Bingjian Huang

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Department of Computer Science and Technology, Tsinghua University, Beijing, China, 100084

Education

B.Eng Computer Science and Technology — GPA 3.67/4.00 *2016-2020*

Tsinghua University, Beijing, China

Outstanding Courses

computer science and career design: 99 | Linear Algebra(1)(2): 92

Fundamentals of Programming: 96 | Human Computer Interaction Theory and Technology: 89

Next Generation Internet:95 | Probability and Statistics: 90

Foundation of Object-Oriented Programming: 93 | Computer Architecture: 96

Summer Session Program — GPA 4.00/4.00 *2018.7-2018.8*

University of California, Berkeley, Berkeley, CA, United States

Outstanding Courses

Digital Humanity and Archival Design: A+

Public Speaking and Presentation Skills: A

Papers

Designing Low-burden In-situ Self-reporting: A User Enactment Study of Alternative Smartwatch Interactions in Context

*Xinghui Yan, Shriti Raj, **Bingjian Huang**, Sun Young Park, Mark W. Newman*

Submission to CHI 2020

Designing and Evaluating Hand-to-Hand Gestures with Dual Commodity Wrist-Worn Devices

*Yiqin Lu, **Bingjian Huang**, Chun Yu, Guanhong Liu, Yuanchun Shi*

Submission to UBICOMP 2019 (major revision), resubmission to UBICOMP 2020

TeleCP: A 3D Telepresence Software Framework Supporting High-Level Co-Presence

*Yizheng Gu, Chun Yu, Zhipeng Li, **Bingjian Huang**, Chengchi Zhou, Weiqi Li, Zeyang Zhang, Yuanchun Shi*

Submission to CHI 2019

Research Experience

Research Assistant *2018.3-2018.9*

Tsinghua Pervasive Computing Group, Adviser: Prof.Yuanchun Shi, Prof.Chun Yu

- developed a 3D Telepresence software framework aiming to reach high co-presence.
- Used CUDA to implement parallel algorithms such as TSDF and Marching Cubes.
- Conducted user experiments.

Research Assistant *2018.10-Now*

Tsinghua Pervasive Computing Group, Adviser: Prof.Yuanchun Shi, Prof.Chun Yu

- Conducting research on hand gestures design space exploration.
- Implementing motion sync algorithms to detect hand motion and gestures.

Visiting Scholar and Research Intern *2019.7-2019.9*

Interaction Ecologies, School of Information, University of Michigan, Adviser: Prof. Mark W. Newman

- Research on in-situ low-burden self-reporting tools.
- Developing smartphone-smartwatch combined Android Application to investigate different design concepts.
- Conducting user studies about scenarios and techniques with User Enactment Method.

Selected Course Projects

Virtual Reality Applications on Android Smartphone and Cardboard *2019.9-2020.1*

Virtual Reality Technology

- Build Maze with Google Android VR SDK, using OpenGL and ViroCore
- Build stereo sound App with HRTF algorithm

- Build multi-player VR game with Cardboard and Leap Motion, using Unity

Wireless Network and Internet Hacking *2019.9-2020.1*
Network security engineering and practice
- Campus Wireless Network Account Masquerade by changing Mac Address
- Avoid Great FireWall DNS Pollution with Scapy DNS Server
- imitate ARP middleman attack

Tsinghua News Search Engine System *2019.3-2019.6*
Fundamentals of Search Engine Technology
- Using Heritrix to crawl large-scale news (12G webpages and documents) from Tsinghua News Websites.
- Building all-stack web service with Apache Tomcat to provide efficient Tsinghua news search service.
- Sending HTTP request to retrieve real-time data from Elastic Search ranking system built by Chaojun Xiao (project collaborator)

Air-Typing Prototype design and User Study *2018.9-2019.1*
Theories and Technologies of Human Computer Interaction
- Designing new typing input methods without keyboards
- Creating new algorithm to detect hand gestures and movements using Leap Motion
- Conducting user study to test typing accuracy and speed

Android News and Information Content Platform *2018.8-2018.9*
Java Program Design and Training
- Implemented an Android App based on Android Studio
- Connected Client App with Server System using C-S model and HTTP communication
- Applied MySQL Database to enable news storage and search

Smart Chinese Pinyin Recognition & Hand-write Number Recognition *2018.3-2018.6*
Introduction to Artificial Intelligence
- Converted Chinese Pinyin sequences to characters based on Bayes Theorem, achieved accuracy of 80%
- Recognized hand-write number using concurrent neural network(CNN), achieved accuracy of 99.2%

Progressive Photon Mapping(PPM) Rendering Algorithm *2018.3-2018.6*
Fundamentals of Computer Graphics
- Rendered images of virtual 3D space using rendering algorithms such as Ray Tracing and Progressive Photon Mapping

Skills

Programming Languages: C++/Python/Java/Node.js

Programming Tools: Matlab/Visual Studio/Qt/CUDA/PyTorch/Android Studio

Languages: English(TOFEL 115, GRE 329+3.5)

Research Interests

VR/AR/MR, novel input methods and future user interfaces

Wearable Computing with smartwatch, smart rings and smart clothes

Security and Privacy, Security issues in novel user interface

Human-AI interaction, and AI-assisted Interaction Technologies

Honors and awards

GPHL Scholarship for Academic Excellence(Top 20%), Tsinghua University *September, 2019*

SOHU Scholarship for Academic Excellence(Top 10%), Tsinghua University *September, 2017*

2nd Prize, National Olympiad in Informatics in Provinces(NOIP) *November, 2014*