

Ziming Liu, Master of Computer Science

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Education

- Sep 2018 – Jul 2020 **Master of Engineering,**
Beijing Institute of Technology (BIT)
GPA: 3.44/4, average score: 85.35/100
Tongyou Scholarship (About 13 at BIT)
Graduate with "**Outstanding Graduates**" 7%,
Admission exam ranking: 11/161.
Thesis (Score: 89.2): *Action Recognition with comprehensive context information.*
- Sep 2014 – Jul 2018 **Bachelor of Engineering,**
Changsha University of Science & Technology
GPA: 3.22/4, average score: 82/100
First Prize scholarship 2%
Graduate with "**Outstanding Thesis Award**" (1%)
Thesis (Score: 93.0): *Multi-PCA fault detection system with prior knowledge of built equipment.*
- Aug 2019 **Summer School on Innovation**
Polytechnic University of Madrid.
Finish it with first awarded project.

Employment History

- Oct 2021 – Dec 2021 **Seminar Committee Member. INRIA.** Nice-Sophia Antipolis, France.
- Dec 2020 – Nov 2021 **Computer Vision Algorithm Research. INRIA.** Visual perception for the auto-driving, Nice-Sophia Antipolis, France.
- July, 2020 – Oct, 2020 **Computer vision Algorithm Research. Meituan Inc.** Short-video understanding group, Visual Intelligence Center, AI platform, (Beijing, China)
- July, 2016 – August, 2016 **Operations Intern. Green Hunan (Non-Government Organization)**
Water Protection Group, (Changsha & Yueyang, China)

Research Publications

Conference Proceedings

- 1 Liu, Z., Gao, G., Sun, L., & Fang, Z. (2021). Hrdnet: High-resolution detection network for small objects, In *Proceedings of the international conference on multimedia and expo (ICME Oral Presentation)*. IEEE.
- 2 Liu, Z., Gao, G., Sun, L., & Fang, L. (2020). Ipg-net: Image pyramid guidance network for small object detection, In *Proceedings of the conference on computer vision and pattern recognition (CVPR) workshops*. IEEE.
- 3 Du, D., Zhu, P., Wen, L., Bian, X., Lin, H., Hu, Q., Peng, & Ziming, L. (2019). Visdrone-det2019: The vision meets drone object detection in image challenge results, In *Proceedings of the international conference on computer vision (ICCV) workshops*. IEEE.
- 4 Zhu, P., Du, D., Wen, L., Bian, X., Ling, H., Hu, Q., Peng, T., Zheng, J., Wang, X., Zhang, Y., Bo, L., Shi, H., Zhu, R., Dong, B., Reddy Pailla, D., Ni, F., Gao, G., Liu, G., Xiong, H., ... Liu, Z. (2019). Visdrone-vid2019: The vision meets drone object detection in video challenge results, In *Proceedings of the international conference on computer vision (ICCV) workshops*. IEEE.
- 5 Liu, Z., Gao, G., Qin, A. K., Wu, T., & Liu, C. H. (2019). Action recognition with bootstrapping based long-range temporal context attention, In *Proceedings of the 27th acm international conference on multimedia (ACM MultiMedia)*. ACM.


Journal Articles

- 1 Liu, Z., Li, J., Gao, G., & Qin, A. K. (2020). Temporal memory network towards real-time video understanding. *IEEE Access*, 8, 223837–223847.





I also have 3 new papers being submitted.

Project List

Stereo depth and visual odometry




- 2021  **Stereo depth estimation and visual odometry for autonomous robots visual perception** (submitting a paper to ICRA2022 conference) (finished at INRIA).

Video analysis and understanding, unsupervised learning


- 2020-now  **Video action recognition with knowledge transfer from image data to video data** (submitting a paper to AAAI2022 conference) (finished at Meituan company, Beijing).
-  **Video action recognition with unsupervised contrastive loss** (submitting a paper to IEEE TNNLS) (finished at BIT).
- 2019-2020  **Temporal memory network towards real-time video understanding** | IEEE Access paper link (finished at BIT).
- 2019  **Video action recognition with long-range attention and bootstrapping sampling** | ACM MultiMedia2019 paper link (finished at BIT).

Project List (continued)




Object Detection

- 2020-2021  **Small object detection with High-resolution and Multi-scale** | ICME2021 Oral, paper link (finished at BIT).
- 2019-2020  **Small object detection with image pyramid** | CVPRWorkshop2020 paper link (finished at BIT).
- 2019  **Small object detection on drone (UAV) image and video data** | ICCVWorkshop2019 paper 1, paper 2 | 2nd ranking in this workshop competition (finished at BIT).




Time series data

- 2018  **Multi-PCA based fault detection system for time-related building equipment data** | best thesis award | github, arxiv (finished at CSUST).

Talks and Posters




- July, 2021  **Oral presentation**, Session O28 multimedia analysis and understanding, ICME2021 Conference.
- Oct, 2019  **Academic Sharing**, UPM&BIT Academic Exchange Meeting.
-  **Short Presentation & Poster**, Session 2A: Knowledge Processing & Action Analysis, ACM MM2019 Conference.

Skills

- Coding  Good at Python, C++, C; Experienced in Java, Matlab
- Deep learning Framework  Good at Pytorch, experienced in Tensorflow 1.x
- Others  Linux, OpenCV, torch C++ lib












Miscellaneous Experience

Language


-  **English: Proficient.**
Certified 6.5 in IELTS test: Reading 7.5, Writing 6.5, speaking 6.0.
-  **Chinese: Native.**
-  **French: Beginner.**

Miscellaneous Experience (continued)




Awards and Achievements

- July, 2020  **Tongyou Scholarship** (13 at BIT).
- June, 2020  **the Title of Outstanding Graduates at BIT.**
- Oct, 2019  **Ranking in the list of First Prize Scholarship.**
- Aug, 2019  **Winner completion of the BIT&UPM international summer school on innovation with the 1st award.**
- Oct, 2019  **2nd place & Honorable mention award**, Video Detection task, ICCV2019 VisDrone workshop challenge.
-  **BIT Student Conference Travel Grant**
- June, 2018  **Outstanding thesis award** 2/98.
- Mar, 2018  **Honorable mention award**, in American Mathematical Contest In Modeling MCM/ICM.
- Oct, 2017  **3rd Prize** in China National Mathematics Contest in Modeling.
- Oct, 2016  **2nd Prize** in undergraduate student research project.
-  **First Prize scholarship** .



Teaching

- summer 2015  Teaching assistant of a course over 90 students

Student mentoring

- 2019  Jinyang Li (master student, BIT)
- 2021  Guangjun Zhang (master student, BIT)
-  Hava Chaptoukaev (master student, UCA)

Courses

-  **Mathematics:** Matrix Analysis, Advanced Mathematics (calculus), Linear Algebra, Probability & Statistics.
-  **Machine Learning:** Statistics Pattern Recognition, Matrix Analysis, Computer Vision, Artificial Intelligence and Big Data Module, Robot and Intelligent Manufacturing Module.

References

Prof. Guangyu Gao

(master supervisor, CHINA)

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