

# Shukra Jaliya Nankabirwa

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## EDUCATION

### Seattle Pacific University

Bachelors of Science in Computer Science and Engineering

Seattle, WA, USA

Bachelors of Arts in Honors Liberal Arts Bachelors of Arts in Honors Liberal Arts

September 2021- June 2025

Minor: Data Analytics

## TECHNICAL SKILLS

- **Programming Languages:** C++ - 4 years, R, SQL, Python, JavaScript -1 year, Kotlin
- **Frameworks:** Apple MLX, Jetpack Compose for Android, AR-Core, Robot Operating System, shiny, tidyverse
- **Certificates** Snap Inc Master of Augmented Reality Development

## WORK EXPERIENCE

### Machine Learning Engineer – Fine-Tuned Educational LLM, Apple MLX, Hugging Face

AVELA, University Of Washington, Seattle, WA

June 2025- present

- \* Developed and fine-tuned AI and machine learning models using Apple's MLX framework.
- \* Applies Natural language processing(NLP) techniques to build and evaluate course-specific langauge models.
- \* Architected the pipeline integrating the fine-tuned model with RAG, classifier into a unified system.
- \* Achieved average response times under 8 seconds by optimizing model inference and prompt flow.
- \* Designed local-first Ai systems integrating MLX fine-tuning, retrieval pipelines, and SwiftUI interfaces.

### Extended Reality Technical Lead

AVELA, University Of Washington, Seattle, WA

June 2024 - present

- \* Initiated the first VR course in the AVELA program, teaching 30 students to build VR apps and craft AR image
- \* Educates in computer literacy, fostering an understanding of computing concepts through engaging, immersive lessons.
- \* Developed a 40-hour XR curriculum, increasing student STEM engagement by 25% utilizing a fleet of 30 quest 3 headsets.
- \* Developed and implemented Augmented GTLF files using C++ to render prefabs onto QR Codes using Polycam and WebAR.

### Software Engineer – HMobile App Android Studio, Jira, ROS, GitHub

SPU, Seattle, WA

September 2024-June 2025

- \* Developed a functioning mobile UI for robot control interface using Kotlin and Jetpack Compose in Android Studio.
- \* Collaborated with 12-member team on seamless hardware-software integration
- \* Set up documentation with Git version control, module specs, and system diagrams to streamline collaboration and testing.
- \* Designed accessible UI theme colors informed by research on usability for diverse demographics and user challenges.

### Technical Mixed Reality Instructor

SPEEA Aerospace Career Enhancement (ACE), Tukwila, WA

December 2024 – February 2025

- \* Led hands-on workshops on VR and AR applications for mental wellness and health.
- \* Developed a mixed reality mindfulness program using cutting-edge XR tools.
- \* Guided participants in applying immersive technology to support stress reduction and overall well-being.
- \* Delivered multi-week training sessions at SPEEA Hall, fostering community engagement with emerging XR technologies.

### Research Assistant

Department of Electrical and Computer Engineering, UW , Seattle, WA

June 2024 - September 2024

- \* Conducted research on meta-optics for endoscopes under the guidance of Professor Karl Bohringer.
- \* Collaborated with 3 postdoctoral scholars and graduate students in the Bohringer lab.
- \* Gained a comprehensive understanding of endoscope technology, refractive lenses and metasurface optics.
- \* Developed educational materials aimed at teaching non-experts about meta-optics.

## PROJECTS

### Data Analysis – R Studio, GitHub

SPU, Seattle, WA

January 2024- June 2025

- \* Utilized R for data cleaning, transformation, and preparation using packages like dplyr and tidyverse
- \* Conducted exploratory data analysis (EDA) and built visualizations with ggplot2 and plotly
- \* Created interactive dashboards and automated reports with R Markdown and shiny
- \* Integrated data from multiple sources (CSV, databases) and documented processes for reproducibility.

### Directed Graph – Visual Studio, Docker, GitHub

SPU, Seattle, WA

March 2024

- \* Developed a Python Web crawler to create a web-link graph by crawling websites and extracting URLs as nodes at depth of 3
- \* Analyzed the connectivity of nodes, enabling insights into the significance and accessibility of different web pages.
- \* Implemented closeness centrality and Dijkstra's for graph analysis to understanding of web structures and relationship.
- \* Delivered a project with clear goals for efficient web crawling and insights into web structure and node connectivity.

## LEADERSHIP

### President and Co-founder

SPU National Society of Black Engineers, Seattle, WA

November 2024- June 2025