

# Project Description

## UNL School of Computing – Career Explore XR

### Project Overview

The Career Exploration XR app will allow students to explore potential career opportunities through the extended reality environment. Critical Artificial Intelligence (AI) data centers currently being constructed and maintained will need many different skilled tradespeople such as electricians, pipefitters, welders, and construction workers. These facilities will need reliable power and cooling systems and will rely on these professionals to install, maintain, and repair these systems. In addition to developing a workforce to support AI data centers it can also be used to support career development for other critical career fields such as healthcare and technology.

### Sponsor Background

*Jeff Falkinburg is an Assistant Professor of Practice in the School of Computing at the University of Nebraska-Lincoln, a Computer Engineer, and retired U.S Air Force Major. My research interests include robotics, embedded systems, 3D modeling, and simulation design. My areas of specialization include VLSI Systems, Computer Architecture, Embedded Systems, Advanced Digital Design. I have been teaching in the School of Computing for seven years and have taught classes like CSCE 10 – Intro to SoC, Computer Organization, Embedded Systems, and Advanced Embedded Systems.*

*Britney Falkinburg is a School Counselor at Lincoln Southwest High School and subject matter expert in career advising students at the high school and collegiate levels. Britney also served as an Academic Advisor at Pikes Peak Community College.*

### Project Stakeholders

*This application will be used by middle/high school students and advising staff throughout the community and around the world.*

- *Jeffrey Falkinburg, Assistant Professor of Practice, Principal Investigator and Primary Contact*
- *Britney Falkinburg, School Counselor and Subject Matter Expert in Advising*

### Current System Overview

There are currently simulations to explore specific careers in a pay-to-play model. Some are virtual field trips using 360 cameras to give the user an immersive experience with still images. While others provide a combination of virtual simulations and classroom materials to explore different careers.

### Proposed System/Scope

*In the following four subsections, we will provide the project vision.*

#### 1. Business Justification

*This will be an Oculus Quest 3 app that will be used to help explore potential career opportunities through the extended reality environment. Skilled professionals are needed to construct and maintain critical AI data centers as well as the healthcare industry.*

#### 2. Proposed System Overview and Strategy

The final solution will allow future skilled professionals to navigate different careers available through post-secondary education either through vocational training, community colleges, or higher education.

#### 3. Scope of Work

*I would like to create a Career Exploration XR App for some of the technical trades provided at places like Southeast Community College (<https://www.southeast.edu/academics/programs/index.php>) Such as:*

- Pharmacy Tech
- Nursing
- Dental Assistant
- Plumbing
- HVAC
- Welding
- Physical Therapist Assistant
- Automotive Service/Technology
- Computer Information Technology – Applications Development
- Electrical & Electromechanical Technology – Automation & Robotics

#### 4. High Level Architecture Requirements (Technical Specifications)

*This app will be developed to be deployed on the Meta Quest 3 headset using Unity 3D development environment.*

#### 5. Development Environment

The app will be developed using the Unity 3D environment and the code will be maintained on a GitHub Repo.

#### Expected Deliverables from Project Team (Senior Design Provides)

*The expectation is a fully functional Meta Quest 3 mobile application that will be deployed to the SideQuest store and the Meta Quest app store by the end of this effort. The team will have to keep performance and optimization in your planning to keep the app frame rate above the 72 frames per the second requirement (<https://developers.meta.com/horizon/documentation/unity/unity-perf/>). This will be instrumental to successfully deploying to the Meta Quest store.*

#### Supporting Materials (Sponsor Responsibilities and Provisions)

This project will be similar to the Husker STEM VR app (<https://www.huskerstemvr.com>) in that it will provide virtual exploration of careers that don't necessarily require a 4-year education.

#### Communication Plan

*The communication will be mainly via Teams (text, audio, or Zoom/Teams calls). Meetings will be held via Zoom for weekly meetings and in-person for major milestone meetings would be preferred. The primary contact is available weekly to answer any questions during office hours or at scheduled office/Zoom visits. Email or send a message via Teams and we will get back to you asap.*

#### Sponsor Contact Information

Name	Primary Contact (Y/N) Select one person	Contract Signer (Y/N) Select one person	Email Address	Title	Phone Number
Jeff Falkinburg	Y	Y	<a href="mailto:jfalkinburg2@unl.edu">jfalkinburg2@unl.edu</a>	Assistant Professor of Practice	402-312-8078
Britney Falkinburg	N	N	<a href="mailto:bfalkinburg@gmail.com">bfalkinburg@gmail.com</a>	School Counselor – Lincoln Southwest High School	402-880-9135

#### Bill To Email Address

Name	Email Address
School of Computing Senior Design	N/A

Organizational Logo

N/A

Any Other Information

N/A