

# XINGJIAN ZENG

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## EDUCATION

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### Southeast University

M.Eng in Cyber Science and Engineering

Advisor: Prof. Yali Yuan

Nanjing, China

Sept. 2023 - Present

### Southeast University

B.Sc in Cyber Science and Engineering

Nanjing, China

Sept. 2019 - July. 2023

## RESEARCH EXPERIENCE

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### Learning from Massive Highly Imbalanced Data via Hybrid-sampling with Self-paced Curriculum. [Code](#)

- Manuscript under preparation for submission to leading conferences/journals.
- Focusing on issues like **intra-class imbalance**, **class-overlapping** and **inter-class imbalance**, a hybrid-sampling based **ensemble imbalance learning** framework, SCHE, is proposed in this paper for boosting categorical classifiers with massive highly imbalanced data. Inspired by a classical deep learning fashion: Self-paced Curriculum Learning, SCHE adaptively resamples from imbalanced data for coupled classifiers based on prior knowledge and learning-feedback.
- Implemented SCHE with **Python** and conducted a bunch of experiments on massive highly imbalanced datasets (as well as imbalanced datasets with medium, and small sizes) in various application domains. SCHE outperforms classical imbalanced learning algorithms as well as newly proposed influential methods on several criteria (AUPRC, F1, GMean, MCC), with acceptable cost.

### Research on Imbalanced Learning Methods for Credit Card Fraud Detection

- Graduation project, including summarizing research fields and designing a novel method.
- Implemented a novel imbalance learning method with **Python**. The proposed method aids under-sampling based **ensemble imbalanced learning** (EIL) method by carefully generating an “appropriate” amount of minority data (minority data refers to data within the class with fewer amount of samples than other classes).
- Clustering technique is utilized to help determine the “appropriate” generation of minority data. The proposed method outperforms classical imbalanced learning methods on credit card fraud dataset.

## RESEARCH INTERESTS

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- **AI Security**. Including federal learning systems, blockchain security, and LLM security
- **Attack/defence methods on encrypted network (Tor, etc)**. Including **website fingerprinting** (WF), **flow correlation attack** and according defence measures.
- **Data mining**. Including **imbalance learning** (IL) and **anomaly detection** (AD).

## PERSONAL SUMMARY

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- Experienced with **Python**, regularly using it for various projects.
- Experienced in literature review and information retrieval.
- Quick learner, adept at immersing myself in new fields and mastering them rapidly.
- Driven by a passion for research, eager to uncover and address novel problems with innovative solutions.