



ZONGYU GUO

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Full of curiosity at the age of 25

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EDUCATION

Visiting Student Computational and Biological Learning Lab University of Cambridge	Oct. 2022 – Sept. 2023 Cambridge, UK
Ph.D. Information and Communication Engineering University of Science and Technology of China (USTC)	Sept. 2019 – June 2024 Hefei, China
Bachelor Electronic Engineering and Information Science University of Science and Technology of China (USTC)	Sept. 2015 – June 2019 Hefei, China

IMPORTANT EXPERIENCE

- I'm a PhD candidate at the University of Science and Technology of China (USTC) advised by Prof. Zhibo Chen <[homepage](#)>/<[scholar](#)>. I am expected to receive my PhD degree in June, 2024.
- I am now visiting the machine learning group in the computational and biological learning lab at the University of Cambridge, advised by Prof. José Miguel Hernández-Lobato <[homepage](#)>/<[scholar](#)>, funded by the outstanding PhD program in USTC. I started remote collaboration with Miguel from Oct. 2022 to Feb. 2023 and I am now having an in-person visit from Mar. 2023 to Sept. 2023.
- I had an internship in Microsoft Research Asia (MSRA) in the intelligent multimedia (IM) group, working together with mentor Cuiling Lan <[scholar](#)>, from Dec. 2021 to Dec. 2022.

RESEARCH

As a researcher in machine learning, I have been focused on developing effective and practical methods for **neural compression** from the view of **probabilistic generative models**.

My knowledge and interest span multiple areas, including **implicit neural representations** for **multi-modality data**, and **probabilistic generative models**, including VAEs, normalizing flows, autoregressive models and diffusion models. Recognizing that probabilistic generative models can also function as compression models, I possess a comprehensive understanding of the aforementioned generative models, particularly from a theoretical perspective.

I am actively looking for a position in AI research, not limited to the topics of neural compression, probabilistic generative models and the applications of LLMs with multi-modality data.

SELECTED PUBLICATIONS

Full paper list can be found in my google scholar page <[scholar](#)>. Over 500 citations (Dec, 2023).

Conferences:

- Zongyu Guo**#, Gergely Flamich#, Jiajun He, Zhibo Chen, José Miguel Hernández-Lobato. “Compression with Bayesian Implicit Neural Representations”. **NeurIPS 2023 Spotlight**.
- Zongyu Guo**, Cuiling Lan, Zhizheng Zhang, Yan Lu, Zhibo Chen*. “Versatile Neural Process for Learning Implicit Neural Representation”. In *Proceedings of the 11th International Conference on Representation Learning*, 2021. (ICLR 2023).

- Runsen Feng, **Zongyu Guo**, Weiping Li, Zhibo Chen*. “NVTCT: Nonlinear Vector Transform Coding”. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2023. (**CVPR 2023**).
- **Zongyu Guo**, Zhizheng Zhang, Runsen Feng, Zhibo Chen*. “Soft then Hard: Rethinking the Quantization in Neural Image Compression”. In *Proceedings of the 38th International Conference on Machine Learning*, 2021. (**ICML 2021**).
- **Zongyu Guo**#, Yaojun Wu#, Runsen Feng, Zhizheng Zhang, Zhibo Chen*. “3-D Context Entropy Model for Improved Practical Image Compression”. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops*, 2020. (**CVPR Workshop 2020**).
- **Zongyu Guo**, Zhibo Chen*, Tao Yu, Jiale Chen, Sen Liu. “Progressive Image Inpainting with Full-Resolution Residual Network”. In *Proceedings of the 27th ACM International Conference on Multimedia*. (**ACM MM 2019**). **Oral** paper with 15 minutes in-person presentation.

Journals:

- **Zongyu Guo**#, Runsen Feng#, Zhizheng Zhang, Xin Jin, Zhibo Chen*. “Learning Cross-Scale Weighted Prediction for Efficient Neural Video Compression”. *IEEE Transactions on Image Processing (TIP)*, recently accepted in June 2023.
- **Zongyu Guo**, Zhizheng Zhang, Runsen Feng, Zhibo Chen*. “Causal Contextual Prediction for Learned Image Compression”. *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)*.

HONORS AND AWARDS

Outstanding PhD funding program	Autumn, 2022
Only seven students were granted for international visiting in 2023, selected from the whole USTC.	
National Scholarship	Autumn 2021, 2020
The top honor in USTC for postgraduate students (<3%). Among my peers, I am the only student achieving this honor in two consecutive years.	
Outstanding Undergraduate Student	Spring 2019
For undergraduate students (< 10%) in USTC.	
Excellent Student Scholarship Silver Prize	Autumn 2018
For undergraduate students (< 15%) in USTC.	

MORE EXPERIENCE

Internship in Microsoft Research Asia (MSRA).	Dec. 2021 – Nov. 2022
Intelligent Multimedia Group.	Beijing, China
Internship in JD AI Lab.	Dec. 2018 – Apr. 2019
Multimedia Group.	Beijing, China
Seminar in Far Eastern Federal University (FEFU)	June 2017 – July 2017
Seminar for young student leaders from pacific-rim universities.	Vladivostok, Russia

SERVICE

Serve as a reviewer for journals including TIP, TNNLS, TCSVT, Neurocomputing.
 Serve as a reviewer for conferences including NeurIPS, AAAI, VCIP etc.
 Work as a teaching assistant (TA) for the Elements of Video Technology (2021 Postgraduate Student Course).