

Education

School of Science and Engineering, The Chinese University of Hong Kong, Shenzhen

Shenzhen

B.Eng in Computer Science and Engineering

09/2016 - 06/2020

- GRE: 317 + 3.0
- TOEFL: Reading-30, Listening-28, Speaking-24, Writing-26, Total-108

Academic Experience

Game and Interactive Multimedia (GAIM) Laboratory

Part Time Research Assistant

09/2018 - 05/2020

- Write scraper to collect data from the Ethereum network and perform data mining and visualization;
- Design batch programs and scanners to audit source code of the smart contracts;
- Operate penetration tests on web applications and servers.

School of Science and Engineering

Teaching Assistant

05/2020 - 06/2020

- During the Bootcamp for first-year students who enrolled in computer engineering, I gave tutorials for elementary web development, including the concept of protocols, introduction to HTML and JavaScript, and basic use of Vue and Nodejs;
- Assist computer engineering majored freshmen in building their own projects.

Human-Cloud Systems Laboratory

Full Time Research Assistant

06/2020 - Present

- Conduct research projects;
- Participate in the other projects on human-computer interaction;
- Develop and maintain multiple systems, including the crowd-sourcing platform, laboratory and the ACM workshop on Game Systems' home-pages.

Publications

Blockchain Games: A Survey

Tian Min, Hanyi Wang, Yaoze Guo
and Wei Cai

IEEE CoG 2019

08/2019

- With the support of the blockchain systems, the cryptocurrency has changed the world of virtual assets. Digital games, especially those with massive multi-player scenarios, will be significantly impacted by this innovative technology. However, there are insufficient academic studies on this topic. In this work, we filled the blank by surveying the state-of-the-art blockchain games. We discussed the blockchain integration for games and then categorized existing blockchain games from the aspects of their genres and technical platforms. Moreover, by analyzing the industrial trend with a statistical approach, we envisioned the future of blockchain games from technological and commercial perspectives.

A Security Case Study for Blockchain Games

Tian Min and Wei Cai

IEEE GEM 2019

06/2019

- Blockchain gaming is an emerging entertainment paradigm. However, due to the immature blockchain technologies and its unsophisticated developers, blockchain games are still suffering from security issues. In this work, we analyzed the blockchain game architecture and revealed the possible penetration methods of cracking. We scanned more than 600 commercial blockchain games to summarize a security overview from the perspective of the web server and smart contract, respectively. We also conducted three case studies for blockchain games to show detailed vulnerability detection.

Portrait of Decentralized Application Users Based on Large-scale Ethereum Data

Tian Min and Wei Cai

ACM CHI 2021 (in Review)

Submitted in 09/2020

- Decentralized applications (DApp), applications that run on blockchain, is an emerging technology designed to solve the mistrust, privacy, and security problems. However, we notice that the HCI community has not conducted intensive studies on user behavior under this distinctive context. In this paper, we tried to depict a portrait of DApp users through open data. We took Ethereum as an example and built a series of datasets which contained more than 30 million transactions generated by 180 thousand addresses. We identified important behavioral characteristics of this population from real-world data analysis and discussed the profile of DApp users together with theoretical deduction. Furthermore, we implemented heuristics to demonstrate how these datasets can promote practical systems. We concluded our work by discussing future directions of studying human factors in this context, hoping this work can attract more research attention and support the development of the blockchain and DApp ecosystem.

ACM CHI 2021 (in Review)

Submitted in 09/2020

- Audio and video signals are two of the major media in a digital multimedia experience. The audiovisual asynchrony occurs during video coding, network transmission, and even hardware communication. Although the human brain is capable of distinguishing the source of stimuli and integrating perceptions, the large gap between audio and video of media still reduces the quality of experience. Previous studies of audiovisual integration are mainly in the laboratory with simplex stimuli, where the number of subjects is also limited. We present the field study of audiovisual perception integration of clips in general social media. Vast behavior data are collected by crowdsourcing. The investigation of data shows that specifically designed task modality can reflect audiovisual integration perception of crowd and contents of stimuli affect the distribution variance of crowd perception.

Internship & Social Experience

Tencent

Front-end Engineer

06/2019-08/2019

- Develop and maintain Tencent's PC game platform. Designed APIs, data structures, and user interfaces;
- Create reusable widgets and rearrange the documentation of the whole project for the successors.

the Student Union of CUHK(SZ)

Member, Head of Department

11/2016-04/2018

- Allocate human, material, and financial resources;
- Lead orientation events for freshmen in 2017;
- Receive visiting scholars and hold academic lectures.

Designer01 Studio

Co-founder, Designer

03/2018-PRESENT

- Give tutorial to the newcomers on Commercial Design and usage of Photoshop;
- Provide poster, logo, and material designs to the clubs, school departments, and companies.

Course Work & Project

Distributed & Parallel Computing Coursework

09/2019-12/2019

- Use MPI, OpenMP, and Pthread to write parallel programs, including odd-even transposition sort, Mandelbrot Set, N-body and heat distribution simulation in C++;
- Design experiments to analyze the performance of parallelism;
- Test their speedup factor and efficiency and display the outcomes in detailed reports.

Campus Social Network System

11/2018-08/2019

- We have developed a web application that utilizes a wholly decoupled architecture using Flask as back-end and Vue as front-end;
- The application covers almost all the functions that Twitter has.

Extracting Time Series Pattern from Blockchain User Log

PRESENT

- This research project is still in process. Analysis of action sequence data provides a new perspective to understand and model user behavior. Such data are often in the form of timestamped and labeled series of atomic user actions. In this project, we collect the transaction log of more than 2,000 active addresses on Ethereum and encode each transaction line into categorical data, identifying the typical user behavior of blockchain users.

Skills

Programming	Python, C/C++, JavaScript, HTML5, Java
Tools	Vue, Nodejs, Gits, AWS, OpenMP, VirtualBox, Weka
Interest	Human-Computer Interaction, Game Technology, Security
Others	Photoshop, Illustrator, Graphic design, \LaTeX