

Erdem Murat

erdemmurat.com

Email: emurat@gmu.edu

Mobile: +1-202-717-4373

Computer Science Ph.D. student with expertise in research, artificial intelligence, virtual reality, and game design.

EDUCATION

- **George Mason University**

Ph.D. in Computer Science

B.S & M.S in Computer Science

August 2023 – Current

August 2018 – May 2023

PUBLICATIONS

- **GPT-Think-Alouds: Analyzing User Emotion in VR Platformer Games via LLMs**

Erdem Murat, Yongqi Zhang, Liuchuan Yu, Siraj Sabah, Lap-Fai Yu

ACM CHI 25' (Under Review)

- Devised a solution that predicts momentary and overall player emotions and difficulty using think-aloud statements and analyzing statements, tone, and gameplay footage via large language models. Used dynamic time-warping to enable joint sentiment analysis and experience comparison.

- **Predicting Users' Difficulty Perception in a VR Platformer Game**

Erdem Murat, Liuchuan Yu, Siraj Sabah, Haikun Huang, Lap-Fai Yu

ACM TAP (Under Review)

- Trained a recurrent neural network to predict user-profiles and perceptions of difficulty over various game levels using limited gameplay and user data.

- **Understanding Online Education in Metaverse: Systems and User Experience Perspectives**

Ruizhi Cheng, Erdem Murat, Lap-Fai Yu, Songqing Chen, Bo Han

IEEE VR 24'

- Proposed an analytic method combining qualitative & quantitative analysis with end-to-end network measurements to understand user experience in VR education and detect bottlenecks to optimize system performance.

- **Machine Learning Automation for Virtual Reality Games**

Master's Thesis

- Addressed limitations in VR game design research and proposed a machine learning solution that accurately predicts user perception of difficulty in a VR game.

EXPERIENCE

- **Design Computing and eXtended Reality Lab**

Researcher

George Mason University, VA

January 2022 – Present

- **Research:** Artificial Intelligence, Virtual Reality, Game Design
- **Advisor:** Prof. Lap-Fai (Craig) Yu

- **Collimation**

Unity Developer Intern

Irvine, CA

May 2024 – Present

- **Mixed Reality Development:** Consulted on the design of a mixed-reality sports system using hand-tracking.

- **Global Co Lab**

Virtual Reality Director

Arlington, VA

July 2022 – Present

- **Virtual Reality Development:** Developed VR spaces for a non-profit to educate in environmental sciences. Won the organization \$15,000 in prizes for designs.
- **Teaching:** Educated youth teams in VR development for projects and competition entries.

ACADEMIC SERVICES

- **Conference Local Chair:** ACM MIG 2024
- **Conference Paper Reviewer:** IEEE VR 2023

PROJECTS

- **VR Sports Simulation System:** Devised a VR system with feet tracking to be used by three Fortune 500 clients. Formulated physics and a unique interaction system with built-in data collection for research on professional athletes.
- **Computer Vision Based Lane Detection for Driving Simulator:** Using CUDA, YOLO, PyTorch, and TensorFlow libraries, developed a CV-based solution for real-time lane assistance in a driving simulator.
- **Motion Planning for A Multi-Robot System :** Used Gazebo and ROS to create a multi-robot setting with obstacles and motion-planning for autonomous movement.