

Alexander Kozik

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EDUCATION

Cornell University

B.A. Computer Science, B.A. Mathematics | Grade: 3.963/4

Ithaca NY

Aug 2022 – May 2025

EXPERIENCE

Full Stack Software Engineer

Aug 2023 – Present

CMSX - A course management platform used by over 8,000 students each semester

Ithaca, NY

- Significantly enhanced professors' user experience, adding the ability to grant deadline extensions using a CSV.
- Performed code reviews and tested new features. Created over 100 GitHub commits.
- Currently working on migrating the staff grading interface from JSP to React.

Teaching Assistant for Data Structures and Functional Programming

Aug 2023 – Present

Cornell Bowers CIS

Ithaca, NY

- Leading office hours and labs to help 10+ students at a time debug their code (OCaml) and refine course material.
- Mentoring 2 groups of 3-4 students as they complete a cumulative final project for the course.
- Grading projects and exams and answering 100+ questions on EdStem about projects and course content.

PROJECTS

LambdaScript - Custom Programming Language | OCaml, LaTeX, OUnit

- Built-in data types: Int, Float, Bool, String, Tuple, List, etc.
- Pattern matching, lambdas, currying, conditionals, let expressions, recursive definitions, etc.
- Elegant type system with parametric polymorphism, custom ADTs, and type-level arithmetic.
- Linear-time type-inference algorithm that generates the type of any expression and the kind of any type.
- Test suite utilizing functors for code reuse with 13,000+ unit tests to verify correctness.

AlgoSandbox - Algorithm Visualizer | React.js, TypeScript, SASS, Vite

- Features 10+ popular algorithms and data structures: merge sort, insertion sort, stack, queue, etc.
- Interactive pages detailing the time complexity, space complexity, and implementations of the algorithms.
- Animated sandboxes utilize animations to demonstrate how algorithms unfold in real time.
- Elegantly designed home page features a tag-based search engine for easy navigation.

HabitStack - Habit Tracking Application | React.js, TypeScript, JavaScript, SASS, Express.js, Firebase, Vite

- Interactive calendar for tracking daily tasks coupled with dashboard widgets that display user information.
- Users can create personalized plans for maintaining healthy habits and breaking bad ones.
- Chat functionality between users and secure authentication using Firebase and Express.js.
- A page with essential habit-changing knowledge I've discovered from reading personal development books.

CritterWorld - Evolving Artificial Life Simulator | Java, JavaFX, SceneBuilder, Gradle, JUnit

- Parser and Interpreter for a programming language that controls the critters.
- Graphical user interface that shows how the critters move around the map and interact.
- Fault injector that creates 6 types of modifications in critter programs, which models genetic mutations.
- Test suite using JUnit to ensure the correctness of the application.

TECHNICAL SKILLS

Languages: Python, Java, JavaScript, TypeScript, C/C++, OCaml, Haskell, RISC-V Assembly

Frontend: React.js, JavaScript, TypeScript, HTML/CSS, SASS, TailwindCSS, JSP, Electron.js, Next.js, Redux

Backend: Express.js, Flask, Firebase, MySQL, Node.js

Other: PyTorch, SymPy, NumPy, LaTeX, JavaFX, Data Structures and Algorithms, Software Testing/TDD, REST API, Git, Linux, Russian

APPLICABLE COURSES

Analysis of Algorithms, Honors Object Oriented Programming and Data Structures, Systems Organization and Programming, Data Structures and Functional Programming, Discrete Structures, Linear Algebra, Multivariable Calculus, Introductory Macroeconomics, **In progress:** Programming Languages and Logics, Machine Learning, Probability, Independent Reading and Research