Mingrui Zhang

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Education

- **Tsinghua University** Sep. 2020 – Jun. 2023(exp.)
  - Master student at the Institute of Computer Graphics and Computer Aided Design, School of Software
  - GPA: 3.61/4.0. My research interests include deep learning, computer vision and computer graphics.
- **Beijing University of Posts and Telecommunications** Sep. 2016 – Jun. 2020
  - B.S (Hons.) in Computer Science and Technology. Rank: 6/321 (TOP 1.87%)
- **University of Cambridge** Jul. 2018 – Aug. 2018
  - Cambridge Summer Programme in Sidney Sussex College. Grade: 89.8/100 (Credits: 38)

Honors & Awards

- **Chiang Chen Scholarship** 2022
- **Outstanding Graduates of Beijing, Outstanding Bachelor Thesis Award** 2020
- **First Prize Scholarship (TOP 1.9%), Merit Student** 2018
- **China Mobile (CMCC) Scholarship (TOP 1.5%), Excellent Student Cadre** 2017

Experience

- **Video Technology Team, Kwai Technology Co., Ltd.** *Research Intern* 2020.02 – 2021.08(1yr. 7mo.)
  Research Topics: automatic photo collage and image quality assessment
  - Study video summarization methods using automatic photo collage. Achieve real time collage generation with spatial and temporal optimization on the short video datasets.
  - Design deep aesthetic network for collage feature extraction and propose a sequential decision model based on Deep Reinforcement Learning (DRL) to achieve high quality collage generation.
  - Construct a million-scale image quality dataset with web data collection, improve the mean of opinion (MOS) score prediction accuracy of image quality assessment (IQA) task by up to 5% with self-supervised learning (SSL) model pretrained on the proposed IQA dataset.
- **Y-Tech, Kwai Technology Co., Ltd.** *Research Intern* 2021.10 – Present(1yr.5mo.)
  Research Topics: 3D human scene interaction and human motion generation (motion parameterization)
  - Develop a motion adaptation algorithm for the Human Scene Interaction (HSI) problem using MotionBuilder, allowing characters to automatically adapt to their environment without the need for additional training data.
  - Optimize the interactions between virtual characters and the environment in live video feed, improve the naturalness and expressiveness of character motion in real 3D scenes.
  - Create motion parameterization algorithm for semantics-preserving motion blending from multiple regular animation clips, design a global optimization algorithm to improve the naturalness of spatial composition results.

Publications

- **Aesthetic Photo Collage with Deep Reinforcement Learning.** *IEEE Trans. Multimedia* 2022
  - Authors: **Mingrui Zhang**, Mading Li, Li Chen*, Jiahao Yu. [web][pdf]

  SoftCollage: A Differentiable Probabilistic Tree Generator for Image Collage. *CVPR* 2022
  - Authors: Jiahao Yu, Li Chen*, **Mingrui Zhang**, Mading Li. [web][pdf]

Skills

- **Programming**: Python, C/C++, MATLAB, LaTeX.
- **Frameworks**: PyTorch, NumPy, OpenCV, TensorFlow.
- **Courses(Grade)**: Data structure(A), Advanced Mathematics(A), Principles of Artificial Intelligence(A), Operating system(A), Digital Image Processing(A), Deep Learning(A-), Object-Oriented Programming(A)
- **Languages**: English(CET4: 614, CET6: 588, NECCS First Prize), Mandarin(Native speaker)