

MICHAEL LAZAR DIMITROV

Software Engineer



CONTACT

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[LinkedIn](#)

[GitHub](#)

EDUCATION

Bachelor in Science
Computer Science Honors
Purdue University
Fall 2022 - Spring 2026
GPA: 3.89

International Baccalaureate
North Star Charter School
Eagle, ID
GPA: 4.16

AWARDS

Purdue University
Dean's List & Semester Honors
Fall 2022 - Spring 2025

OVERVIEW

I am a software engineer with hands-on experience in iOS app development, full-stack web systems, and operating systems, with interests in artificial intelligence, robotics, and quantum computing. I'm deepening task-and-motion planning and self-supervised learning, and applying them to interdisciplinary projects that turn theory into tested systems..

SKILLS

iOS App Development: UIKit, SwiftUI, Core Data

iOS Game Development: SpriteKit, SceneKit

Full Stack Web Development: SQL (Postgres), Express, React, HTML/CSS/JS/PHP, Tailwind

Compiler Design: Lex, Yacc, Assembly Code Generation

Operating System Design: Process Scheduling, Inter Process Communication, Memory Management

Machine Learning: Numpy, Pandas, Matplotlib, Scikit-learn

Other Languages: Python, C/C++, Assembly, Bash

Miscellaneous: Figma, Git, LaTeX, Shortcut (Project Manager)

WORK EXPERIENCE

Software Engineer [MusicSketch](#)

Aug 2021 - Present

- *Audio Mixer:* Designed and implemented an interface for mixing staves, drums, chords, and bass lines for a song
- *Chord Builder:* Made a custom keyboard for building chord symbols and selecting guitar charts / voicings for each chord
- *Video Recorder:* Created an interface for users to sing over their songs. Used ReplayKit and AVFoundation to capture camera, microphone, and screen
- *New Feature (Coming Soon):* Worked with marketing, music experts, and other developers to understand the users, develop the concept, and implement a new multi-screen feature

WORK EXPERIENCE Cont'd

- *FAQs*: Responsible for curating and proofreading the FAQs and making sure the spreadsheet, app, and website were always synced
- *Website*: Learned to navigate Wordpress and Elementor, and applied my existing HTML/CSS/JS knowledge to add advanced features to the MusicSketch Website
- *Soft Skills*: Wrote reports and gave feature development presentations
- *Project Management*: Used project management tools (Shortcut) to improve development. Created templates for user and bug stories. Used Shortcut's "Epics" to organize TODOs for large features. Weekly triage to sort out tasks
- *Teamwork*: Contributed to the development of patented features

Website Developer [Preferred Regulatory Consulting](#)

2021 - 2022

- Wrote user requirements documents
- Used HTML, CSS, and JS to make a fully custom website from the ground up
- Performed extensive testing to support screen sizes with dynamic layout
- Used PHP to make a "Request Training" form, which compiles an email to the site owner
- Learned to navigate and troubleshoot cPanel to publish the website and manage website versions
- Continuously provide support for new pages, page sections, and bug fixes

PERSONAL PROJECTS

App Developer [Pebbled](#) Satisfying rock stacking game born out of my fascination with nature.

- Wrote requirements documents for fast and efficient development (<2 weeks)
- Designed a procedural rock generation algorithm that randomly creates natural, smooth, convex stones
- Used joints and springs to create an intuitive pickup system where the rocks rotate around the pickup position based on gravity
- Made custom screen and menu transitions using a combination of SceneKit, SpriteKit, and UIKit
- Built an audio engine using AVFoundation to handle ambient waves and rock taps, with seamlessly looping audio spliced in Audacity. Added an intro "wave crash" and randomized loop start points for a natural, dynamic sound experience
- Used Core Data to save parameters of the rocks so they can be rebuilt when you leave and come back to the game

PERSONAL PROJECTS Cont'd

App Developer [Peak](#) Many climbing apps have complex UIs, so my goal was to design an easy to use iOS app for users to manage volume, intensity, and rate of perceived effort.

- Designed a Data Model
- Built a calendar UI for logging climbing sessions
- Created a system for storing climbing locations, which sends a notification when users are near the gym
- Track statistics and trends using SwiftUI Charts

Miscellaneous: Entire development portfolio found on [GitHub](#)

- *OurPurduePlan*: Worked in a team as a frontend engineer to make a degree planner web app using React and Redux
- *Organism*: JS game drawn on an HTML canvas. Includes a level builder that uses a procedural tiling system. The site uses an Express.js backend for serving pages and a database for storing levels
- *Birthday Runner 1 day build*: Made a birthday themed clone of the Google Dino game

RELEVANT COURSEWORK

- CS 373: Data Mining and Machine Learning, CS 471: Introduction to Artificial Intelligence
- CS 180: Object Oriented Programming, CS 240: Programming in C, CS 307: Software Engineering, CS 408: Software Testing
- CS 182: Foundations of CS, CS 251: Data Structures and Algorithms, CS 381: Introduction to the Analysis of Algorithms
- CS 250: Computer Architecture, CS 252: Systems Programming, CS 354: Operating Systems
- MA 161/162: Calculus I/II, MA 27101: Honors Multivariate Calculus
- MA 351: Linear Algebra
- STAT 416: Probability, STAT 511: Statistical Methods
- ECE 20001: EE Fundamentals I, ECE 20007: EE Fundamentals I Lab