Max Levatich

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EDUCATION

Undergraduate / Masters – Yale University **2016 - 2020**

B.S. and M.S. in Computer Science, 3.67 GPA

Relevant Coursework

Formal Verification, Computer Architecture, Compilers, Operating Systems,
Computer Networks, Software Engineering, Algorithms, The Hardware/Software Interface

PUBLICATIONS

Solving LIA* Using Approximations **VMCAI '20**

Maxwell Levatich, Nikolaj Bjorner, Ruzica Piskac, Sharon Shoham
Approved Artifact: https://github.com/mlevatich/sls-reachability

Language Independence Via Synthesis **Unpublished**

William Hallahan, Mark Santolucito, Maxwell Levatich, Ruzica Piskac

WORK EXPERIENCE

SE Intern – Microsoft Research **Summer 2020**

PL Researcher - Yale ROSE Group **Summer 2019**

I worked with Ruzica Piskac on a language-agnostic program synthesis engine, and a new semi-linear set reachability algorithm that iteratively calls Z3 to lazily construct a satisfying Hilbert basis. The algorithm optimizes a decision procedure for multisets, among other applications. I also attended CAV '19.

Head Teaching Assistant – CS50 and CS112 **Fall 2017 – Fall 2019**

I joined, and now lead, the staff of CS50 and 112, classes that introduce 400+ students to CS each year – I teach section, hold office hours, plan staff meetings, and manage the course alongside the professors.

Kernel Development Intern - Oracle Corporation **Summer 2018**

On the kernel maintainers team, I pushed changes to Oracle's Linux kernel, wrote a dev tool with a REST API, web UI, and CLI that tracks upstream commits, and dockerized some internal legacy software.

FELLOWSHIPS & AWARDS

VMCAI '20 Winter School Student Fellowship **Fall 2019**

CAV '19 Student Fellowship **Summer 2019**

Yale College Dean's Research Fellowship **Spring 2019**

SCAZ Award – Superior Commitment And Zeal on CS50 Staff **Fall 2017**

PROJECTS (hosted on github)

Mini Dafny **Fall 2018**

Verification condition generator for a toy language – paired with Z3, proves programs satisfy their specs.

Satis-C **Fall 2018**

DPLL SAT-solver augmented with clause learning that won a class competition for correctness / speed.

Guy Battle **Summer 2019**

Fighting game of about 3 KLoC written in C using SDL's rendering API. A personal exercise in building a game from nothing – the subsystems, abstractions, artwork, animations, and music are all my own.

Shadow Hunters **Spring 2019**

Online port of the same board game, 5 KLoC, made by a team of 5. I worked on the Python backend and wrote a socket protocol that syncs state and deploys locks to be robust against concurrency bugs.

Sphere Tracer **Fall 2018**

Takes a plaintext scene description and ray-traces a simulation with gravity, collisions, textures, etc.

SKILLS

Languages: smt-lib2, C, C++, Python, Haskell, Dafny, Java, Standard ML, SuperCollider, x86, Racket, SQL

Tools / Libraries: LLVM, CUDA, OpenMPI, Docker, LÖVE, SDL2, WebGL, Flask, SocketIO, AngularJS, Git, Vim