

Finding Your Own Path

From Community College to Research at Michigan Medicine

Alex Collier

Before we start...

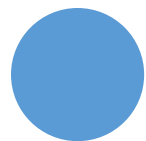
There isn't one "optimal" way to reach your dream job

Your road might not look like your peers' and that's perfectly okay

Don't get locked into SWE, there are many amazing opportunities



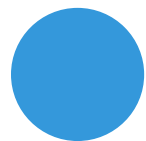
About Me



From Ann Arbor



Started at community college



Transferred to University of Michigan

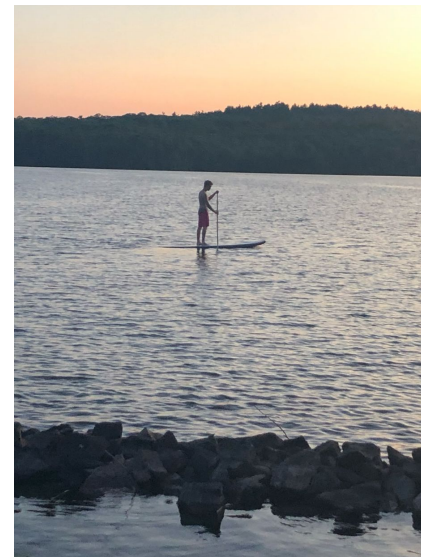


Grad May 2025



Free Time? Hangout with my kid / friends, Golf, traveling, watching

Michigan beat OSU the past 4 years



March 7, 2022

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Congratulations, Alex!

I am pleased to inform you that you have been admitted to the University of Michigan College of Literature, Science, and the Arts class entering summer 2022.

We are thrilled to welcome you into a vibrant, lifelong academic community of scholars and alumni who are making a difference everywhere in the world. Once you become a Wolverine, you will always be distinguished by this achievement.

Your academic and personal successes are excellent preparation for the exciting challenges of university life. The University of Michigan offers you abundant opportunities to learn and share your intellect, creativity, discipline, and individual perspective. The value of a Michigan education comes from a distinguished faculty, world-class resources, inspiring peers, an endless variety of educational opportunities, and **YOU**.



MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

Life At Michigan

Father of a 2-Year-Old

Balancing studies with parenthood taught me resilience

Building Support Systems

Friends and professors made all the difference

Learned to Ask for Help

Reaching out was one of the best decisions I made



Imposter Syndrome

Had to re-take EECS 281 🦴

Lower GPA

One class, One test, One anything
doesn't define you

Everyone's timeline looks different
progress isn't always linear



The Hunt

~150

Applications

~5

Responses



JAKE-CLARK.TUMBLR



MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

Applies to 150 jobs ...

Gets an offer from the first job applied to

Some Background

Established in 2004, endowed by the family of Heinz C. Prechter.

Hosts one of the largest and longest longitudinal studies of Bipolar

Our Mission

The mission of the Heinz C. Prechter Bipolar Research Program is to discover the mechanisms that contribute to bipolar disorder, predict and improve outcomes, and develop effective, innovative treatments.

Our Vision

We are building a future where personalized and evidence-based treatments for bipolar disorder will enable every individual with the illness to lead a healthy and productive life.



My Role: Database Analyst/Prgm

Managing 20+ years of research data

Supporting team data requests and insights

~100 python scripts

~37 KCOL (3.7 TB)

Title says "Database Analyst"

But I do backend optimization, frontend dev, and mobile dev work

Freedom to explore and lead projects

Not locked into one skillset or technology



Database Optimization

The Problem

Nightly archive taking 8+ hours

The Discovery

Time spent waiting for API calls

The Solution

Python multithreading for concurrent processing



Story Time... 🤔

Alexander: whatever you're doing in REDCap training, please stop it immediately. You are sending way too many API requests and it is bogging the server down for everyone else.

Story Time...

Hi Alex,

Looking closer at it, you were below 50 requests per minute, which is good, but it doesn't look like your program was waiting for all the requests to complete before sending subsequent ones, which caused more PHP processes to be spawned than the server could handle.

We appreciate you being conscientious about this.

date	user	ip	project_id	count
2025-06-27-11-45	akcol			19
2025-06-27-11-46	akcol			19
2025-06-27-11-44	akcol			16
2025-06-27-11-47	akcol			4
2025-06-27-11-37	akcol			1
2025-06-27-11-38	akcol			1

Custom Survey Platform

The Challenge

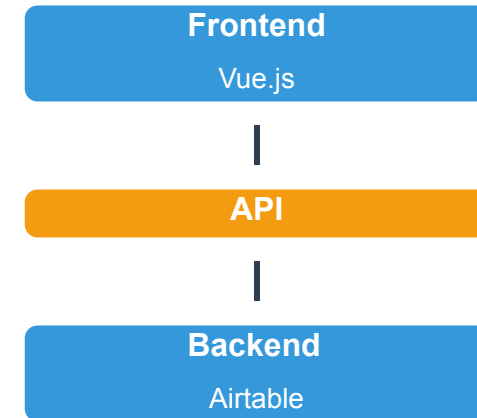
Existing tool wasn't meeting needs

What I Built

Vue.js frontend + Airtable backend

The Impact

First author paper in review!



Mobile App Revitalization

The Situation

Dormant app needed revival

My Role

- Reconnect AWS backend
- Debug runtime errors
- Work with 2 teammates

Tech Stack

Vue.js + Capacitor + AWS + Apple Tech support



The Bigger Picture

What is all this work for?

Our research supports mental health and social good

Data → Insights → Better Care

Advice

1 Again No single "right" path – everyone's unique

2 Take the classes that you want

But here are some recommendations :)

EECS classes:	Datasci classes:
485 & 388	451 & 415 (eecs 445)

3 Go to Job / Career Fairs <https://careers.umich.edu/>

4 ASK FOR HELP

Thank You!

Questions?

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