

Computer Science and Engineering
University of California, San Diego
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Michael H. Borkowski

Education

- 2016-2024 **Ph.D.**, *University of California, San Diego*, La Jolla, CA
Thesis: Mechanizing Refinement Types
Advisor: Ranjit Jhala
Committee: Nadia Polikarpova, Victor Vianu, Sam Buss, Cormac Flanagan
- 2021 **C.Phil.**, *University of California, San Diego*, La Jolla, CA
- 2019 **M.S.**, *University of California, San Diego*, La Jolla, CA
- 2014-2016 **B.A.**, *Amherst College*, Amherst, MA, *magna cum laude*
Thesis: Algorithms for Public Transit Routing
Advisor: Lyle McGeoch
- 2001-2004 **A.A.**, *Bard College at Simon's Rock*, Great Barrington, MA, *with distinction*

Industry Experience

- 2009-2016 **Software Engineer**, *ActionKit / NGP VAN*
Experienced in backend web development and database programming.

Refereed Conference Publications

- 2024 **Michael H. Borkowski**, Niki Vazou, and Ranjit Jhala, Mechanizing Refinement Types., To Appear in *51st ACM SIGPLAN Symposium on Principles of Programming Languages* (London, United Kingdom) (**POPL 2024**).
- 2005 Tuncay Aktosun, **Michael H. Borkowski**, Alyssa J. Cramer, and Lance C. Pittman, Inverse Scattering with Rational Scattering Coefficients and Wave Propagation in Nonhomogeneous Media., In *Operator Theory: Advances and Applications*, 160:1-20. Birkhäuser.
Research conducted in the NSF Research Experiences for Undergraduates program at Mississippi State University, Department of Mathematics and Statistics in Summer 2003 and 2005. Supervised by Prof. Tuncay Aktosun.

Journal Publications

- 2008 Eric M. Kramer, Michael Lewandowski, Satvik Beri, Jessica Bernard, Matthew Borkowski, **Michael H. Borkowski**, Laura Ann Burchfield, Brenda Mathisen, and Jennifer Normanly, *Auxin Gradients are Associated with Polarity Changes in Trees.*, In *Science*, 320:1610. AAAS.
Research conducted at Bard College at Simon's Rock in Summer 2004. Supervised by Prof. Eric M. Kramer.

- 2004 Eric M. Kramer and **Michael H. Borkowski**, *Wood Grain Patterns at Branch Junctions: Modeling and Implications.*, In *Trees*, 18:493-500. Springer Nature.
Research conducted at Bard College at Simon's Rock in Summer 2002. Supervised by Prof. Eric M. Kramer.



Publications linked online at:

<https://scholar.google.com/citations?user=7jVgRPQAAAAJ>

Teaching Experience

Instructor

- Winter 2024 **CSE 20: Discrete Mathematics, UCSD**
Projected enrollment: 192
- Summer 2023 **SPIS: Summer Programming for Incoming Students, UCSD**
51 students. One of three program instructors. Supervised 16 undergraduate mentors.
- Summer 2023 **CSE 20: Discrete Mathematics, UCSD**
23 students. Supervised 1 graduate and 2 undergraduate teaching assistants.
- Winter 2023 **CSE 130: Programming Languages: Principles and Paradigms, UCSD**
82 students. Supervised 3 graduate and 3 undergraduate teaching assistants.

Teaching Assistant

- Fall 2023 **CSE 230: Principles of Programming Languages, UCSD**
- Spring 2023 **CSE 205A: Logic in Computer Science, UCSD**
- Fall 2022 **CSE 230: Principles of Programming Languages, UCSD**
- Fall 2021 **CSE 230: Principles of Programming Languages, UCSD**
- Spring 2021 **CSE 205A: Logic in Computer Science, UCSD**
- Winter 2021 **CSE 130: Programming Language: Principles and Paradigms, UCSD**
- Fall 2020 **CSE 230: Principles of Programming Languages, UCSD**
- Summer 2020 **CSE 135: Online Database Analytics Applications, UCSD**
- Summer 2020 **CSE 134B: Web Client Languages, UCSD**
- Spring 2020 **CSE 230: Principles of Programming Languages, UCSD**
- Winter 2020 **CSE 101: Design and Analysis of Algorithms, UCSD**
- Fall 2019 **CSE 105: Theory of Computability, UCSD**
- Spring 2019 **CSE 205A: Logic in Computer Science, UCSD**

Honors and Awards

- 2016 **Sigma Xi**, *Amherst College*
- 2016 **Computer Science Prize**, *Amherst College*
- 2016 **Addison Brown Scholarship**, *Amherst College*
- 2015 **Phi Beta Kappa**, *Amherst College*

Invited Talks and Conference Talks

- 2022 Mechanizing Refinement Types
Invited talk at *UC San Diego Programming Languages Seminar*
- 2005 A Numerical Solution to the Quantum Mechanical Inverse Problem with Rational Scattering Coefficients
Talk at Young Mathematicians' Conference 2005, *Ohio State University*

Service

- 2020 **Mentor TA**
Mentored Students in the TA training course Teaching Methods in Computer Science

References

Ranjit Jhala

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Joe Politz

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