

Campbell Avery Depken (She/her/hers)

Date of Birth: 05/21/2004
Applicant type: Undergraduate student
Application date: 01/28/2024



Contact Information

Email 1: cadepken@ncsu.edu
Email 2: camdepken@gmail.com
Current Address: 210 Dan Allen Drive 707-B, Lee Hall, Raleigh, NC 27607, USA
Permanent Address: 418 Channing Circle NW , Concord, NC 28027, USA
Cell Phone: +17046521182
Ok To Send Text Message? Yes

Demographic Information

Race: White
Ethnicity: Not Hispanic or Latino
Sex Assigned at Birth: Female
Gender Identity: Female
Veteran Status: Non-Veteran
Received Pell Grant: No
Disability: Do not wish to provide the disabilities

Family Information

Parent or Guardian 1: Male
Highest degree: Doctorate (e.g., PhD, DSc, EdD)
Occupation: Teachers/Professors – Postsecondary
Parent or Guardian 2: Female
Highest degree: Master's degree (e.g., MS, MA, MBA)
Occupation: Other, Stay at home parent

Current Enrollment

Enrolled in post-secondary degree? Yes
Institution: North Carolina State University at Raleigh
Location: Raleigh, NC
Carnegie Basic Classification: Doctoral Universities: Very High Research Activity
College Level: Four or more years
College Control: Public, 4-year or above
Historically Black College and University: No
Hispanic Serving Institution: No
Minority Serving Institution: No
Tribal College: No
Predominantly White College: Yes
Status: Full-time
Degree: Bachelor's degree (e.g., BS, BA, AB)
Primary Major: Electrical, electronics and communications engineering
Secondary Major: Other, History
Minor: Other, Marine Science
Expected Degree Completion: 05/01/2026
Expected Class Standing, Fall: Sophomore
College GPA: 4.0
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
Loans from parents or other relatives, to be repaid: No
Loans from the school you attended, banks, federal or state government: Yes
Tuition waivers, fellowships, grants, scholarships: Yes
Assistantships or work study: No
Earnings from employment: No

Education

High School: Northwest Cabarrus High School District:
Location: Concord, NC 28027

Experience

Prior Research Experience

Prior research experience: No

Work Experience

Currently working as a teacher or professor? No

Test Scores

SAT

Not Available

ACT

ACT Combined Score: 35

GRE

Not Available

Program Awareness

How did you hear about the NSF program?
This website or other NSF website

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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)

In marine geoscience, I am interested in research in ocean engineering. Specifically, I'm interested in projects related to ocean acoustics, marine instrumentation, and software development. My background is in electrical engineering, but I'm also interested in physical and biological oceanography. I want to combine the two fields and conduct research on the electrical systems of marine technology used to study the ocean. In this internship, I want to get my first ocean engineering related experience and be a part of an in-depth development and testing process. As a sophomore, most of my coursework has been focused on learning the foundations of both electrical engineering and oceanography. As I wrap up this semester, I want to finally have an opportunity to apply what I've learned to a research project through this internship. Specifically, I am interested in the Monterey Bay Aquarium Research Institute and the Naval Postgraduate School. Both develop marine technology, and working on a project with one of these groups would be an amazing opportunity to use the skills I've learned and to gain new ones in both engineering and oceanography. I'm interested in working in a lab or field setting. For me, the ideal setting would be to work on a device in a lab and then be given the opportunity to test it in the field, then repeat the process to improve and further develop the project I would be working on. Through this internship, I want to gain both my first research and professional experience in the realm of ocean engineering, and get the chance to help develop marine technology that can advance how we study the ocean.

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

In my freshman year, I took a class on US Naval History. I had always had a passion for ships and the ocean, but that class was the first time I understood how instrumental technology has been in advancing how we interact with and study the ocean. My goal is to work as an electrical engineer in the development of marine technology with a focus on ocean instrumentation or ocean acoustics. I'm a sophomore majoring in electrical engineering pursuing a minor in marine science. I want to combine my electrical engineering background with marine science to pursue work in oceanic electrical engineering. I think the development of scientific instruments for marine applications is a really interesting challenge. There are so many challenges with creating technology that can withstand the harsh conditions of the ocean while still providing useful data. The CSUMB Ocean Science REU is one of the few programs I have found that have opportunities geared towards ocean engineering. The Monterey Bay Area Research Institute's development and testing of marine technology has been a huge inspiration for me to pursue my career goals in ocean engineering. A chance to work with them as an undergraduate would allow me to have a better understanding of the skills I should gain and the classes I should take before I graduate and provide me with more insight on possible post graduate plans. An opportunity like this would be the best starting point I could get as a budding ocean engineer to both learn more about the field, utilize technical skills that I already have, and gain new skills on both the science and engineering side of developing marine technology.

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)

As someone who has always been told I've had too many interests, it only felt natural that I pursued an interdisciplinary career. Electrical engineering and marine science are my main interests, but I am always excited to learn a new skill. Whether that means learning how to be an amateur journalist for my university's newspaper,

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trying outdoor skills like backpacking and rock climbing, or learning a new craft or power tool, I'm constantly trying new things. While I have only completed a few projects in electrical engineering, I have always been a huge hands on person. I've worked in my university's Makerspace for about a year, and I've gained experience in both machine repair and in teaching others how to use the tools in our space, like 3D printers or sewing machines. I also spent a year volunteering with NC State's University Theatre in their scene shop. I learned how to use power tools and basic carpentry skills, but more importantly I learned how to quickly learn something new and apply it. I'm also an avid crafter, and I've tried everything from sewing to crocheting to carving. In creating a new project, I'm always looking for ways to make something work, and it's a skill I take into my engineering classes and projects as well. I am also taking an intro to oceanography class and an oceanography lab as a part of my intended marine science minor, and I'll be learning about oceanography technology. In both my marine science and electrical engineering coursework, I use MATLAB to solve a variety of problems in different disciplines.

I am someone who will fully commit to something I'm passionate about, even if it means a lot of work on my end. I am used to handling a busy schedule. This semester, I'm balancing two jobs, multiple extracurriculars, 17 credit hours, and a social life. Time management is key to ensuring that I can pursue what I'm passionate about and still have time for myself. I've managed to immerse myself in my on campus involvement while keeping a 4.0 GPA for my past 3 semesters. The CSUMB REU is only 10 weeks, but I intend to make the most of the program by working hard on my research, developing new skills while utilizing my existing ones, and by pursuing my passion in ocean engineering.

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)

If you told 13-year-old me that I would be majoring in electrical engineering in college, she would have been shocked. I always loved making things, but I didn't even consider engineering until my senior year of high school. Coming into my degree program, it was hard to ignore the gender ratio. Working as a mentor for NC State's Women in Science and Engineering Village, I not only have had the chance to reflect on my own experiences but to hear more about other women's experiences in STEM. I understand the need to create an inclusive environment for all folks, especially in the sciences and engineering where so many groups have been historically underrepresented.

Throughout my education, I have been forced to learn how to advocate for myself. I have single sided deafness, and my hearing impairment means that I often have to ask for accommodations from professors and other students. However, it has also taught me that just because I have different needs doesn't mean that I lack the skills or experience to succeed. On campus, I volunteer as an ambassador for the NC State Electrical and Computer Engineering Department, and I hope to transition from my role as a village mentor to a resident advisor this upcoming year. I have gained so much advice and knowledge from talking to upperclassmen, and it means a lot to me that I get to be in these positions where I can be a mentor for first year students. After participating in the CSUMB REU, I'll not only gain experience and skills that will help me in my future career, but I'll also have a fantastic experience that I can share with other students who are interested in research.

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.

Kakani Katija

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

When it comes to electronics, I'd be hard pressed to think of a harsher environment than the deep sea. Kakani Katija's experience as the Principal Engineer for the Bioinspiration Lab and the work her lab does is incredibly interesting to me. The challenge of developing useful instruments for ROVs that can withstand all of the conditions of the ocean is fascinating on its own, but it becomes even more so when creating bioinspired tools. The total collaboration between science and engineering is what I want to pursue in my career, and working with Dr. Katija would be a fantastic start.

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.

Gene Massion

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

Gene Massion's work on ocean observation systems and prototyping marine instrumentation exactly matches my interests in ocean engineering. His recent work on developing an autonomous coastal profiling float is interesting to me both from an electrical and a programming perspective, and the chance to contribute to this project or a similar one would be a great opportunity for me to gain experience with a project's development cycle and gain technical skills.

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.

Danelle Cline and John Ryan

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

I'm interested in working with Danelle Cline and John Ryan because of their work in ocean acoustics and the intersection between science and engineering. I have experience in Python, C, and MatLab, and I have learned that I really enjoy the challenge of programming. I'm interested in software development for scientific applications, and working with Danelle Cline and John Ryan would allow me to gain new skills in programming and data analysis that I might not find otherwise in my engineering coursework.

References

Reference 1

Reference Writer Name: Cecilia Townsend

Position: Senior Lecturer

Institution: North Carolina State University

Phone: +19195155087

Email: cwt@ncsu.edu

Status: COMPLETED

Reference Submitted Date: 11/27/2023

How long have you known the applicant? 4

Capacity: Advisor and instructor

How applicant compares? Top 5%

Intellectual ability: Outstanding

Integrity: Outstanding

Work Habits: Outstanding

General Motivation: Outstanding

Leadership: Outstanding

Reference 2

Reference Writer Name: Kalene Thomas

Position: Academic Advisor

Institution: North Carolina State University

Phone: +19195153263

Email: kmhanson@ncsu.edu

Status: COMPLETED

Reference Submitted Date: 11/27/2023

How long have you known the applicant? 12

Capacity: Instructor and Scholars Program Mentor

How applicant compares? Top 5%

Intellectual ability: Outstanding

Integrity: Outstanding

Work Habits: Outstanding

General Motivation: Outstanding

Leadership: Unable to judge

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Creativity: Unable to judge	Creativity: Outstanding
Ability to work with others: Outstanding	Ability to work with others: Unable to judge
Maturity: Outstanding	Maturity: Good
Writing skills: Outstanding	Writing skills: Outstanding
Verbal communication: Outstanding	Verbal communication: Good
Reference File Name : Campbell Depken.pdf	Reference File Name : Campbell LOR KT.pdf

Campbell Depken

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Objective

An NC State undergraduate student in Electrical Engineering looking for opportunities to develop scientific technology for use in the realms of marine, Earth, and planetary sciences

Education

North Carolina State University

Raleigh, NC

B.S. Electrical Engineering

May 2026

- GPA: 4.00
- Minors in Marine Science and History
- Summer 2023 Study Abroad in Florence, Italy on Renaissance History
- Relevant Courses: Electric Circuits (Spring '23), Intro to Digital Logic (Spring '23), Intro to Oceanography (Spring '23)

Work Experience

NC State University Women in Science & Engineering Village

Raleigh, NC

Student Mentor

Aug 2023 - Present

- Act as a mentor to 22 first-year female students in STEM, providing academic and personal support
- Plan and execute monthly events for mentees, both individually and with other mentors, to encourage connections and community
- Engage in the WISE living and learning village of over 300 students through STEM and career related events

Technician, NC State's Student Newspaper

Raleigh, NC

Staff Writer

Mar 2023 - Present

- Provide written coverage in 10+ articles of events at NC State and the surrounding Raleigh area for the Culture and News sections
- Schedule and conduct interviews with a variety of people related to events
- Work to meet article deadlines while coordinating with other sections and writers

NC State University Libraries Makerspace

Raleigh, NC

Student Advisor and Technician

Jan 2023 - Present

- Introduce patrons to the Makerspace and instruct them on safety requirements and the proper usage of technology
- Diagnose and fix malfunctioning equipment including 3-D printers, digital embroidery machines, and sewing machines
- Assist patrons with the usage of 3-D modeling and slicing software, textiles equipment, and soldering/electronics projects

Campus Involvement

IEEE-HKN Eta Beta Chapter

Raleigh, NC

Member

Dec 2023 - Present

- Participate in HKN, an international honor Society for Electrical and Computer Engineers, networking with students and attending events
- Tutor first- and second-year students in introductory electrical engineering classes

NC State College of Engineering

Raleigh, NC

Grand Challenge Scholar

Mar 2023 - Present

- Focus on the National Academy of Engineering's Grand Challenge of Engineering the Tools of Scientific Discovery
- Work towards achieving five competencies: talent, interdisciplinary, entrepreneurship, multiculturalism, and social consciousness

Projects

Steering Wheel PCB

Raleigh, NC

NC State Pack Motorsports Formula Team

Nov 2022 - Jan 2022

- Used a multimeter to determine wired connections from the steering wheel to the rest of the electric formula car
- Learned and used Altium to design a PCB to streamline the wiring inside the steering wheel

Skills

Digital Experience with C, Python, Assembly, Mathematica, Altium, and Jupyter Notebooks

Technical Experience with using an oscilloscope and spectrum analyzer for circuit analysis, basic circuits and soldering, 3-D printing, and machine repair