

Tony Enrique Astuhuaman Davila

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EDUCATION

Missouri State University Expected: May 2024
B.S. (Honors) in Computer Science and minor in Mathematics
Research Interest: Computer Vision & Artificial Intelligence

Stanford University, Stanford Center for Professional Development June 2023 - August 2023
Enrolled in **CS221** (AI principles and techniques) as a non-degree student through the Tuition Waiver Program

Universidad de Ingeniería y Tecnología (Peru) March 2020 - August 2021
Studied towards a B.S. in Computer Science (Transferred to Missouri State University before completion)

HONORS AND AWARDS

Member of Kappa Mu Epsilon, Mathematics Honor Society
Bloomberg Accelerator Summer School Fellow, Bloomberg, June 2023
ICPC Representation for Missouri State University, ICPC Mid-Central 2023 & 2024 Regional
Top 3 in the Best Accessibility Hack, HackHarvard 2022
International Transfer Scholarship at Missouri State University, \$8000 annually for up to 3 years, 2021

PROFESSIONAL EXPERIENCE

Computational Learning Systems Lab (Missouri State University) Springfield, MO
Bioinformatics Research Assistant Under Dr. Tayo Obafemi-Ajayi January 2024 - Present

- Advanced bioinformatics research by participating in group discussions and presenting biweekly on studies related to blood biomarker trajectories in mTBI.
- Contributed to the development of clinical prediction tools for mTBI by analyzing and presenting on data-driven techniques, including the use of **autoencoders** and machine learning models.

Security and Artificial Intelligence Lab (Missouri State University) Springfield, MO
Undergraduate Research Assistant Under Dr. Yassine Belkhouche August 2022 - Present

- Engineered an innovative hand gesture recognition system for drone control, utilizing Google's MediaPipe technology, resulting in enhanced user experience and precision in gesture interpretation.
- Co-authored a significant research poster on UAV gesture control, demonstrating the system's efficacy and application, and presented the findings in a well-received poster at the CNAS Spring Symposium 2023.
- Spearheaded the development of a cutting-edge 3D face reconstruction algorithm from 2D images, incorporating Gaussian splatting techniques within the deep learning framework. This advanced methodology significantly improved surface smoothness and texture continuity, setting a new standard in image processing accuracy and realism.

A-BITS (Association for Business Information Technology Students) Springfield, MO
Back End Developer May 2022 - August 2022

- Worked on an Agile/SCRUM team with regular standups, sprints, retrospectives, and user story creation.
- Accomplished the development of a secure payment system, as measured by the successful connection to the Stripe API for member payments, by building a REST API with Typescript and MySQL.

TEACHING AND MENTORING EXPERIENCE

Competitive Programming Mentor (ACM Chapter at Missouri State University) Fall 2023

- Developed comprehensive training programs focused on algorithm design, problem-solving techniques, and contest strategies, leading to increased skill levels and competitive success among team members.

Mathematics Tutor at BearClaw (Missouri State University) Fall 2023; Spring 2024

- Funded through the **ELATE: Enhanced Learning and Training Experiences Grant** from the College of Natural and Applied Sciences, which supports my role as a Mathematics Tutor, enabling focused and effective learning experiences for students.
- Provided personalized tutoring sessions to students in various mathematics courses, helping them grasp complex concepts and improve academic performance.

Computer Science Tutor (Missouri State University) Spring & Fall 2022; Spring & Fall 2023

- Improved students' grades across all undergraduate courses in Computer Science by an average of 20%, as measured by their academic performance, through the delivery of individualized and group tutoring sessions.
- Raised student enrollment and engagement as measured by increased student numbers, by providing resources and professional guidance.

PROJECTS

MePart

Project Link: <https://github.com/trobutlef/CalHacks23-OpenAI>

June 2023

- Developed "Video Analysis with OpenAI" application to revolutionize video interaction by automatically generating accurate transcripts, extracting insights, conducting sentiment analysis, and categorizing content.
- Leveraged GPT-3.5 turbo model from OpenAI and developed a backend using FastAPI, connected with a frontend built with React.
- Successfully built in just 36 hours during the prestigious **UC Berkeley AI Hackathon**, a notable achievement as only 1,200 students were selected from 2,000 applicants, making video and lecture content more accessible and searchable.

Sticky Sign

Project Link: <https://github.com/trobutlef/Sticky-Sign>

October 2022

- Developed an augmented reality tool to facilitate American Sign Language (ASL) learning, employing Python, OpenCV, and Pygame for real-time color detection and sign recognition.
- Created a user-friendly interface that allows users to interact with the system through webcam input, making the learning process interactive and engaging.

Chess AI

Project Link: <https://github.com/trobutlef/Chess-AI>

November 2022

- Developed a Flask-integrated website, enabling user interaction with a Chess AI model built using a TensorFlow-based CNN, which was successfully deployed on Vercel.
- Implemented the Alpha Beta Pruning algorithm, optimizing the decision-making process and significantly improving the AI's gameplay performance.

LEADERSHIP EXPERIENCE

Founder & President of the Computer Science Club/ACM Student Chapter Missouri State University, 2022

- Led a team of 10 officers in organizing events, workshops, and coding competitions, fostering an active tech community on campus.
- Collaborated with industry professionals and professors to conduct informational sessions and guest lectures, providing students with insights into current trends and technologies in the field.

VOLUNTEERING EXPERIENCE

HarvardXR 2023 Inaugural Conference

Cambridge, MA

Volunteer Staff Member & Online Communication Coordinator

March 2023 - April 2023

- Assisted in the first-ever conference at Harvard focusing on emerging technologies like AR/VR/MR and the Metaverse, featuring recognized speakers in the field.
- Collaborated with a diverse team to facilitate various aspects of the conference, from technical setup to Q&A sessions.
- Managed online communication via Discord, ensuring smooth interaction among participants, speakers, and organizers.

Pummill Math Relays (Department of Mathematics at Missouri State University)

Springfield, MO

Exam Proctor

April 2023

- Served as a proctor for the Pummill Math Relays, a longstanding annual event that hosts high school students for a series of math competitions.
- Assisted in various sections including Calculus, Algebra, Geometry, and Math Mania, ensuring fair and smooth conduct of the competitions.

CONFERENCE PRESENTATIONS

Poster Presentations

- Astuhuaman Davila, T., Belkhouche, Y. (2023, April). Real-Time Hand Gesture Recognition for Drone-Control Using Deep Learning. 2023 CNAS Undergraduate Research Symposium, Springfield, Missouri.

TECHNICAL SKILLS

- **Relevant Coursework:** Principles of Artificial Intelligence, Data Structures and Algorithms, Operating Systems, Database Systems, Computer Architecture, Software Engineering, Computer Networks, Statistics, Multivariable Calculus, Discrete Mathematics, Physics
- **Programming:** Python, C++, C, JavaScript, Typescript, Java, SQL, HTML, CSS, Swift, Kotlin
- **Technologies:** OpenCV, Tensorflow, Pytorch, Keras, scikit-learn, pandas, Android, Flask, FastAPI, Git, ReactJs
- **Languages:** Fluent in English and Spanish; Elementary proficiency in Japanese