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# Zhenyu Liu

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Address: No. 4, Sec. 2, North Jianshe Rd., Chengdu, China, UESTC

## Education Background

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**University of Electronic Science and Technology of China**, Chengdu, China Sept. 2019- Jul. 2023(Expected)

- Bachelor of Engineering in Software Engineering (Elite Program), GPA:3.92/4.0
- Core Courses: Cloud Computing (96/100), Principles of Computer Organization and Architecture (93/100), Artificial Intelligence (93/100), Operating System (92/100), Big Data Analysis and Intelligence Computing (91/100), Compiling Technique (90/100), Probability and Mathematical Statistics (90/100)

## Honors and Scholarships

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- 2021, National Second Prize of China Computer Design Competition
- 2021, Provincial First Prize of China College Students' 'Internet+' Innovation Competition
- 2019&2020, Second Class Scholarship (Top 10%)

## Publication

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- Wei Jiang, Chen Bian, Jinyu Zhan, **Zhenyu Liu**, Hong Lei, Ziwei Song and Xiangyu Wen, "Self-Organizing and Parallel-Process Driven Fast Generation of Adversarial Examples for 3D Point Clouds", Design Automation Conference 2022 - Poster

## Research Experience

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### Transformer-based GAN for Sketch-to-Point Cloud Generation

Jan. 2022 - Present

*Advisor: Wei Jiang, Associate Professor, MobileAI Lab, UESTC*

- Designed a new transformer-based sketch feature extractor for the initialization of the point cloud
- Proposed a new fast GAN architecture of point cloud
- Deployment on the hardware platform with limited computing resources

### Fast Generation of Adversarial Examples for 3D Point Clouds

Aug. 2021 - Feb. 2022

*Advisor: Wei Jiang, Associate Professor, MobileAI Lab, UESTC*

- Designed a global feature extraction network to process point cloud input with group coding to speed up the coding process and reduce the resource usage
- Proposed a dual-process point cloud restoration network to generate point clouds with adversarial properties
- Finally, achieved up to **511%** faster with only **34.19%** GPU resource usage comparing with existing methods. And increase up to **12%** in success rate of attacking unseen networks.
- Paper published on **Design Automation Conference 2022** Poster

### Quantization and Efficient Deployment of Neural Networks

Dec. 2020 - Dec. 2021

*Advisor: Jinyu Zhan, Associate Professor, MobileAI Lab, UESTC*

- Used Binary Neural Network for quantization
- Designed pipelining and data parallelism for hardware to improve inference speed
- Verified the solutions on Xilinx's Zynq UltraScale+ MPSoC ZCU102 board and deployed a neural network for analyzing radar echoes on ZED-7020 with limited computing resources
- Finally reduced both the energy consumption and the circuit areas significantly without affecting the performance

## Skills and Others

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**Language:** Chinese (Native), English (Fluent)

**Computer and Framework and Tools:** Python, Verilog, PyTorch, SQL, C, Java, R, LATEX, Git, TensorFlow.