L. Joshua Crotts

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▬▬▬ Areas

Languages	Java, C, C++, Python, Scheme, Racket, F#, Prolog, Haskell, OCaml, C#, Rust, Julia, Assembly.
Tools	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

2022–202X	**Indiana University Bloomington**, *Computer Science*, Doctor of Philosophy, GPA: 3.972/4.0.
2021–2022	**University of North Carolina Greensboro**, *Computer Science*, Master of Science, GPA: 4.0/4.0.
2018–2021	**University of North Carolina Greensboro**, *Computer Science*, Bachelor of Science, GPA: 3.99/4.0. Latin honors: summa cum laude, Outstanding Undergraduate Student Awardee in computer science, honors student, Phi Beta Kappa member, STAMPS (NSF) scholar, Accelerated Master's Program student, Chancellor's List Fall 2018 - Spring 2021

▬▬▬ Experience

2024	**Graduate Research Assistant**, *Department of Computer Science*, Indiana University Bloomington.
since 2023	**Instructor**, *Department of Computer Science*, Indiana University Bloomington.
2022 – 2023	**Associate Instructor**, *Department of Computer Science*, Indiana University Bloomington.
2021 – 2022	**Graduate Teaching Assistant**, *Department of Computer Science*, University of North Carolina Greensboro.
2021 – 2023	**Online Computer Science Tutor**, Pearson Inc.
2021	**Undergraduate Research Assistant**, *Department of Computer Science*, University of North Carolina Greensboro.
2020 – 2021	**Introduction to Formal Logic Course Tutor**, *Department of Philosophy*, University of North Carolina Greensboro.
2020 – 2021	**Graduate Assistant & Panopto Administrator**, *ITS Learning Technology*, University of North Carolina Greensboro.
2019 – 2021	**Introduction to Computer Science Lab Assistant and Grader**, *Department of Computer Science*, University of North Carolina Greensboro.
2020	**Undergraduate Research Assistant**, *Department of Computer Science*, University of North Carolina Greensboro.
2019	**Undergraduate Research Assistant**, *Department of Computer Science*, University of North Carolina Greensboro.
2018	**IT Technician and Tutor**, Age-Wiser/TechStar Tutors.

Publications

Proceedings publications

6. **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.

5. **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 Matzureff. 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

3. 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.

2. 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).

1. 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).

Posters

3. **Joshua Crotts**, Chung-chieh Shan, and Sam Tobin-Hochstadt. "How to Design Loops." in *1st Celebration of Teaching.* October 2024. Indiana University Bloomington.

2. **Joshua Crotts**, Ali Altamimi, Harinder Badesha, Christopher Brantley, and Nadia Doudou. "A Visual Improvement to the Pedagogy of Introductory Logic," in *15th Annual Undergraduate Creativity Expo. Bachelor Capstone Project.* April 2021. University of North Carolina Greensboro.

1. **Joshua Crotts** and Nancy L. Green. "Automatic Detection of Rhetorical Devices in Science Policy Articles," in *14th Annual Undergraduate Creativity Expo.* April 2020. University of North Carolina Greensboro.

University research

7. **Joshua Crotts**. "An Overview of Problem-Based Learning in Computer Science." *Problem-Based Learning Research Paper.* November 2024. Indiana University Bloomington.

6. **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**. "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.

3. **Joshua Crotts** and Christopher Brantley. "On an Enhanced Hands-on Approach to Formal Logic Education." University of North Carolina Greensboro.

2. **Joshua Crotts**. "Binary Space Partitioning: A Focus on Rendering and Compression Algorithms," in *21st Annual Undergraduate Honors Symposium. Algorithm Analysis Graduate Research Paper.* April 2021. University of North Carolina Greensboro.

1. **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.

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

2. **Joshua Crotts**. "Learning Java - A Test-Driven Approach." Sep 2024. Springer.

1. **Joshua Crotts**. "Principles of Computer Science - An Invigorating, Hands-On Approach." Oct 2023. J Ross Publishing.

In-progress manuscripts

1. **L. Joshua Crotts**, Chung-chieh Shan, and Sam Tobin-Hochstadt. 2024. "How to Design Loops."

▬▬▬ Teaching Experience (full responsibility)

Fall '24 1. CSCI-C 212 - Introduction to Software Systems, Indiana University Bloomington (1 section).

Spring '24 1. CSCI-C 212 - Introduction to Software Systems, Indiana University Bloomington (1 section).

Fall '23 1. CSCI-C 212 - Introduction to Software Systems, Indiana University Bloomington (1 section).

▬▬▬ Teaching Experience (teaching assistant)

Summer '23 1. CSCI-C 212 - Introduction to Software Systems, Indiana University Bloomington (1 section).

Spring '23 2. CSCI-C 212 - Introduction to Software Systems, Indiana University Bloomington (1 section).

1. CSCI-C 211 - Introduction to Computer Science, Indiana University Bloomington (1 section).

Fall '22 1. CSCI-C/H 211 - Introduction to Computer Science, Indiana University Bloomington (3 sections).

Spring '22 5. CSC 490 - Senior Capstone. Department of Computer Science. University of North Carolina Greensboro (1 section).

4. 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).

2. CSC 454/654 - Algorithm Analysis & Design. Department of Computer Science. University of North Carolina Greensboro (1 section).

1. CSC 362 - System Programming. Department of Computer Science. University of North Carolina Greensboro (1 section).

Fall '21 3. 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).

1. CSC 362 - System Programming. Department of Computer Science. University of North Carolina Greensboro (1 section).

Spring '21 2. PHI 310 - Introduction to Formal Logic. Department of Philosophy. University of North Carolina Greensboro (1 section).

1. CSC 130 - Introduction to Computer Science. Department of Computer Science. University of North Carolina Greensboro (2 sections).

Fall '20 2. PHI 310 - Introduction to Formal Logic. Department of Philosophy. University of North Carolina Greensboro (1 section).

1. CSC 130 - Introduction to Computer Science. Department of Computer Science. University of North Carolina Greensboro (2 sections).

Spring '20 1. CSC 130 - Introduction to Computer Science. Department of Computer Science. University of North Carolina Greensboro (1 section).

Fall '19 1. CSC 130 - Introduction to Computer Science. Department of Computer Science. University of North Carolina Greensboro (1 section).

▬▬▬ Service/Volunteering

2021 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.

2020 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.

▬▬▬ Honors/Awards/Scholarships

2024 Luddy PhD Instructor Award; Indiana University Bloomington

Luddy Outstanding Teaching Award; Indiana University Bloomington.

2023 Luddy Outstanding Teaching Award; Indiana University Bloomington.

2021	Graduate Computer Science Assistantship; University of North Carolina Greensboro.
	Margaret Ann Cassidy Scholarship in Computer Science; University of North Carolina Greensboro.
2020-2021	Science, Technology, and Math Prep. Scholarship (NSF STAMPS); University of North Carolina Greensboro.
	Margaret Ann Cassidy Scholarship in Computer Science; University of North Carolina Greensboro.
	White Science Research Award; University of North Carolina Greensboro.
	Burgess Honors Scholarship; University of North Carolina Greensboro.
	Outstanding Student Excellence Award in Computer Science; University of North Carolina Greensboro.
	Provost Student Excellence Award; University of North Carolina Greensboro.
2019-2020	Mary D. Murray Scholarship in Computer Science; University of North Carolina Greensboro.
	Samanage Success Scholarship in Computer Science; University of North Carolina Greensboro.
2018-2019	Mary D. Murray Scholarship in Computer Science; University of North Carolina Greensboro.