

# KOERNER GRAY-BUCHTA

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## EDUCATION

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### UNIVERSITY OF MICHIGAN

Bachelor of Science in Computer Science

Cumulative GPA: 3.0/4.0

Coursework: Introductory Programming, Data Structures and Algorithms, Evolutionary Algorithms, Complex Systems

Ann Arbor, MI

April 2025

## SKILLS

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### PROGRAMMING LANGUAGES & FRAMEWORKS

- Python, [Flask, Django, Numpy, Scipy, Matplotlib, Pandas, Pytorch]
- C/C++[STL]
- Javascript [React, jQuery, bootstrap]
- Git version control, Windows and Linux development
- VS Code, Visual Studio, PyCharm

### RESEARCH

- Optimization techniques
- Visual communication of scientific data
- Collaboration on design
- Interfacing with hardware components
- Data science in Colab
- Scientific journal presentations

## WORK EXPERIENCE

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### IMAGE-GUIDED MEDICAL ROBOTICS LAB, UNIVERSITY OF MICHIGAN

Research Assistant, I

Ann Arbor, MI

Jan 2023 – Present

- Collaborated with graduate students and professors to create an intelligent, Robotically-aligned OCT scanning system
- Created 3D visualizations with matplotlib in Python to communicate experiment results for a computer vision project
- Optimized the regularly-called path-planner/TSP solver function for a speed-up of 26%, contributing to the project's 5x greater frame rate than standard OCT systems
- Used Large Language Models like the GPT API with the langchain Python library to build scripts for streamlining code-understanding

### IMRA AMERICA, INC

Production Engineer

Ann Arbor, MI

August 2022 - December 2022

- Built and tested hundreds of chirped pulse amplification components for femtosecond lasers used in medical devices
- Collaborated with IMRA's team of optical physicists, engineers, and technicians to boost production and document processes

## UNIVERSITY PROJECTS

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### PERSONAL SITE

- Deployed a personal site using GitHub pages, making use of Javascript, HTML and CSS, npm, and Git

June 2023

### TIBETAN-ENGLISH NEURAL MACHINE TRANSLATION

- Began work on a Transformer-based machine translation system for the Tibetan-English pair

March 2023

### MUSICAL CELLULAR AUTOMATA SIMULATOR

- Designed and built an algorithmic composition script based on Conway's 'Game of Life' cellular automaton model using creative coding libraries for Javascript (p5Gibber)

Jan 2022

### NAIVE BAYES CLASSIFIER

- Created a naive bayes classifier to perform sentiment analysis on online forum posts with C++

Feb 2021

## ADDITIONAL

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**Languages:** Fluent in English; Conversational in Spanish