

# Brent Pappas

Email: pappasbrent at gmail dot com

Portfolio: <https://www.pappasbrent.com>

GitHub: <https://www.github.com/PappasBrent>

## EDUCATION

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PhD - Computer Science; GPA: 3.983

University of Central Florida (UCF)

Orlando, Florida

August 2021 - Present

**Courses:** Software Engineering and Formal Specification of Software Systems

Master of Science - Computer Science; GPA: 3.983

UCF

August 2021 - December 2025

Orlando, Florida

**Courses:** Analysis of Algorithms, Complexity Theory, Computer Architecture, and Compiler Construction

Bachelor of Science - Computer Science; GPA: 3.849

UCF

August 2017 - May 2021

Orlando, Florida

**Courses:** Data structures and Algorithms, Systems Software, Programming Languages, and Discrete Structures

## SKILLS SUMMARY

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**Languages:** Python3, C/C++, Bash, and HTML/CSS/JavaScript

**Tools:** Git, GitHub, and LLVM/Clang

**Platforms:** Linux, Web, and Windows

**Soft Skills:** Leadership, Writing, Communication, and Time management

## WORK EXPERIENCE

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Graduate Teaching Assistant

UCF

August 2023 - April 2024

Orlando, Florida

- **Teaching:** Led weekly labs on the Linux command line, the Linux C programming interface, git, make, and compiler design with ANTLR
- **Exam Proctoring:** Answered student questions during exams and monitored students to prevent cheating.
- **Performance Evaluations:** [Link](#)

Software Engineering Intern

Trail of Bits

May 2023 - August 2023 and December 2023 - January 2024

Remote

- **C Language Toolsmithing:** Created Macroni, a C static analysis tool that combines Trail of Bits' tools PASTA and VAST to lower C preprocessor macros down to MLIR. Macroni is available at <https://github.com/trailofbits/macroni>.
- **Peer-reviewed Development:** Leveraged GitHub to push changes to company repos, submit code for code review, and finally merge changes into mainline branches.
- **Research Discussion:** Exhibited research results and Macroni to team members and company CEO, Dan Guido, for advice and criticism.

Graduate Research Assistant

UCF

July 2021 - July 2023 and May 2025 - Present

Orlando, Florida

- **Programming Language Research:** Stay up-to-date on the latest academic developments in programming languages.
- **Software Engineering:** Implement research ideas in languages such as C++.
- **Conduct Experiments:** Write Python and Bash scripts to automate running experiments.

Quality Assurance Coordinator

SP+

September 2019 - July 2021

Orlando, Florida

- **Agile Software Development:** Engaged in agile software development methods within a small team to QA test software before moving on to later phases of development.
- **Testing Automation:** Refactored and wrote Python scripts to automate testing of various online user applications.
- **Mobile Application Development:** Tested company Android apps for compatibility with various versions of Android.

Peer Mentor

August 2018 - December 2019

UCF Student Academic Resource Center

Orlando, Florida

- **Led Tutoring Sessions:** Led Computer Science 1 and Object Oriented Programming tutoring sessions involving Socratic learning methods.
- **Faculty Collaboration:** Collaborated with UCF teaching staff to enhance tutoring session quality.
- **Tutor Mentoring:** Observed other tutors' sessions and provided feedback as to how they may improve their communication and tutoring skills.

## PROJECTS

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**Macroni:** A C static analysis tool that combines Trail of Bits' tools PASTA and VAST to lower C preprocessor macros down to MLIR. Macroni is available at <https://github.com/trailofbits/macroni>.

**Maki:** C++ Clang plugin that analyzes hows C preprocessor macros affect the C AST. Maki provides language porting tools information they can use to port macros to target languages in a way that preserves not just macro behavior, but also macro abstractions. Maki is the tool associated with 2024 ICSE paper, Semantic Analysis of Macro Usage for Portability, for which I am the lead-author.

## PUBLICATIONS

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**Build Code is Still Code: Finding the Antidote for Pipeline Poisoning (to appear):** by Brent Pappas and Paul Gazzillo. International Conference on Software Engineering (ICSE) New Ideas and Emerging Results (NIER). Acceptance rate of 33.11% (50 / 151). <https://dl.acm.org/doi/10.1145/3786582.3786799>. Artifact badges: Available and Reusable.

**Semantic Anaysis of Macro Usage for Portability:** by Brent Pappas and Paul Gazzillo. International Conference on Software Engineering. Acceptance rate of 22.26% (234 / 1051). <https://dl.acm.org/doi/10.1145/3597503.3623323>. Artifact badges: Available and Reusable.

**Holy Macroni! A recipe for progressive language enhancement:** by Brent Pappas. Blog post written for Trail of Bits. <https://blog.trailofbits.com/2023/09/11/holy-macroni-a-recipe-for-progressive-language-enhancement/>.

**SugarC: Scalable Desugaring of Real-World Preprocessor Usage into Pure C:** by Zach Patterson, Zenong Zhang, Brent Pappas, Shiyi Wei, and Paul Gazzillo. ICSE. Acceptance rate of 28.51% (197 / 691). <https://dl.acm.org/doi/10.1145/3510003.3512763>. Artifact badges: Available and Reusable.

## PRESENTATIONS

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**Invited Talk - The PhD Life:** Guest lecture on graduate student life presented to Sonoma State University's 2026 Spring Colloquium, hosted by Dr. John Sullins. 2026-02-09. [Slides link](#).

**Invited Talk - The PhD Life:** Guest lecture on graduate student life presented to Dr. Suzanne Rivoire's undergraduate course, Computing Professions, at Sonoma State University. 2025-05-08. [Slides link](#).

**Semantic Analysis of Macro Usage for Portability (ICSE 2024):** Presentation at the 2024 International Conference on Software Engineering in Lisbon, Portugal. 2024-04-17. [Recording link](#).

**Semantic Analysis of Macro Usage for Portability (CAE-R):** Virtual presentation for Center of Academic Excellence in Cyber Research (CAE-R). 2023-08-31. [Recording link](#); jump to 25:58.

## POSTERS

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**Cpp2C: Transforming C Preprocessor Macros to C Language Constructs:** 2022 University of Central Florida Student Scholar Symposium.

**Holy Macroni! Finding Macro Usage Errors in the Linux Kernel:** 2024 International Symposium on Secure and Private Execution Environment Design.

## HONORS AND AWARDS

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**GTA Excellence Award (University level) (2026):** For providing exceptional teaching assistance to the course Systems Software. [Award letter](#).

**GTA Excellence Award (College level) (2026)**: For providing exceptional teaching assistance to the course Systems Software. [Certificate](#).

**CRA Scholarship Invitee (2026)**: The CRA-WP arranged and paid for me to travel to the 2026 CRA-WP Grad Cohort Workshop in Seattle, Washington, because of my superior workshop application.

**UCF 3MT Finalist (2024)**: For effectively communicating my research to a general audience in a 3 minute talk. [Video](#). [Certificate](#).

**Distinguished Artifact Reviewer (2024)**: For my attention to detail while reviewing artifacts for OOPSLA 2024. [Link](#).

**FCI Student Scholarship (2024)**: For my interest in interdisciplinary research, scholarship, and collaboration.

**Cum laude honors (2021) (2021)**: For having a cumulative undergraduate GPA greater than 3.8.

**Deans' list (2017-2021)**: For continued undergraduate scholastic achievement.

**Burnett Honors Scholar (2017)**: For academic talent, motivation, intellectual curiosity and creativity.

**Provost Scholarship (2017)**: For outstanding academic performance in high school.

## CERTIFICATIONS

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[Completed higher education training, Preparing Tomorrow's Faculty](#)

[Level 1 College Readiness and Learning Assessment \(CRLA\) certified tutor](#)

[Level 2 College Readiness and Learning Assessment \(CRLA\) certified tutor](#)

UCF Student Enhancement Training (SET) program certified.

## WORKSHOPS

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**2025 CRA-WP Virtual Mentoring Series Workshops**

Virtual - October-November, 2025

**2025 CRA-E Career Landscape Workshop**

Virtual - May, 2025

**Programming Language Mentoring Workshop (PLMW)**

San Diego, California - June 13-14, 2022

## VOLUNTEERING

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**UCF CS Grad Symposium 2025 Student Panelist**

Orlando, Florida - October 2025

- **Early PhD advice**: Recommended that new graduate students remain humble and start honing their communication skills immediately after starting a PhD.

**UCF "Surviving Graduate School" Panelist**

Orlando, Florida - August 2025

- **Community engagement**: Taught prospective graduate students how to become active in the UCF community and obtain financial support from UCF for travel.
- **Finance tips**: Explained how to obtain financial support from UCF for research-related travel.

**UCF GradLaunch PhD Panelist**

Orlando, Florida - August 2025

- **Advising**: Instructed new graduate students how to manage their time and organize their day in order to be productive researchers.

**UCF Graduate School Info Session PhD Student Panel**

Orlando, Florida - May 2025

- **Advising**: Answered undergraduate students' questions about UCF's Computer Science PhD program.

**OOPSLA 2024 Artifact Evaluation Committee Member**

Virtual - January-February, July-August, 2024

- **Artifact Review**: Reviewed code artifacts associated with papers accepted to OOPSLA 2024. Distinguished reviewer.

**NAC - NAPC Volunteer**

Orlando, Florida - May 2024

- **Competition Setup**: Moved computers and cables to the competition room for the 2024 North American Championship and Programming Camp (NAC-NAPC), hosted at UCF.

**EuroSys 2023 Shadow Program Committee Member**

Virtual - November-December 2022

- **Paper Review**: Reviewed real paper submissions to EuroSys 2023.

**Camp Connect**

Orlando, Florida - June 2021, June 2023, June 2025

- **Computer Programming Lessons:** Taught elementary, middle, and high school students the basics of computer programming in JavaScript.
- **Human Computer Interaction Lessons:** Gave elementary, middle, and high school students hands-on training with a variety of biometric equipment, including respiration belts, EDA and ECG sensors, fNIRS headbands, and eye-tracking sensors.

**UCF CECS Senior Design Judge**

Orlando, Florida - April 2024

- **Judging:** Followed a given rubric to judge the quality of capstone projects for seniors of the College of Engineering and Computer Science. Criteria included presentation quality, project design quality, and creativity.

**UCF CECS Career Kickoff Alumni Mentor**

Virtual - October 2022

- **Mentoring:** Advised UCF freshmen on goal-setting, resume-building, and overall professionalism.
- **Job Application Prep:** Conducted mock interview with UCF freshmen and provided tips on how to effectively search for jobs in their field.

**ADVISING**

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**UNDERGRADUATE RESEARCHERS**

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Aaron Burgess. 2026 - Present. Human factors in software engineering.

Thiago Aioldi. 2026 - Present. Analysis and security of software development pipelines.

Rasmin Ahmed. 2026 - Present. Analysis and security of software development pipelines.

Daniel Henriquez. 2026 - Present. Analysis and security of software development pipelines.

Brayden Coggin. 2026 - Present. Analysis and security of software development pipelines.

Thai Nguyen. 2025 - 2026. Human factors in software engineering and analysis and security of software development pipelines.

Nikola Krstajic. 2025. Human factors in software engineering.

Michael Johnson. 2025 - Present. Human factors in software engineering and analysis and security of software development pipelines.

Layla Le. 2025. Human factors in software engineering.

Kenneth Valladares. 2025. Human factors in software engineering.

Julian Velez. 2025. Human factors in software engineering.

Jorge Toledo. 2025. Human factors in software engineering.

Hasini Daliboyina. 2025. Human factors in software engineering.

David Gusmao. 2025 - Present. Human factors in software engineering and analysis and security of software development pipelines.

Anju Thomas. 2025. Human factors in software engineering.

Adam Betinsky. 2025 - Present. Human factors in software engineering and analysis and security of software development pipelines.

Zachary Burkett. 2024. Semantics-aware translation of C preprocessor.

Joseph Zalusky. 2024. Semantics-aware translation of C preprocessor macros.