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# Education

**Birkbeck, University of London** London, UK

MSc Advanced Computing

Graduation Date: Oct 2024

**Western Kentucky University** Bowling Green, KY, USA

BSc Computer Science

Graduation Date: May 2022

# WKU XR Lab

**Experience**

Bowling Green, KY

City, State

**XR Developer** June 2021 – July 2022

* Developed a Digital Twin of a Manufacturing Robot to enhance training simulations, improving accuracy and interactivity.
* Developed a machine learning algorithm (gradient descent) to recreate local and global movement.
* Integrated hand tracking for XR interactions and authored comprehensive user documentation for Oculus and MRTK APIs.

**Skills**

* **Technical:** C++, C#, Python, JavaScript, HTML5, CSS, Django, Three.js, SQLite, MySQL, MongoDB, Unity, Unreal Engine, ARKit, Meta XR, ARCore
* **Workflow:** GitHub (git), OOP, Design Patterns, Agile Methodologies
* **Languages:** English (bilingual), Spanish (native), German (intermediate)
* **Laboratory:** TensorFlow, Google Colab, RStudio, LaTeX, Manim
* **Interests:** AI-driven solutions, shaders programming, 3D topology, XR, Computer Simulations.

**Projects**

**Azimuth VR Project**

Developed a VR bedroom environment for a prototype targeting Meta Quest 2, as part of the NSAC 2022 Case Study.

Optimized performance by baking lighting data into textures, ensuring smooth execution on standalone VR hardware.

**Virtual Reality Golf Game**

Adapted an existing golf game from WKU XR Lab into an immersive VR experience, following Meta’s development guidelines. Optimized interactions, physics, and user experience for VR gameplay. Successfully published on the Meta Store, achieving over 15,000 players.

**Implementing A\* search algorithm in puzzle games**

Developed three puzzle games in Java, porting them to Android (via Android Studio) and HTML5 (using JavaScript, HTML, and CSS). Implemented an A search algorithm\* to create an AI solver that efficiently finds the optimal solution, enhancing game difficulty scaling and user engagement.

**Game prototypes**

Designed and developed multiple game prototypes over a 13-year journey, utilizing engines such as Blender Game Engine (BGE), Unity, and Unreal Engine. Experience spans diverse genres and technologies, including a medieval VR game in Unreal Engine featuring Blueprint scripting and physics-based interactions. Watch the showcase: <https://www.youtube.com/watch?v=LiUS53wx6w0&t=1s>

**Publications**

**Use of Novel Heuristic Feature Importance and Heuristic Feature Selection-Based Method to Predict Human Cancer Types**

**Research** October 2024

* Led feature selection research in the HFS-Cancer project, optimizing gene expression analysis for improved cancer classification.
* <https://github.com/Klaimtrev/HFS-Cancer>

**Robot Training**

**Robot System and 3D Modelling** June 2022

* Unity-based simulation of the FANUC 2000iC robot, featuring custom inverse kinematics (IK) and forward kinematics (FK) implementations with joint rotation limits.
* <https://github.com/WKUXRLab/FANUCRobot-Docs>
* <https://github.com/WKUXRLab/NSF-EPSCoR-RA-Robot-Training> (private repo)

**Hand Tracking**

**API implementation and Testing** April 2022

* Unity Project that uses hand tracking for physics interactions including a manufacturing robot.
* <https://github.com/WKUXRLab/WKU-Hand-Tracking_Research>

**Augmented Reality Gallery**

**AR App Development** November 2021

* Engineered an AR application that was awarded at the ACM Mid-Southeast Chapter Fall 2021 Conference