Chengrui Fang

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Interests: Generative AI, Blockchain, HCI

EDUCATION BACKGROUND

- **Zhejiang University** — Hangzhou, China
  Bachelor of Engineering (Honors) in Information Security — *Sep. 2020 – Expected Jun. 2024*
  - **Turing Class**: First honors class Chu Kochen Honors College
  - **Overall GPA**: **3.92**/4.00   Major GPA: 3.95/4.00
  - **Ranking**: **1**/31 Top **2%**
  - **Relevant Courses**: AI Security (96) System Security (96) Computer System I & II (96) Machine Learning (94)
  - **Minor**: Intensive Training Honors Program of Innovation and Entrepreneurship (ITP) at Chu Kochen Honors College (Top 40/5400)

PUBLICATION

[1] Sarisht Wadhwa, **Chengrui Fang**, Luca Zanolini, Aditya Asgaonkar, Francesco D'Amato, Fan Zhang, Kartik Nayak: ***Data Independent Order Policy Enforcement: Limitations and Solutions***, in submission to USENIX Security' 24.

RESEARCH EXPERIENCE

- **Implementation and Evaluation of AnimaguSwap** — Yale University, USA
  Research Assistant — *Jul. 2023 - Oct. 2023*
  Advisor: Prof. Fan Zhang, Assistant Professor at Yale University
  - Collaborated with faculties from Duke University and advisors from ETH Foundation. Leveraged **Typescript, Solidity, and Ethers.js** to independently implement AnimaguSwap, a protocol designed to counteract sandwich attacks by splitting transaction information and building distrust between parties using rational binding, on a forked Ethereum blockchain based on the **Hardhat** framework.
  - Experimented, detected, and evaluated the gas fee performance. Overhauled the whole system and complex data structures by employing BytesUtils library. Successfully reduced overall gas fees from 5x to **2.3x** of the baseline, striking a favorable balance between performance and defense.

- **A Method of Constructing Non-fungible Tokens from Physical Artworks** — Hangzhou, China
  Research Assistant — *Jun. 2022 - Jan. 2023*
  Advisor: Prof. Bingsheng Zhang, ZJU100 Professor at Zhejiang University
  - Utilized the **SIFT algorithm, Gabor filter, Fuzzy extractor, and Solidity** to construct a system for precise feature extraction from artworks, blockchain-based storage as Non-fungible Tokens ,and verification. Our extraction approach achieved higher accuracy, stable at around **95%** compared to previous state-of-the-art methods.

INDUSTRIAL EXPERIENCE

- **Prompts Lab [Github]** — Hangzhou, China
  Founder — *Sep. 2022 - Present*
  Advisor: Prof. Junbo Zhao, director of the Turing Class, serial entrepreneur, over 16,000 citations
  - **Creativity Party**: Led a team in developing an AI-powered gamified PBL (Project-Based Learning) educational software tailored for elementary school students. Developed courses designed to help students design their own websites, games, board games, and other gamified courses using AI technology. Developed AI-powered puzzle games such as Who is the Spy and 12 questions. Successfully benefitted over **10,000** children in China.
  - **Prompts Lego [Demo]**: Led team to launch Prompts Lego, **a gamified prompt writing tool that assists users in crafting high-quality structured prompts as easy as assembling lego pieces**. Designed the front-end interaction, deployed **CRA** framework to develop it independently and integrated ChatGPT API to our back-end in a 24-hour hackathon. Secured the **highest prize** among 32 teams, the only undergraduate team. Optimized **CDN** to improve front-end response and rendering speeds. Launched an alpha test that successfully attracted over **1000** users. Won the **championship** at the 2023 National University Student Hackathon. Accumulated total $5,000 in prize.

- **Planet** [Github] [Demo]: Led team to launch Planet, a digital copilot on the desktop like dynamic wallpapers. Employed gamified design to motivate users to learn. Completed product design, utilized the **Moralis** framework to develop the game assets in **Unity**, and integrated them with blockchain in **Solidity**. Developed a desktop launcher and intercepted mouse events to enable interaction like desktop wallpaper.
- Secured 1st prize in Tsinghua Blockchain Hackathon Metaverse Track and Alibaba's Ant Chain Hackathon **(1/100+)**, plus a $10k Alibaba cloud sponsorship at BNB Chain Hackathon. Accumulated a total of $5,000 in prize money. Invited as a guest speaker at the Alibaba Yunxi Conference 2022.

- **NFTGo** [Website]   Hangzhou, China
  Intern   *Mar. 2022 - Sep. 2022*
  - Gathered users' requirements and issues and solved users' problems with solid debugging techniques. Designed and deployed **React** to implement a Twitter plugin that reads user avatars and utilizes our API to locate corresponding crypto wallets on the blockchain, displaying the digital assets.
  - Independently developed Python scripts for tracking new NFT projects, cataloging over 500 projects, and created a dashboard for data visualization, aiding the investment team in decision-making.

ACADEMIC CONTEST

- **Privacy-Preserving Lending Credit Security Assessment System**   Hangzhou, China
  Team Leader   *Apr. 2021 - Jun. 2021*
  Advisor: Prof. Bingsheng Zhang, ZJU100 Professor at Zhejiang University
  - Introduced a new type of secure two-party computation protocol called Silent 2PC. Led a team to deploy **C++** to build a privacy-preserving lending credit assessment system using **Silent 2PC algorithms** based on **semi-trusted hardware Intel SGX** and **Garbled Circuit**in the National University Information Security Competition. Achieved a **usable but invisible** effect to protect user's privacy with higher accuracy.

LEADERSHIP AND DIVERSITY

- **ZJU Blockchain Association** [Twitter][Linkedin]   Hangzhou, China
  President   *Jul. 2023 - Present*
  - Led the association in organizing the ETH Hangzhou Hackathon, Crypto VC Course... securing **$30,000** in sponsorship from notable entities like ETH Foundation, Scroll, Mask Network... Accelerated community growth, exceeding **1,000** members and engaging over 5,000 participants. Increased our Twitter followers **10x**, from 100 to 1,000, boosting our international impact.

- **Influencer and Creator** [Bilibili]
  - Established a personal channel on Bilibili (Chinese Youtube) and GitHub, sharing insights into cutting-edge technology, entrepreneurship, career planning, and study. Achieved **800,000** video views and **22,000** followers. Developed an AI knowledge document and blogs with over **300,000** total reads. Invited by Chinese well-known tech media to share about AI, and the relevant articles have reached **50,000** views.

- **Hackathon Hunter**: Participated in over 10 hackathons, including international events like ETH NYC, ETH Online, ETH Hangzhou, ETH HK... building over ten amazing projects and accumulating over **$50,000** in prize money.

- **Artist**: Hip-hop lover, member of school's hip-hop club, member of campus streetwear brand called 'BUER' , a name derived from a lyric in our school's anthem that signifies 'dialectical unity relationship' in Chinese.

- **Basketball Player**: Engaged in basketball since childhood, playing as the point guard for my college basketball team.

- **Volunteer Tutor**: Collaborated with students from China's top four universities to participate in a teaching volunteer program at a primary school in Jiuquan, China. Photographed, produced documentaries, and taught film appreciation classes. Recognized as an **Outstanding Team** in Zhejiang University 2021 (Top 10).

AWARDS AND HONORS

First-Class Scholarship for Outstanding Students (**2%** Students Awarded), *ZJU*	*Oct. 2023/2022/2021*
Top 10 Outstanding Students in the College of Computer Science & Technology (**10/1500**), *ZJU*	*Jun. 2023*
Zhejiang Provincial Government Scholarship (**3%** Students Awarded), *ZJU*	*Oct. 2023/2022*
Top 10 Outstanding Students in the College of Engineering YunFeng(**10/1500**), *ZJU*	*Jun. 2021*