Haohua Lyu

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Education

- **University of California, Berkeley** — Berkeley, CA
  Master of Engineering in EECS; GPA: 3.95 — Aug 2021 - (Dec 2022)
  Courses: Immersive Computing and VR; Optimization Models; Applications of Parallel Computers; Computer Graphics
- **University of Pennsylvania** — Philadelphia, PA
  Bachelor of Arts in Political Science & Computer Science; GPA: 3.95, Summa cum laude — Aug 2018 - May 2021
  Courses: Artificial Intelligence; Crowdsourcing & Human Computation; Software Engineering; Internet and Web Systems; Computational Linear Algebra; Algorithm; Computer Architecture; Automata, Computability, and Complexity; Programming Languages and Techniques

Technical Skills

- **Languages & Framework**: Python, C# (Unity), C++, Java, Kotlin (Android Studio), JavaScript (Node.js), HTML
- **Knowledge**: Virtual Reality, Game Development, Web Interface & Systems, Image & Video Processing, Mobile Development, Version control

Experience

- **Tencent** — Beijing, China & Palo Alto, CA (Remote)
  Intern — Jun 2020 - Aug 2020
  - Joined Tencent Media Lab's Product Engineering team in Palo Alto as an intern;
  - Worked on a serverless video transcoding API and implemented features such as encrypted HLS streaming, cloud-based video processing, and frontend authentication;
  - Worked on a WebRTC cloud-rendering API and designed a serverless version using cloud functions;
  - Designed related interfaces, implemented SDKs, and created demo pages and documentation.
- **Renmin University of China - Business School** — Beijing, China
  Research Assistant — Jun 2019 - Aug 2019
  - Worked as a research assistant under the guidance of Prof. Liu Gang of the Business School;
  - Participated in courses and research focusing on business administration in China's state-owned enterprises (SOEs);
  - Led course discussions and prepared research materials.

Projects

- **WebTransceiVR - Asymmetric VR/non-VR communication at scale** — Berkeley, CA
  Team Member & Co-first Author — Sep 2021 - Present
  - **Paper published on CHI 2022 Late-Breaking Work**; link to ACM Library.
  - Researched online asymmetric communication between VR users and multiple non-VR users, supervised by Prof. Bjoern Hartmann;
  - Designed and developed a WebRTC-based network infrastructure to allow multiple non-VR users to join and interact with a VR virtual environment, and a cloud-based streaming solution to accommodate a large ammount of spectators;
  - Led the team in writing and submitting the work to CHI 2022 Late-Breaking Work track.
  - Working on advanced camera control and new interactivity for a new iteration.
- **Vision Correcting Display - Algorithm Parallelization** — Berkeley, CA
  Team Member — Aug 2021 - Present
  - Researched vision correcting display devices and algorithms under the guidance of Prof. Brian Barsky;
  - Refactored and accelerated algorithms using OpenCV, OpenMP, OpenCL, and Intel oneAPI, with **3x-20x faster performance**;
  - Developed and refined a benchmark tool for the project, with related documentation;
  - Working on a cross-platform app for real-time correction of low-level aberration.
- **Research on the Stagnation of Trans-Pacific Partnership (TPP)** — Boston, MA
  Independent Researcher — Oct 2017 - Oct 2018
  - Researched various causes of the recent stagnation of the TPP, developed an analysis to evaluate the effects of national, organizational, and regional factors on the treaty, and anticipated future possibilities;
  - Wrote a research article and published on China-US Focus.

Honors and Awards

- Pi Sigma Alpha National Political Science Honor Society — Nov 2019 - Present
- Advisory Board Member of Political Science Department, University of Pennsylvania — Sep 2020 - May 2021
- Dean's List - Boston College, University of Pennsylvania