

Karl Velasquez Ventayen

(He/him/his) Date of Birth: 09/13/2000

Applicant type: Undergraduate student

Application date: 02/05/2024

Contact Information

Email 1: cammeraprogramming@gmail.com

Email 2: kventayen@csuchico.edu

Current Address: 725 Nord Ave apt 140, Chico, CA 95926, USA

Permanent Address: 6007 Bluewater Bay Court , Bakersfield, CA 93312, USA

Cell Phone: +16618002221

Ok To Send Text Message? Yes

Linkedin: <https://www.linkedin.com/in/karl-ventayen/>

Demographic Information

Race: Asian

Ethnicity: Not Hispanic or Latino

Sex Assigned at Birth: Male

Gender Identity: Male

Veteran Status: Non-Veteran

Received Pell Grant: No

Disability:

Seeing: None

Hearing: None

Walking: None

Lifting: None

Concentrating, remembering, or making decisions: Slight

Family Information

Parent or Guardian 1: Male

Highest degree: Doctorate (e.g., PhD, DSc, EdD)

Occupation: Health Occupations

Parent or Guardian 2: Female

Highest degree: Doctorate (e.g., PhD, DSc, EdD)

Occupation: Health Occupations

Current Enrollment

Enrolled in post-secondary degree? Yes

Institution: California State University Chico

Location: Chico, CA

Carnegie Basic Classification: Master's Colleges & Universities: Larger Programs

College Level: Four or more years

College Control: Public, 4-year or above

Historically Black College and University: No

Hispanic Serving Institution: Yes

Minority Serving Institution: Yes

Tribal College: No

Predominantly White College: No

Status: Full-time

Degree: Bachelor's degree (e.g., BS, BA, AB)

Primary Major: Computer and systems engineering

Minor: Computer science

Expected Degree Completion: 05/17/2025

Expected Class Standing, Fall: Senior

College GPA: 2.898

GPA Scale: 4.0

How are you financing your degree(s)?

Financial assistance from parents, spouse, other relatives, not to be repaid: Yes

Financial assistance from your employer: No

Financial assistance from the Veterans Educational Assistance Act: No

Education

High School: Garces Memorial High School School District: Location: Bakersfield, CA 93305

Experience

Prior Research Experience

Prior research experience: No

Work Experience

Currently working as a teacher or professor? No

Test Scores

SAT

Not Available

ACT

Not Available

GRE

Not Available

Program Awareness

How did you hear about the NSF program?

This website or other NSF website

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Loans from parents or other relatives, to be repaid: No

Loans from the school you attended, banks, federal or state government: No

Tuition waivers, fellowships, grants, scholarships: No

Assistantships or work study: No

Earnings from employment: No

Personal savings: No

Other, please specify:

Additional Questions

1. Describe the areas of research in the marine geosciences that interest you most, your personal goals for this internship, and indicate your preference for working in office, lab, or field settings. (200-300 words)

I am interested in oceanography and building technologies to understand the ocean better. The ocean is a crucial part of the Earth and understanding in it would prove vital towards building a sustainable future. Such technologies would monitor various characteristics such as salinity and temperature in the ocean water and soil.

For this internship, my personal goals focus on honing my collaborative skills to contribute effectively to a world where technology supports both society and nature. I am eager to deepen my knowledge in oceanography and aspire to pursue research in this field in the future. My overarching goal is to utilize engineering as a means to drive meaningful change and contribute to a sustainable future.

Recognizing that collaborative efforts are crucial in engineering, I am keen on working with like-minded individuals who share the vision of a sustainable future. Whether in a laboratory or field setting, I am enthusiastic about engaging in a collaborative environment where I can contribute meaningful research and technological advancements in marine geosciences.

2. Write about what your career goals are and how participating in this REU program will help you meet these goals. (200-300 words)

I aspire to be an engineer in the future who is able to solve problems that conflict modern society and the environment. I am interested in pursuing research and developing solutions. Many of the problems we face today are the result of people not understanding the environment and I seek to find further solutions to coordinate the society and the environment.

In participating in this REU I plan to learn about the ways in which I can coordinate my skills to better understand how I can influence the environment and make an impact in the world. I intend to do this by learning about the world, identifying problems, and working to develop solutions for them.

I believe that there is much more for me to learn and I intend to pursue it.

3. What unique qualities and characteristics will you bring to our program? (you can also add an explanation to what might appear to be gaps or weaknesses in other parts of your application. Feel free to explain your side so these gaps or weaknesses do not detract from your strengths.) (300-400 words)

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Throughout my coursework in computer engineering and various projects, I have developed a skill set in computer hardware and computer software. These skills allow for understanding in developing solutions using modern day systems. Furthermore, I have knowledge in CAD Design and Modeling software, which helps in making systems that either move in coordination of the electronics or houses them.

Two things I would like to mention is that during my college career I encountered is the pandemic and a problem with housing. During the pandemic I had difficulty concentrating on college and I was unable to perform well. I was at home and had to be responsibilities dealing with both in my family and online school. I was divided both mentally and physically in trying to achieve academic success.

Additionally, I was not able to change my living circumstances for two years after the pandemic. Life outside of academics was difficult and I was not able to manage it easily. I did not feel comfortable around my roommates and I was not able to manage the situation due to having difficulty with trying to communicate and acknowledge problems with them. Most of the time my concerns were disregarded. But although I did not perform the best I

decided to continue moving forward through this adversity and I was able to recover from any academic shortcomings. To reach where I am today.

4. This REU program is dedicated to enhancing the diversity of future scientific communities and sharing our science with a broader audience. Please describe how you, based on your personal background and life experiences (including social, cultural, familial, educational, or other opportunities or challenges) will contribute to this mission during and after participation in this REU. (200-300 words)

Coming from a Filipino American family where both of my parents are immigrants and my siblings and I are first generation American citizens. My background offers a unique perspective that can significantly contribute to the diversity of this REU program. Our distinct experiences enrich our lives through cultural nuances, familial bonds, and challenges of navigating a new country.

Personally, growing up with this background has heightened my ability to relate to individuals with diverse backgrounds. This skill becomes valuable when addressing complex topics or coordinating with people who may not share the same cultural context. My multicultural upbringing has instilled in me the importance of fostering inclusive and open-mindedness in scientific communities. I believe that diverse perspectives enhance the quality of scientific inquiry and contribute to a more comprehensive understanding of complex issues.

Participating in this REU program will promote diversity and inclusivity in the scientific communities. Through active engagement during and after the program, I am able to share my experiences, facilitate open conversations, and contribute to building an environment where individuals from all backgrounds are valued and acknowledged. I am dedicated to becoming an advocate for diversity in scientific endeavors, ensuring that the benefits of varied perspectives extend beyond the duration of this program

5. REU Mentor #1 Name: Please review the mentors and projects list (<https://csumb.edu/reu/mentors-and-projects/>) and consider who you are most interested in working with as your first choice (REU Mentor #1). Please list the first and last name of REU Mentor #1 here.

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Kakani Katija

6. REU Mentor #1 Explanation: Please explain why you chose REU Mentor #1. (50-100 words)

I am interested in the work of Dr. Katija because of my familiarity with programming. In light of machine learning I find the application in ocean research to be fascinating. The further development of models in this realm is interesting especially applied in the research of autonomous vehicles in the ocean.

7. REU Mentor #2 Name: Please review the mentors and projects list (<https://csumb.edu/reu/mentors-and-projects/>) and consider who you are most interested in working with as your second choice (REU Mentor #2). Please list the first and last name of REU Mentor #2 here.

Yui Takeshita

8. REU Mentor #2 Explanation: Please explain why you chose REU Mentor #2. (50-100 words)

I am interested in Dr. Yui Takeshita's work because of his developments in autonomous sensing. This is a pathway that is suitable for my skill set because I am an engineer who is acquainted with computer hardware and software. Furthermore I am familiar with techniques to produce PCB designs and CAD models for further development of

this project.

9. REU Mentor #3 Name: Please review the mentors and projects list (<https://csumb.edu/reu/mentors-and-projects/>) and consider who you are most interested in working with as your third choice (REU Mentor #3). Please list the first and last name of REU Mentor #3 here.

James Barry

10. REU Mentor #3 Explanation: Please explain why you chose REU Mentor #3. (50-100 words)

I am interested in Dr. Barry’s work and learning about data collection. With my experience I would be able to assist in the development of the remotely operated vehicles. Furthermore, with my experience in my field I would be able to contribute additional knowledge in PCB Production and CAD Model Design.

References

Reference 1

Reference Writer Name: Reza Khani
Position: Assistant Professor
Institution: California State University, Chico
Phone: +15308985831
Email: mkhani@csuchico.edu
Status: REQUESTED

Reference 2

Reference Writer Name: Richard
Tilquist Position: Assistant Professor
Institution: California State University, Chico
Phone: +15308986806
Email: rctilquist@csuchico.edu
Status: COMPLETED
Reference Submitted Date: 01/27/2024 How

long have you known the applicant? 26
Capacity: Professor
How applicant compares? Top
5% Intellectual ability:
Outstanding
Integrity: Outstanding
Work Habits: Good
General Motivation: Outstanding
Leadership: Unable to judge
Creativity: Outstanding
Ability to work with others: Unable to
judge Maturity: Outstanding
Writing skills: Good
Verbal communication: Outstanding
Reference File Name :
karl_ventayen_rec.pdf

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Karl Ventayen

LinkedIn: <https://www.linkedin.com/in/karl-ventayen> Email: cammeraprogramming@gmail.com GitHub: <https://github.com/kventayen> Phone: (+1) 661-800-2221

Education

California State University, Chico Chico, California *Bachelor of Science: Computer Engineering, Minor: Computer Science May 2025* Courses: Algorithms and Data Structures (I, II, III, and IV), Embedded Systems Design, Computer Architecture, Logic Design, Linear Circuits (I and II), Electronics (I and II), Signals, Systems, & Transforms, Computer Architecture, Networking

Skills

Languages: C, C++, Python, SystemVerilog, MATLAB, Jupyter Notebook, LaTeX, Markdown, R, R Markdown, HTML Software: Vim, Atom, Microsoft Visual Studio Code, MPLAB X IDE, MPLAB X IPE, Keil, KiCad, Autodesk Eagle, Git, GitHub, Vivado, LTSpice, Bantam Tools, Inventor, Fusion 360, SolidWorks, Rstudio, Microsoft Office (Microsoft Word, Microsoft Excel, Microsoft Powerpoint)
Soft Skills: Public Speaking, Communication, Documentation

Certifications

Fundamentals of Accelerated Computing C/C++: Insitution: Nvidia Deep Learning Institute, Instruction by Dr. Reza Khani (December 2023)

Projects

Vivado Download Documentation: *August 2023 - October 2023* ◦ Created documentation is for Computer Architecture as a tutorial to download Vivado on the Ubuntu Operating System ◦ Coordinated with peers to review work and ensure that the material could be read by other student of technical backgrounds ◦ Documentation for this project was completed using Markdown on Notion
◦ Wrote descriptive text with images and included links to redirect students to additional resources
◦ Created documentation in coordination with Dr. Reza Khani
Micro Controller PCB Board (Independent Project): *March 2022 - May 2023*
◦ KiCad was used for hardware development
◦ Initial hardware development was on a Double Sided FR-1 Board using a PCB Mill
◦ Further development will use third party services for PCB Fabrication

- Documentation done with Markdown and posted on GitHub
- Programming and analysis of the Microcontroller used MPLAB X IDE and MPLAB X IPE and interface using the PicKit 3 debugger

LaTeX Reference Guide (Collaborative Web Development Project): *December 2022 - May 2023* ◦ Designed an interactive website for students to reference LaTeX syntax, primarily using KaTeX

- Developed website frontend using JavaScript, CSS, and HTML
- Hosted on GitHub Pages and version control was managed using Git and GitHub
- Used Visual Studio Code as the primary Integrated Development Environment
- Developed in collaboration with Edward A. Roualdes Ph.D

Experience

IEEE Chico State Student Branch Chico, California

Vice President August 2023 - Present

- Collaborated with Club Members: Coordinated club events with other members to ensure it runs smoothly
- Manage the Club: Worked to organize the club activities and events
- Secretary August 2023 - May 2023* ◦ Recorded Meeting Details: Documented and reported details in a printed format

- Coordinated Events: Worked closely with the president to ensure that details such as room reservations and attendee count are accounted for

Marketing Officer August 2020 - May 2023 ◦ Webmaster: Managed the official website for the Chico State IEEE using the Wordpress interface ◦ Coordinated Photos: Worked with other people to document club activities and events

- Manage Part Sales: Coordinated with other members of the IEEE to sell parts for the club

Bakersfield Family Medical Center Information Technologies Bakersfield, California *Shadower April 2018 - April 2018*

- Accompany Personnel at Bakersfield Family Medical Center: Familiarized with the workflow in Informational Technology Services
- IT Tools and Software: Learned about tools used in Tech Support such as AutoIT and MinGW

Toastmasters International Bakersfield, California *Club President August 2018 - May 2019*

- Coordinated Meetings and Events: Conducted meetings for events such as member recruitment, competitions, and mock interviews
- Public Speaking: Practiced how to speak in public through meetings and workshops hosted by the club