

# Maxwell Levatich

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## Education

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- Columbia University** *PhD in Computer Science* Sept 2020 – Aug 2026
- **Thesis:** “A Fast Flow-Sensitive Taint Analysis for C/C++ Program Partitioning”
  - Advised by: Stephen A. Edwards
- Yale University** *BS and MS in Computer Science* Sept 2016 – May 2020
- GPA: 3.65
  - **Coursework:** Software Verification, Compilers, Operating Systems, The Hardware/Software Interface

## Teaching

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- ENGI 1006: Introduction to Computing for Applied Scientists** Spring 2026  
*Instructor of Record* *Columbia University*
- Lectured to 200 students on introductory Python programming
  - Piloted large-scale individual code-review projects to assess AI-assisted engineering skills
- COMS 4995: Parallel Functional Programming** Fall 2025  
*Instructor of Record* *Columbia University*
- Lectured to 25 students in upper-level elective covering Haskell and its support for parallelism
  - Augmented existing syllabus with live-coding exercises and weekly short quizzes for attendance
- ENGI 1006: Introduction to Computing for Applied Scientists** Fall 2022  
*Head Teaching Assistant (1 of 10)* *Columbia University*
- Designed and held weekly review section with supplemental exercises
- COMS 4995: Parallel Functional Programming** Fall 2021  
*Teaching Assistant and Project Advisor* *Columbia University*
- COMS 4115: Programming Languages and Translators** Fall 2021  
*Teaching Assistant and Project Advisor* *Columbia University*
- CPSC 112: Introduction to Computer Programming** Spring 2020  
*Head Teaching Assistant (2 of 12)* *Yale University*
- CS 50: Introduction to Computer Science** Fall 2019  
*Head Teaching Assistant (3 of 32)* *Yale University*
- Designed and held weekly in-person lessons to complement online lectures
  - Led weekly TA meetings and pedagogy exercises for a large cohort of 32 TAs
- CS 112: Introduction to Computer Programming** Spring 2019, 2018  
*Teaching Assistant* *Yale University*
- CS 50: Introduction to Computer Science** Fall 2018, 2017  
*Teaching Assistant* *Yale University*

## Journal and Conference Publications

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- Fast, Flow-Sensitive C Program Partitioning via Iterative Value-Flow Refinement** ICSE '26  
*Maxwell Levatich, Stephen A. Edwards*
- C Program Partitioning with Fine-Grained Security Constraints and Post-Partition Verification** MILCOM '22

Maxwell Levatich, Robert Brotzman, Benjamin Flin, Ta Chen, Rajesh Krishnan, Stephen A. Edwards

**Supercharging Plant Configurations Using Z3** CPAIOR '21  
Nikolaj Bjørner, Maxwell Levatich, Nuno P. Lopes, Andrey Rybalchenko, Chandrasekar Vuppapapati

**Solving LIA\* Using Approximations** VMCAI '20  
Maxwell Levatich, Nikolaj Bjørner, Ruzica Piskac, Sharon Shoham

## Talks

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**Using Z3 to Validate Executions of a Program Partitioner** FMCAD '21  
*at Formal Methods in Computer-Aided Design Student Forum*

## Certifications and Honors

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**Columbia CTL Teaching Development Advanced Certification** Spring 2025  
*Highest certification for "sustained teaching development in graduate school"*

**Yale Student Research in Computer Science Award** Spring 2020  
*Awarded to 2 Computer Science majors in the graduating class*

**Yale CS50 SCAZ Award** Fall 2018  
*For "superior committment and zeal" as a Computer Science TA (3 of 32)*

## Service

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**Student Volunteer** at *Symposium on Principles of Programming Languages* POPL '23

**Student Volunteer** at *Programming Language Design and Implementation* PLDI '22

**Artifact Evaluation** for *Conference on Computer-Aided Verification* CAV '18

## Industry

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**Research Intern** Summer 2023, 2024  
*Peraton Basking Ridge, NJ*

- Implemented pointer dependency tracking for C program compartmentalization (DARPA GAPS program)
- Developed automatic state machine repair technique using Z3's fixedpoint solver (DARPA BPL program)

**RiSE (Research in Software Engineering) Intern** Summer 2020, 2022  
*Microsoft Redmond, WA*

- Prototyped constraint-based automated tournament scheduling solution using Z3 for national sports client
- Optimized constraint-based production line configuration for car manufacturing client
- Extended Z3 with support for theory of Unicode strings

**Kernel Development Intern** Summer 2018  
*Oracle Redwood Shores, CA*

- Backported CVE patches to older supported versions of the Oracle Linux kernel
- Created portable lightweight Docker container and web frontend for internal developement tools

## Software Projects

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**Abelon** [mlevatich/Abelon](#) 

- Turn-based tactical role-playing game in Lua with Löve2D engine
- Writing, art, animation, music my own work

**Guy Battle** [mlevatich/guy-battle](#) 

- 2D fighting game in C with SDL2 rendering and audio library
- Art, animation, music my own work