Maxwell Levatich

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Education

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: 3.65
- **Coursework:** Software Verification, Compilers, Operating Systems, The Hardware/Software Interface

Teaching

ENGI 1006: Introduction to Computing for Applied Scientists Spring 2026
Instructor of Record *Columbia University*

- Currently preparing AI-forward curriculum changes for Spring

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 2023
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*

CS 112: Introduction to Computer Programming Spring 2020
Head Teaching Assistant (2 of 12) *Yale University*

- Designed and held weekly review section with supplemental exercises

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

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 Vuppalapati

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

Talks

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

Certifications and Honors

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

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

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

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