Xinyu **Yang**

Carnegie Mellon University

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Education

Carnegie Mellon University   *Pittsburgh, US*

Ph.D. student in Electrical and Computer Engineering   *Aug. 2023 - Present*

Shanghai Jiao Tong University   *Shanghai, China*

Bachelor of Engineering in Computer Science, ACM Honors Class   *Sept. 2019 - Jun. 2023*

- **ACM Honors Class** is an elite CS program for students ranked in the top 5% with aspirations in research.
- Overall GPA: **91.26 / 100**, Ranking: **1 / 29**

Research Interests

Efficient Machine Learning, Machine Learning and Systems, Large Language Model, Autonomous Driving.

Publications

* indicates equal contributions

FlatFormer: Flattened Window Attention for Efficient Point Cloud Transformer   *CVPR 2023*

Zhijian Liu, **Xinyu Yang***, Haotian Tang, Shang Yang and Song Han*

BEVFusion: Multi-Task Multi-Sensor Fusion with Unified Bird's-Eye View Representation   *ICRA 2023*

Zhijian Liu, Haotian Tang*, Alexander Amini, **Xinyu Yang**, Huizi Mao, Daniela Rus and Song Han*

Variational Inference for Training Graph Neural Networks in Low-Data Regime through   *KDD 2022*
Joint Structure-Label Estimation

Danning Lao, **Xinyu Yang***, Qitian Wu and Junchi Yan*

Improving Out-of-Domain Generalization with Domain Relations   *Preprint*

Huaxiu Yao, **Xinyu Yang***, Xinyi Pan, Shengchao Liu, Pang Wei Koh and Chelsea Finn*

Multi-domain Long-Tailed Learning By Augmenting Disentangled Representations   *TMLR*

Xinyu Yang*, Huaxiu Yao*, Allan Zhou and Chelsea Finn*

Honors & Awards

Best Bachelor Thesis **(Top 1%, Shanghai Jiao Tong University)**	*2023*
National Scholarship of P.R. China **(Top 0.2%, nationwide)**	*2021, 2022*
SenseTime Scholarship **(Top 30 undergraduate in the field of AI, nationwide)**	*2021*
Zhiyuan Scholarship **(35 winners each year, Shanghai Jiao Tong University)**	*2023*
Han-Ying-Ju-Hua Scholarship **(15 winners each year, Shanghai Jiao Tong University)**	*2021*
Fan Hsu-Chi Scholarship **(10 winners each year, Shanghai Jiao Tong University)**	*2020*
Academic Excellence Scholarship **(Top 5%, Shanghai Jiao Tong University)**	*2020, 2021, 2022*
Zhiyuan Honorary Scholarship	*2019, 2020, 2021*

Selected Projects

Mx* Compiler   *Java*

Assembly Language, Code Generation and Optimization, LLVM IR, ANTLR   *Jan. 2021 - Jun. 2021*

- Developed a compiler for C-and-Java-like language (Mx*) to NASM with **10k+ lines of codes**, which performance is **close to GCC-O2**.
- Implemented optimization algorithms such as sparse conditional constant propagation, function inline and static single assignment.

Traffic Signal Controller   *Python*

Reinforcement Learning, DQN, City-scale Road Network   *Jan. 2021 - Jun. 2021*

- Coursework of "Machine Learning" (31st place in *KDD CUP 2021 - City Brain Challenge*)
- Designed an agent that coordinates the traffic signals to maximize number of vehicles served while maintaining an acceptable delay.

RISC-V CPU *Verilog*
Computer Architecture, Tomasulo, FPGA Programming *Nov. 2020 - Dec. 2020*
- Designed a RISC-V CPU that supports RV32I Base Integer Instruction Set V2.0 (2.1-2.7).
- Implemented a **Tomasulo's algorithm** with load/store buffer that is more efficient than a five-stage pipelined one.

Teaching Experience

Teaching Assistant	*Compiler Design and Implementation*	*Fall 2021*
Teaching Assistant	*Principle and Practice of Computer Algorithms*	*Summer 2021*
Teaching Assistant	*Data Structures*	*Spring 2021*

Skills

Programming	*Python, C++, JAVA, Golang, Verilog*
Tools and Frameworks	*Git, PyTorch, TensorFlow, Docker, Vivado, Markdown, LaTeX*
Languages	*Mandarin (native), English (TOEFL: 109)*