

# Maxwell Levatich

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## Education

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- Columbia University** *PhD in Computer Science* Sept 2020 – Present
- **Thesis (proposed):** “C++ Program Partitioning for Information-Flow Control”
  - Advised by: Stephen A. Edwards
- Yale University** *BS and MS in Computer Science* Sept 2016 – May 2020
- GPA: 3.67
  - **Coursework:** Software Verification, Compilers, The Hardware/Software Interface

## Teaching

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- COMS 4995: Parallel Functional Programming** Fall 2025  
*Instructor of Record* *Columbia University*
- Lectured to 50 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 2023  
*Head Teaching Assistant (1 of 10)* *Columbia University*
- Held weekly review section with supplemental exercises
  - Designed exam questions and exam review 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*
- CS 112: Introduction to Computer Programming** Spring 2020  
*Head Teaching Assistant (2 of 12)* *Yale University*
- Held weekly review section with supplemental exercises
- CS 50: Introduction to Computer Science** Fall 2019  
*Head Teaching Assistant (3 of 32)* *Yale University*
- Held weekly review section with supplemental exercises
  - Led weekly TA meetings 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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- Anonymous submission under review** 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 Program Certification

Spring 2025

*Foundational track - advanced track certification expected Fall 2025*

### 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 development tools

## Software Projects

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### Abelon

[github.com/mlevatich/Abelon](https://github.com/mlevatich/Abelon) 

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

### Guy Battle

[github.com/mlevatich/guy-battle](https://github.com/mlevatich/guy-battle) 

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