

# LARRY JOSHUA CROTTS

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GitHub: [JoshuaCrotts](https://github.com/JoshuaCrotts)

## TECHNICAL STRENGTHS

*Languages:* Java, C, C++, Python, Scheme, Racket, F#, Prolog, Haskell, OCaml, C#, Rust, Julia, Assembly  
*Tools:*  $\text{\LaTeX}$ , Git, Visual Studio Code, IntelliJ, Eclipse, NetBeans, Vim, Visual Studio  
*OS:* Linux (Arch, Ubuntu), Windows, macOS  
*Research:* Computer Science Education, Programming Languages, Compilers, Theory of Computing, Algorithm Analysis, Data Structures, Parallel Computing, Computer Architecture, Artificial Intelligence

## EDUCATION

Year	Degree	Major	Institution
2022–202X	Ph.D.	Computer Science	Indiana University Bloomington
2021–2022	M.S.	Computer Science	University of North Carolina Greensboro
2018–2021	B.S.	Computer Science	University of North Carolina Greensboro

## PROFESSIONAL EXPERIENCE

Dates	Position	Organization
2024 – present	Graduate Research Assistant	Indiana University Bloomington
2023 – present	Instructor	Indiana University Bloomington
2022 – 2023	Associate Instructor	Indiana University Bloomington
2021 – 2022	Graduate Teaching Assistant	UNC Greensboro
2021 – 2023	Online Computer Science Tutor	Pearson Inc.
2021	Undergraduate Research Assistant	UNC Greensboro
2020 – 2021	Philosophy of Logic Tutor	UNC Greensboro
2020 – 2021	Graduate Assistant & Panopto Admin	UNC Greensboro
2019 – 2021	CS Lab Assistant / Grader	UNC Greensboro
2020	Undergraduate Research Assistant	UNC Greensboro
2019	Undergraduate Research Assistant	UNC Greensboro

## PUBLICATIONS

### Proceedings:

1. **L. Joshua Crotts**, Chung-chieh Shan, and Sam Tobin-Hochstadt. A Pedagogically-Focused Translation Pipeline for Designing Loops in Programming. In *2025 Frontiers in Education Conference*, November 2-5, 2025, Nashville, Tennessee, IEEE.
2. **L. Joshua Crotts** and Stephen R. Tate. 2022. Comparison of Natural Deduction Theorem Provers used in Electronic Tutoring Systems. In *6th International Conference on Education and E-Learning (ICEEL)*, November 21–23, 2022, Tsuru, Japan. ACM, New York, NY, USA.
3. **L. Joshua Crotts** and Stephen R. Tate. 2022. Promoting a Common Testbed for Natural Deduction Tutoring Systems. In *6th International Conference on Education and E-Learning (ICEEL)*, November 21–23, 2022, Tsuru, Japan. ACM, New York, NY, USA.
4. Nick Parlante, Julie Zelenski, Stephanie Valentine, Mike Izbicki, Eric S. Roberts, Jed Rembold, Juliette Woodrow, Kathleen Creel, Nick Bowman, Ben Stephenson, Jonathan Hudson, **Larry “Joshua”**

- Crotts**, Andrew Matzuff. 2022. Nifty Assignments. In *Proceedings of the 53rd ACM Technical Symposium on Computer Science Education V. 2 (SIGCSE 2022)*, March 3–5, 2022, Providence, RI, USA. ACM, New York, NY, USA, 2 pages. <https://doi.org/10.1145/3478432.3499268>
5. Nancy L. Green and **L. Joshua Crotts**. “A First Experiment Using ILP for Argument Mining,” in *Proceedings of the 21st Workshop on Computational Models of Natural Argument*. September 2-3, 2021. Online.
  6. Nancy L. Green and **L. Joshua Crotts**. “Towards Automatic Detection of Antithesis,” in *Proceedings of the 20th Workshop on Computational Models of Natural Argument*, co-located with the 8th International Conference on Computational Models of Argument (COMMA). September 8, 2020. Perugia, Italy (and online).
  7. Nancy L. Green and **L. Joshua Crotts**. “Argument Schemes in AI Ethics Education,” in *Proceedings of the 20th Workshop on Computational Models of Natural Argument*, co-located with the 8th International Conference on Computational Models of Argument (COMMA). September 8, 2020. Perugia, Italy (and online).

#### Proceedings:

1. **Joshua Crotts**, Chung-chieh Shan, and Sam Tobin-Hochstadt. “How to Design Loops.” in *Midwest Programming Languages Summit*. November 2024. University of Chicago.
2. **Joshua Crotts**, Chung-chieh Shan, and Sam Tobin-Hochstadt. “How to Design Loops.” in *1<sup>st</sup> Celebration of Teaching*. October 2024. Indiana University Bloomington.
3. **Joshua Crotts**, Ali Altamimi, Harinder Badesha, Christopher Brantley, and Nadia Doudou. “A Visual Improvement to the Pedagogy of Introductory Logic,” in *15<sup>th</sup> Annual Undergraduate Creativity Expo. Bachelor Capstone Project*. April 2021. University of North Carolina Greensboro.
4. **Joshua Crotts** and Nancy L. Green. “Automatic Detection of Rhetorical Devices in Science Policy Articles,” in *14<sup>th</sup> Annual Undergraduate Creativity Expo*. April 2020. University of North Carolina Greensboro.

#### University Research:

1. **Joshua Crotts**. “An Overview of Problem-Based Learning in Computer Science.” *Problem-Based Learning Research Paper*. November 2024. Indiana University Bloomington.
2. **Joshua Crotts**. “An Investigation of Compiler-Induced Vulnerabilities and Insecure Optimizations.” *Computer Security Graduate Research Paper*. December 2021. University of North Carolina Greensboro.
3. **Joshua Crotts**. “Exploring Cross-Site Scripting (XSS): Attack Payloads, Prevention, and Mitigation Techniques.” *Software Security Research Paper*. May 2022. University of North Carolina Greensboro.
4. **Joshua Crotts**. “An Investigation of Compiler-Induced Vulnerabilities and Insecure Optimizations.” *Computer Security Graduate Research Paper*. December 2021. University of North Carolina Greensboro.
5. **Joshua Crotts** and Christopher Brantley. “On an Enhanced Hands-on Approach to Formal Logic Education.” University of North Carolina Greensboro.
6. **Joshua Crotts**. “Binary Space Partitioning: A Focus on Rendering and Compression Algorithms,” in *21<sup>st</sup> Annual Undergraduate Honors Symposium. Algorithm Analysis Graduate Research Paper*. April 2021. University of North Carolina Greensboro.
7. **Joshua Crotts**. “An Insight into Buffer Overflow Attacks and Kernel Security in Operating Systems.” *Operating Systems Graduate Research Paper*. December 2020. University of North Carolina Greensboro.

**Master's Thesis:**

1. **Joshua Crotts**. "Construction and Evaluation of a Gold Standard Syntax for Formal Logic Formulas and Systems." May 2022. University of North Carolina Greensboro.

**Books:**

1. **Joshua Crotts**. "Learning Java: A Test-Driven Approach." Sep 2024. Springer.
2. **Joshua Crotts**. "Principles of Computer Science: An Invigorating, Hands-On Approach." Oct 2023. J Ross Publishing.

**TEACHING EXPERIENCE (sole responsibility)****Fall 2025:**

1. CSCI-C 212 - Introduction to Software Systems, Indiana University Bloomington (1 section).

**Spring 2025:**

1. CSCI-C 212 - Introduction to Software Systems, Indiana University Bloomington (3 sections).

**Fall 2024:**

1. CSCI-C 212 - Introduction to Software Systems, Indiana University Bloomington (1 section).

**Spring 2024:**

1. CSCI-C 212 - Introduction to Software Systems, Indiana University Bloomington (3 sections).

**Fall 2023:**

1. CSCI-C 212 - Introduction to Software Systems, Indiana University Bloomington (2 sections).

**TEACHING EXPERIENCE (teaching assistant)****Summer 2025:**

1. CSCI-C 291 - System Programming with C and Unix, Indiana University Bloomington (1 section).
2. CSCI-C 212 - Introduction to Software Systems, Indiana University Bloomington (1 section).

**Summer 2023:**

1. CSCI-C 212 - Introduction to Software Systems, Indiana University Bloomington (1 section).

**Spring 2023:**

1. CSCI-C 212 - Introduction to Software Systems, Indiana University Bloomington (3 sections).
2. CSCI-C 211 - Introduction to Computer Science, Indiana University Bloomington (1 section).

**Fall 2022:**

1. CSCI-C/H 211 - Introduction to Computer Science, Indiana University Bloomington (3 sections).

**Spring 2022:**

1. CSC 490 - Senior Capstone. Department of Computer Science. University of North Carolina Greensboro (1 section).

2. CSC 471 - Principles of Database Systems. Department of Computer Science. University of North Carolina Greensboro (1 section).
3. CSC 462/662 - Principles of Operating Systems. Department of Computer Science. University of North Carolina Greensboro (1 section).
4. CSC 454/654 - Algorithm Analysis & Design. Department of Computer Science. University of North Carolina Greensboro (1 section).
5. CSC 362 - System Programming. Department of Computer Science. University of North Carolina Greensboro (1 section).

**Fall 2021:**

1. CSC 490 - Senior Capstone. Department of Computer Science. University of North Carolina Greensboro (1 section).
2. CSC 471 - Principles of Database Systems. Department of Computer Science. University of North Carolina Greensboro (1 section).
3. CSC 362 - System Programming. Department of Computer Science. University of North Carolina Greensboro (1 section).

**Spring 2021:**

1. PHI 310 - Introduction to Formal Logic. Department of Philosophy. University of North Carolina Greensboro (1 section).
2. CSC 130 - Introduction to Computer Science. Department of Computer Science. University of North Carolina Greensboro (2 sections).

**Fall 2020:**

1. PHI 310 - Introduction to Formal Logic. Department of Philosophy. University of North Carolina Greensboro (1 section).
2. CSC 130 - Introduction to Computer Science. Department of Computer Science. University of North Carolina Greensboro (2 sections).

**Spring 2020:**

1. CSC 130 - Introduction to Computer Science. Department of Computer Science. University of North Carolina Greensboro (1 section).

**Fall 2019:**

1. CSC 130 - Introduction to Computer Science. Department of Computer Science. University of North Carolina Greensboro (1 section).

**SERVICE/VOLUNTEERING**

1. Hosted optional weekly recitation sessions for CSC 362 System Programming, where I would demo practical programming examples, answer questions, and clarify theoretical topics for students.
2. Created a Minecraft code.org tutorial for the remote NSF-funded research study Science Everywhere at the University of North Carolina Greensboro.
3. Undergraduate representative member of the search committee for a new assistant professor position in computer science at the University of North Carolina Greensboro. Reviewed over 90 professional curriculum vitae, participated in remote and in-person interviews.

## **AWARDS/SCHOLARSHIPS**

### **2025**

1. Luddy Outstanding Teaching Award; Indiana University Bloomington.

### **2024**

1. Luddy PhD Instructor Award; Indiana University Bloomington
2. Luddy Outstanding Teaching Award; Indiana University Bloomington.

### **2024**

1. Luddy Outstanding Teaching Award; Indiana University Bloomington.

### **2023**

1. Luddy Outstanding Teaching Award; Indiana University Bloomington.

### **2022**

1. Graduate Computer Science Assistantship; University of North Carolina Greensboro.
2. Margaret Ann Cassidy Scholarship in Computer Science; University of North Carolina Greensboro.

### **2020-2021**

1. Science, Technology, and Math Prep. Scholarship (NSF STAMPS); University of North Carolina Greensboro.
2. Margaret Ann Cassidy Scholarship in Computer Science; University of North Carolina Greensboro.
3. White Science Research Award; University of North Carolina Greensboro.
4. Burgess Honors Scholarship; University of North Carolina Greensboro.
5. Outstanding Student Excellence Award in Computer Science; University of North Carolina Greensboro.
6. Provost Student Excellence Award; University of North Carolina Greensboro.

### **2019-2020**

1. Mary D. Murray Scholarship in Computer Science; University of North Carolina Greensboro.
2. Samanage Success Scholarship in Computer Science; University of North Carolina Greensboro.

### **2018-2019**

1. Mary D. Murray Scholarship in Computer Science; University of North Carolina Greensboro.