Haikun (Quincy) Huang, Ph.D.

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Dr. Haikun Huang holds a Ph.D. in Computer Science from UMass Boston and is a postdoctoral research fellow at George Mason University. His graduation thesis was titled AI-driven Computational Design Tools For Synthesizing Human-centric Design and won the Umass Boston year's graduate program award. With a strong background in AR/VR/MR, computational design, graphics, HCI, and vision, he is passionate about applying artificial intelligence techniques to create innovative 3D content creation tools and virtual experiences.

Dr. Huang has published his research in prestigious conferences such as IEEE VR and ACM CHI, and his work has been recognized with a Best Paper Honorable Mention Award at CHI 2019. He is also an active reviewer for IEEE VR and CHI, contributing to advancing these fields. From 2017 to 2023, he has successfully published 21 papers, which have been cited more than 470 times. In the first half of 2023 alone, it was cited more than 180 times. At the same time, his h-index is 12, and i10-index is 15.

In addition to his academic achievements, he has years of industry experience, particularly in the game development sector. He has also been a columnist for popular game development forums in China, where he shared his expertise and insights with fellow developers.

He has also served as a teaching assistant for various computer science courses, including Computer Games Programming, Computer Vision, Programming in C, and (Computer Architecture and Organization at UMB. These experiences have allowed him to hone his teaching skills and effectively communicate complex concepts to students.

As a co-founder and CTO of Great Victory Legends, he gained valuable experience leading technical teams and developing cutting-edge solutions. He is confident in bringing this expertise into the classroom and providing students with a comprehensive understanding of the subject matter.

He also runs his studio as a freelance and sells the tools on Unity Asset Store. The tools he develops are all about practical tools to improve development efficiency. UPython 3 Pro is his masterpiece. It provides real-time communication between Unity and Python. It was used in the research projects he was involved in. AR/VR researchers deeply love it.

Teaching Experience

2022 – present   🔖 **Postdoctoral Researcher.** George Mason University, Fairfax, VA, USA.

- Provide technical training and support to the Design Computing and eXtended Reality (DCXR) students - including Ph.D., Master, and undergrad.

2020   🔖 **Teaching Assistant of CS461 (Computer Games Programming).** UMass Boston, MA, USA.

- Works with Prof. Funda Durupinar.

2019   🔖 **Teaching Assistant of CS675 (Computer Vision).** UMass Boston, MA, USA.

- Works with Prof. Marc Pomplun.

Teaching Experience (continued)

🔖 **Teaching Assistant of CS240 (Programming in C).** UMass Boston, MA, USA.

- Works with Prof. Duc Tran.

2018 🔖 **Teaching Assistant of CS240 (Programming in C).** UMass Boston, MA, USA.

- Works with Prof. Duc Tran and Prof. Ming Ouyang.

2017 🔖 **Teaching Assistant of CS341 (Computer Architecture and Organization).** UMass Boston, MA, USA.

- Works with Prof. Ronald Cheung

Interested In Teaching

🔖 **Java**

🔖 **python**

🔖 **C/C++/C#**

🔖 **Object-Oriented Programming**

🔖 **Intro to Programming**

🔖 **Game Design**

🔖 **Game Engines**

🔖 **Computer Game Programming**

Awards

🔖 **Best Paper Honorable Mention Award, CHI 2019.**

🔖 **The 2nd place on the ACIR 2021 student track.**

🔖 **UMass Boston year's graduate program award, 2020.**

🔖 **Best Paper Award Nomination, IEEE VR 2022.**

🔖 **Intro to Programming**

🔖 **Game Design**

🔖 **Game Engines**

🔖 **Computer Game Programming**

Work Experience

2021 – present **CTO.** Great Victory Legends, Inc. Fairfax, VA, USA.

- In 2021, I co-founded GVL with my mentor, Prof. Craig Yu. The company aims to transform some new technologies from academia into commercial products. So far, the company has successfully released the MCMC Framework tool on the Unity Asset Store and a developer preview of a VR multiplayer shooting game on Side Quest and the Oculus App Lab.

- There are also multiple new tools and vendor projects in development.

- I lead all the projects that are mentioned above. Our primary development platform is Unity Game Engine.

2020 – present **Postdoctoral Researcher.** George Mason University, Fairfax, VA, USA.

2017 – 2022 **Teaching/Researching Assistant.** UMass Boston, MA, USA.

- My research interests include AR/VR/MR, computational design, graphics, HCI, and vision, particularly on the applications of artificial intelligence techniques for creating novel 3D content creation tools and virtual experiences.

- My research has been published in IEEE VR and ACM CHI and was recognized with a Best Paper Honorable Mention Award at CHI 2019.

- I frequently serve as a reviewer for IEEE VR and CHI.

2016 – present **Unity Assets Creator.** Freelancer.

- I will use my free time to develop Unity Assets or tools and publish and sell them on the Unity Asset Store.

2028 – 2009 **Data Analysis Engineer.** Guangzhou Kingpoint CO.,LTD, China.

- Provide on-site data analysis services for the data center of China Mobile Co., Ltd Guangzhou Branch. Provide data support for China Mobile's customer package design.

Professional Training

2009 – 2011 **2D,3D Game Programming.** The Beijing Gamfe Tech co.,LTD, China, 2009-2011.

- Earn certificates in elementary and advanced game development skills from the National Education Bureau of China.

Education

2016 – 2020 **Ph.D., Computer Science.** UMass Boston, MA, USA.

2012 – 2016 **Bachelor, Computer Science.** UMass Boston, MA, USA.

2006 – 2008 **Bachelor, E-Commerce.** South China University of Technology, GuangDong, China.

Education (continued)

2003 – 2006   ■   **Application Development.** South China Institute of Software Engineering GZU, GuangDong, China.

Showcases - Unity Assets and Games

Two Cats Code   ■   **ANY EVENT 2.**

- A simple way to dispatch global and local events.

■   **DATA MANAGER PURE VERSION.**

- A fancy way to access text-formed data.

■   **UPYTHON 3 PRO.**

- UPython 3 Pro redesigns the underlying logic of the Unity component and Python server. A highly integrated and optimized design makes it easier for developers to use or extend remote Python calls.

■   **UI ENHANCED COMPONENTS.**

- UIEC provides you with a set of high-level components to manage the animation. It defines the life cycles of the animations. It allows you to define how to run the animation cells.

■   **ANY EVENT.**

- Any object can be the listener or/and invoker.

■   **POOLING MANAGER.**

- Everything can be pooled. It is not limited to prefabs; scene objects can be pooled at runtime.

■   **CSV MANAGER.**

- CSV Manager can handle multiple CSV tables at the same time. It supports reading a CSV file from HD, creating your CSV table by CSharp, and outputting it to a CSV file to HD.

■   **INI DATABASE.**

- This tool helps to manage a flexible and user-customized data structure database.

Great Victory
Legends, Inc.   ■   **Monte Carlo Markov Chain Optimizer 1 and 2.**

- You define the problem. We do the optimization — a comprehensive, generic, and extensible MCMC optimization plugin for the Unity Game Engine.

Showcases – Unity Assets and Games (continued)

- **Car Fight.**
  - It's a multiplayer VR game where you fight with/against others in a town.

- **Poser.**
  - Pose a character and particle state at a certain fixed time.

- **Recorder.**
  - Record every detail and replay every moment.

Research Publications

- Location-Aware Adaptation of Augmented Reality Narratives. (CHI 2023)

- Interactive Augmented Reality Storytelling Guided by Scene Semantics. (Proceeding of SIGGRAPH 2022)

- Synthesizing Scene-Aware Virtual Reality Teleport Graphs. (Proceeding of SIGGRAPH Asia 2021)

- Joint Computational Design of Workspaces and Workplans. (Proceeding of SIGGRAPH Asia 2021)

- Toward Automatic Audio Description Generation for Accessible Videos. (CHI 2021)

- Exertion-Aware Path Generation. (Proceeding of SIGGRAPH 2020)

- Lost in Style: Gaze-driven Adaptive Aid for VR Navigation. (CHI 2019)

- Pose-Guided Level Design. (CHI 2019)

- Audible Panorama: Automatic Spatial Audio Generation for Panorama Imagery. (CHI 2019)

- WFH-VR: Teleoperating a Robot Arm to set a Dining Table across the Globe via Virtual Reality. (IROS 2022)

- Building a Motion-Aware, Networked Do-It-Yourself Holographic Display. (ICIR 2021)

- Interactive Design of Gallery Walls via Mixed Reality. (AIVR 2020)

- Optimizing Visual Element Placement via Visual Attention Analysis. (VR 2019)

- Deep Trail-Following Robotic Guide Dog in Pedestrian Environments for People who are Blind and Visually Impaired - Learning from Virtual and Real Worlds. (ICRA 2018)

- Synthesizing Personalized Construction Safety Training Scenarios for VR Training. (TVCG, Special Issue on IEEE Virtual Reality 2022)

- Mood-Driven Colorization of Virtual Indoor Scenes. (TVCG, Special Issue on IEEE Virtual Reality 2022)

- A Review on Virtual Reality Skill Training Applications. (Frontiers in Virtual Reality, 2021)

- Effects of Exergaming on Cognition and Gait in Older Adults at Risk for Falling. (Medicine and Science in Sports and Exercise, 2019)

- Exercise Intensity-driven Level Design. (TVCG, Special Issue on IEEE Virtual Reality 2018)

- Automatic Optimization of Wayfinding Design. (TVCG)

- Analyzing Visual Attention via Virtual Environments. (Virtual Reality meets Physical Reality Workshop, SIGGRAPH Asia, 2016)