, Inc.

VP of Engineering. Remote. April ’16–Sep’20.

#### Appealing Studio

Web Developer. Frisco, TX. June ’15–April ’16.

### Honors and Awards

#### Honors

- Phi Beta Kappa Society, 2015–Present

#### Undergraduate Awards

- Senior Computer Science Achievement Award, Cornell College
- Ed Hill Mathematics Scholar
- Alice R. Betts Award
- Luther Claborn Memorial Award

## Teaching Experience

### **As Teaching Assistant**

- CS:3820–Programming Language Concepts, The University of Iowa. Fall 2022.
- CS:3820–Programming Language Concepts, The University of Iowa. Fall 2021.
- CS:3820–Programming Language Concepts, The University of Iowa. Spring 2021.

### **As Co-Instructor**

- STA:223–Introduction to Data Science, Cornell College. Fall 2020. Co-instructor to Ann Cannon.

### **Certifications**

- Certificate in College Teaching, The University of Iowa. (Anticipated to finish Spring 2024).

## Professional Affiliations

- Association of Computing Machinery (ACM), Special Interest Group on Programming languages, member.

## References

- J. Garrett Morris, Ph.D. Assistant Professor, The University of Iowa. *Doctoral advisor.* garrett-morris@uiowa.edu.
- Aaron Stump, Ph.D. Professor, The University of Iowa. *Doctoral advisor.* aron-stump@uiowa.edu.
- Ross Sowell, Ph.D. Associate Professor, Sewanee: The University of the South. *Undergraduate advisor.* rtsowell@sewanee.edu.