

# XiaoWu

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## EDUCATION

**Huazhong University of Science and Technology** 985 Sep 2023 - Jun 2026  
Cyber Science and Engineering Master School of Cyber Science and Engineering, HUST

**Huazhong University of Science and Technology** 985 Sep 2019 - Jun 2023  
Cyber Science and Engineering Bachelor School of Cyber Science and Engineering, HUST  
Wuhan

**GPA** : 3.94/4.00, **Comprehensive score**: 90.05 (6/124), **CET6**: 590

**Honours and Awards**: People's Scholarship 2022, University Scholarship for Three Outstanding Students 2021, Outstanding Youth League Member 2022, Outstanding Student Club Officer 2021, Outstanding Undergraduate Dormitory 2021

## PROJECT EXPERIENCE

**Research on Connect X based reinforcement learning algorithms** Dec 2022 - Dec 2022

1. Implementation of modeling, training and testing of background-learning algorithms Q-Learning, DQN in the context of Connect 4 quadrille;
2. Implementation of modeling, training, and testing of decision-time-learning algorithm Rollout in the context of Connect 4 quadrille-based games;
3. A comparative analysis of the training time, usage effects, and application scenarios of reinforcement learning background-learning and decision-time-learning, and an analysis of the more advanced decision-time-planning algorithm MCTS.

**Research and implementation of cryptographic card virtualization in cloud computing environment** Jun 2022 - Dec 2022

1. Implementing the preliminary hardware design of a highly concurrent SR-IOV standard cryptographic card;
2. Implementing one-to-many allocation of cryptographic cards to virtual machines in a cloud computing environment, developing corresponding drivers, realizing on-demand allocation of cryptographic resources and key management on cloud computing systems using QEMU-KVM virtual machines, and guaranteeing the correctness of cryptographic services during the dynamic migration of virtual machines;

**Power system customer behaviour analysis** Mar 2022 - Aug 2022

1. Investigates the significance of applying big data analytics in power systems for power customer behaviour analysis, which helps power companies in marketing and dispatching, "cutting peaks and filling valleys", and improving the profitability of power grids for example.
2. An integrated power system customer clustering approach using interval clustering, CURE hierarchical clustering and DBSCAN density clustering algorithms is implemented to effectively classify different kinds of customers;
3. Implemented an electricity system prediction algorithm using DeepAR, QRNN and ESM-CNN (original algorithm for team players) using Keras, Pytorch, to comprehensively predict customers' electricity consumption, stability of electricity consumption and other characteristics;
4. The front-end dynamic presentation of the clustering and prediction analysis results of the model was developed using the Django framework, and the project won *the second prize in the 2022 National Student Software Cup*.

**Bitcoin and Gold Investment Trading Strategy Study** Feb 2022 - Feb 2022

1. Implemented the use of LSTM to predict the trading information of gold and bitcoin over subsequent periods given the trading information of the past period;
2. Introducing economics-specific transaction evaluation criteria, the project uses the reinforcement learning algorithm PPO to learn and filter the transaction information predicted by the LSTM in order to give the best current trading strategy to maximise profit. The project was awarded the *H Prize in the 2022 US Collegiate Mathematical Modelling Competition*.

**Tensor-based neural network code prediction and misuse detection** Mar 2021 - Aug 2021

1. Extracting the AST, CFG, DDG and NCS matrix graphs of the source code using the joern tool, extracting the source code structure information from multiple angles and levels, and merging them into a graph tensor;
2. Implementing a composite network modeling of a single-layer convolutional graph neural network and a double-layer gated graph neural network using Pytorch, and using the extracted graph tensor to train the model so that it can perform predictive analysis on the token at the specified location of the code;
3. Front-end dynamic presentation of the predictive analysis results of the model, developed using the Django framework, which won *the first prize in the 2021 National Information Security Works Competition*.

## COMPETITION AWARDS

**The 14th National Student Information Security Competition - National First Prize** Mar 2021 - Aug 2021  
Team leader

**Second Prize of "China Software Cup" Student Software Design Competition** Mar 2022 - Aug 2022  
Team member

**2022 MCM/ICM Honorable Mention** Feb 2022 - Feb 2022  
Team leader

## SKILLS LIST

- Programming languages: Python, C, assembly, C++, JavaScript;
- Toolchain and common libraries: Git, Github, LLVM, Vmware, Ovirt, Pytorch, Keras, IDA;
- Familiar with basic web security, PWN, cryptography, reverse knowledge, currently working on software analysis related areas, with some basic knowledge of LLVM and Fuzzing.

## SUMMARY

I am in my fourth year of university and have a strong desire to pursue a **PhD**. I have a good overall performance in school, I am enthusiastic and fit in well with the group. I am interested in academics, I read papers and blogs, and I am willing to learn new things. I am used to reading papers and blogs, and I am willing to learn new things. I love basketball, I like to socialise, and I hope to progress and grow in a group.

Here is my blog: <https://shawdox.github.io/>