**Statement of Academic and Career Objectives**

**Overview**

Applicants must include a description of their objectives in pursuing an advanced degree. This should be a brief (one page) summary of the applicant's career goals, research interests, and pertinent experience. This information is submitted as part of the OSU online application.

**Intro**

I am excited to be applying to the Artificial Intelligence program at Oregon State University. I gained my master’s degree in Radiation Physics in the Department of Nuclear Science and Technology and was funded by the Department of Energy and Nuclear Regulatory Commission. My research involved developing algorithms for radiation detection and I used my research to develop a software application. During this time, I fell in love with software and innovation reading every book I could find about early technology innovators and often feeling I had missed out during a special time in the Silicon Valley when people like Steve Wozniak were pioneering new ways of computing. After graduation I began working as a Software Engineer at Amazon and am currently a Software Engineer at Nike and yes we use technology here!

**Career goals**

I am incredibly drawn to the AI Program because I am passionate about Artificial Intelligence and Machine learning and its impacts on humanity but also because there is that same excitement and energy like those early days I have read about. My career goal is to work as a Professor in AI leading a research group that hopefully has an impact on research and innovation in this area.

**Research interests**

**Pertinent experience**

I was involved with literature reviews, lab-based data collection, statistical analysis and software design. The research was funded by the Department of Energy and Nuclear Regulatory Commission and led to me being nominated by faculty for and receiving an ARCS Fellowship I also worked with Dr. Hamby to co-author a grant which we were awarded. I have also taken graduate level research methodology and statistics courses.

**NOTES**

**You should address your motivations for graduate study**

My motivation for applying to the Geography and Geospatial Science program at Oregon State University is to hopefully become a professor engaged in research and education. My long-term goal would be to lead my own research group with a focus on utilizing technology advances in the field of geography and earth sciences. Currently I am working as a Software Engineer at Nike and was at Amazon before that. My education includes gaining my master’s degree in Radiation Health Physics and my MBA and I really love the learning, social environment and challenges of graduate school.

When I began thinking about gaining a doctorate, I felt to be successful I had to truly follow my passions and inner curiosity. I knew that I loved mathematics, statistics and computational science but my passion was applying these to geography, earth and ocean sciences. Since the College of Earth Ocean and Atmospherics Sciences has a broad range of focus I took a number of research seminars to expose myself to the work being done in the college. When I walked into the geography and geospatial sciences seminar, I felt I had truly found my home. Not only was the research engaging, multi-disciplinary and meaningful the people were kind and helpful. What also stood out to me is how the scholars who presented went over their unique life journeys and that paths they took to get to their role. Their backgrounds made me feel that my unique academic background could be beneficial in this field.

During a presentation by Professor Wolf I learned about the Transboundary Freshwater Dispute Database which I found incredibly exciting. I was able to

**Briefly explain your overall preparation to enter your chosen field.**

My preparation to enter a graduate program in Geography and Geospatial Science includes my academic and professional background working as a software engineer.

* Research Experience
* Education MS, MBA
* Software Engineer
* CEAOS Courses
* TFDD Work

**NOTES BELOW**

**OSU: Geography**

**Use the space at the right to compose a statement of academic and career objectives. Please be as specific as possible about your proposed focus of study. You should address your motivations for graduate study and briefly explain your overall preparation to enter your chosen field. Please refer to the web site of the academic program to which you are applying to see if additional instructions have been provided**

**Identify and enter any concentrations, subfields or tracks of study that are of interest to you. Please refer to the academic program's website for this information if needed. If your proposed program does not provide a list of concentrations, subfields or tracks, please leave this question blank.**

**Briefly describe (a) your experience conducting research and (b) your research interests for the Geography graduate program.**

**Briefly describe (a) experiences in which you exercised leadership, and (b) what you have learned from these leadership experiences.**

**Briefly describe (a) your dominant characteristics, and (b) your ability to persevere in challenging circumstances.**

**(a) your dominant characteristics**

**(b) your ability to persevere in challenging circumstances.**

**Describe any actions, projects, or outcomes of your work that have contributed to a more diverse and inclusive society. This can include outreach and community service.**

**OSU Geography**

**Use the space at the right to compose a statement of academic and career objectives. Please be as specific as possible about your proposed focus of study. You should address your motivations for graduate study and briefly explain your overall preparation to enter your chosen field. Please refer to the web site of the academic program to which you are applying to see if additional instructions have been provided.**

**You should address your motivations for graduate study**

My motivation for applying to graduate school is to hopefully become a Professor leading a research group with a focus on utilizing technology advances in the field of geography and earth sciences.

As an undergraduate student I gained a position as a student athlete tutor for the OSU Athletics Department

I am currently working as a Software Engineer at Nike in their logistics

Motivations

* MS, PhD
* Professor
  + Teach and Research
  + Lab Group
* Motivations
  + Love of academia and learning
  + Bring AI and ML to Geography and Earth Sciences
* Involvement
  + Peers, Faculty
  + Conferences

**Briefly explain your overall preparation to enter your chosen field.**

* Research Experience
* Education MS, MBA
* Software Engineer
* CEAOS Courses
* TFDD Work

1. **Identify and enter any concentrations, subfields or tracks of study that are of interest to you. Please refer to the academic program's website for this information if needed. If your proposed program does not provide a list of concentrations, subfields or tracks, please leave this question blank.**

Mccracken, Melissa

1. **Briefly describe (a) your experience conducting research and (b) your research interests for the Geography graduate program.**

I gained my master’s degree in Radiation Health Physics in the Department of Nuclear Science and Technology at Oregon State University. My research involved developing algorithms for radiation detection and then using this research to develop a software application. I was involved with literature reviews, lab-based data collection, statistical analysis and software design. The research was funded by the Department of Energy and Nuclear Regulatory Commission and led to me being nominated by faculty for and receiving an ARCS Fellowship I also worked with Dr. Hamby to co-author a grant which we were awarded. I have also taken graduate level research methodology and statistics courses.

Recently I have been working with faculty in the [College of Earth, Ocean, and Atmospheric Sciences](https://ceoas.oregonstate.edu/) at OSU. I have been involved with the Transboundary Freshwater Dispute Database. My role in this has been helping with large scale data collection utilizing Python. I also am helping other student and faculty members setup and use this program for their research.

I fell in love with geography and earth sciences and wanted to use my engineering background in this field. I really enjoy the research being done in the Transboundary Freshwater Dispute Database which I believe fits with the major topic area of Global Change Risk and Resilience. I also am interested in Geospatial Analysis and Modeling.

1. **Briefly describe (a) experiences in which you exercised leadership, and (b) what you have learned from these leadership experiences.**
2. **experiences in which you exercised leadership**

I have been able to gain leadership experience both academically and professionally. As a graduate student in the College of Engineering I worked as a Teaching Assistant and Instructor. Professionally, I have been able to gain leadership experience at OSU and Amazon. At OSU I have worked in the Office of the Dean of Students and the Division of Student Affairs leading and supporting projects and helping supervising a team of around twelve undergraduate and graduate student workers. At Amazon I helped found a new team and was asked to take ownership of onboarding new digital security campaigns. In this role I helped coordinate work done by over seven teams and around one hundred engineers.

1. **what you have learned from these leadership experiences.**

I have been fortunate to learn a lot from these leadership experiences. One important thing I have learned is how valuable relationships are. As an Instructor I have learned a lot about how to design an engaging class and develop relationships that support students and help them develop a passion for learning. In my role in the Office of the Dean of Students I worked at the Basic Needs Center to provide support to at risk and struggling students. In this role I was able to learn a lot about the struggles and challenges students face and also how to co-lead a team capable of providing caring support. At Amazon I learned a lot about working with leadership and translating their vision to the day to day needs of busy engineers. From these positions I have learned a lot of skills that I believe would help me be successful in the OSU Geography program. These include organization, communication and problem solving skills and most importantly the value of others around you and how to create a positive and inviting culture that is prevalent at OSU.

1. **Briefly describe (a) your dominant characteristics, and (b) your ability to persevere in challenging circumstances.**
2. **your dominant characteristics**

I have found myself the most happy while in graduate school and I really love academia. I think this love stems from my personal characteristics which I believe include being kind, patient and curious about the world around me with a strong desire to learn. As an Instructor at LBCC, the Dean of Education wrote in my review, “You do a wonderful job creating an open, welcoming, supportive atmosphere. It’s clear your students feel at ease.” As a graduate student in the [College of Earth, Ocean, and Atmospheric Sciences](https://ceoas.oregonstate.edu/) at OSU my goal would be to be an active member of the academic community, making friends and connecting with faculty.

**(b) your ability to persevere in challenging circumstances.**

I believe I have a strong ability to persevere in challenging circumstances. I have gained a master’s degree while teaching and completing a challenging thesis. I also have gained my MBA while working at OSU as a graduate assistant. In my most recent roles at both Amazon and Nike I was faced with very challenging circumstances working on massive, complicated platforms with a tremendous learning curve. At Amazon and Nike I have found the positive relationships I developed with others was the only reason I was able to succeed. By developing friendships I found other engineers were always available when I needed support. As I spent more time in my role I was also excited to realize it was others asking me for help and I loved the connection this allowed me to develop with newer engineers and product owners.

Some ways I have learned to do well in challenging circumstances is to make sure I take care of myself and always set aside time to work out, play sports and spend time with friends. I also utilize strong time management skills and focus on productivity when I work rather than spending hours of low-quality time with little output. I feel my time as a graduate student and as a software engineer have helped me learn how to work faster and smarter.

1. **Describe any actions, projects, or outcomes of your work that have contributed to a more diverse and inclusive society. This can include outreach and community service.**

    I have been fortunate to have been involved in a number of both personal and professional experiences that have helped me grow as a person and also contribute to a more diverse and inclusive society. I also believe these formative experiences utilizing personal relationships and data to drive change will help me as a graduate student and hopefully in the future as a professor leading a research group.

    As an undergraduate student I was fortunate to be selected as a Legacy Health System scholar which led to an internship in their Supply Chain. In this role I worked with the Director of the Supply Chain to create a plan to attract and retain more minority owned vendors. I utilized data to understand their current supply chain and then spent time in the community learning from minority business owners about the struggles and challenges they faced. I utilized this combined knowledge of personal experience and data to put together a plan to make it easier for minority owned businesses to partner with Legacy Health System which created the foundation for what they use today.

    Most recently I have worked in the Division of Student Affairs as a Resource Advocate with the Basic Needs Center. In this role I worked directly with the local community, staff, faculty and students leading and supporting a number of our programs. I led our Food Assistance Program where I processed around 1,200 need-based applications per term. My work included reading through at risk applications and then providing additional support and resources for students struggling from small to very large and complex issues. I utilized this knowledge to help these students and learned a lot of skills that will help me as a TA or instructor.

While my roles in Student Affairs and as an instructor have allowed me to foster an environment that values diversity, I have also discovered the power of data and technology as tools that are quite effective in understanding issues and advocating for change. While working in the Division of Student Affairs I was asked by the Dean of Student Life to analyze demographic data at the Career Development Center. I was able to utilize Python and Java to gather and analyze almost five years of past data that allowed us to see what student groups were not being supported as fully as they should. I wrote multiple reports from this data that were used by leadership at the Career Development Center and the Division of Student Affairs. I also utilized this data to work with leadership at the Career Development Center to found an Advisory Committee with business partners from companies like HP, Target and the United Way.