curriculum vitæ of
Chuan Guo
https://ericguo5513.github.io/ cguo2@snapchat.com
+1 551 799 2860 google scholar
Last update: 06/24

Research Interests

Fields: Computer Vision, Computer Graphics, Machine Learning
Topics: 3D AIGC, Digital Human, Generative AI, 3D Motion Modeling, 3D Animation

Education

Sep. 2019 – Jan. 2024 **Ph.D.** in Software Engineering and Intelligent Systems — University of Alberta, Canada
Dept. of Electrical and Computer Engineering
- Advisor: Prof. Li Cheng
- Thesis: Deep Learning for 3D Human Action Modeling and Understanding

Sep. 2013 – Jul. 2017 **B.Eng.** in Software Engineering (Pilot Program) — Jilin University, China
College of Software

Employment

May 2024 – Present Snap Research, Snap Inc. — New York, USA
Research Scientist

Sep. 2019 – Jan. 2024 Vision and Learning Lab, University of Alberta — Edmonton, Canada
Research Assistant. Supervisor: Prof. Li Cheng

Nov. 2022 – Dec. 2023 Huawei Technologies Canada Co., Ltd. — Markham, Canada
Associate Researcher, Intern. Mentor: Dr. Juwei Lu

Jan. 2021 – Jan. 2022 Huawei Technologies Canada Co., Ltd. — Edmonton, Canada
Associate Researcher, Intern. Mentor: Wei Lu

Apr. 2019 – Aug. 2019 Wangle Hulian Beijing Technology Co.Ltd — Beijing, China
Algorithm Engineer, Intern. Mentor: Haibo Gu

Oct. 2016 – Mar. 2019 Institute of Computing Technology, Chinese Academy of Sciences — Beijing, China
Research Assistant. Mentor: Dr. Juan Cao

Projects

May 2024 – Present **Generative AI for 3D Character Animation** — Snap Research

1. Building large-scale 3D motion data for learning large motion models.
2. Design, implement, and experiment AI models that enables automated production of 3D animation of expressive styles and precise control.

Jan. 2021 – Dec. 2023 **Language Grounded 3D Human Behavior Modeling and Understanding** — University of Alberta

1. Aimed to synthesize 3d human behaviors from text descriptions or in the inverse way, i.e. understand human behaviors through texts.
2. Annotated so-far the largest motion-language dataset, with 15k motions captioned by 50k descriptions.
3. A novel approach that generates realistic human motion with temporal VAE and RNNs (Demo) [7].
4. Built mutual mappings between 3D human motions and texts, motion captioning and text2motion generation respectively, using vector quantization and Transformers. [5]
5. A motion generator and editor based on generative masked Transformer and residual quantization. [1].

Feb. 2023 – Dec. 2023 **Generative Human Motion Stylization** — Huawei Technologies Canada

1. The goal is to stylize an existing 3D motion with style clues from for example, motion, label or priors.
2. Found that stylizing motion in latent space is more efficient than in pose space.
3. Designed a generative framework which enables diverse and novel stylization (Demo) [2].

Sep. 2019 – Jan. 2021 **3D Human Action and Video Generation** — University of Alberta

1. The topic is to generate human behaviors conditioned on action categories.
2. Synthesized visually pleasing human motions by a novel VAE-based (i.e. Variational AutoEncoder) network with Lie pose representation, and curated own dataset (Demo Webpage) [11].
3. Built up a novel pipeline to generate human videos from action type & single image with graphics & machine learning apparatus (Demo) [9].

Oct. 2016 – Mar. 2019 **News Credibility Evaluation on Social Media** ICT, Chinese Academy of Sciences

1. Designed, implemented and deployed algorithms for a real-time online news verification system.
2. Exploited the roles of emotion, multimodal contents and propagation for news credibility [12].
3. Developed a distributed crawling system that collected over 10 million posts from Weibo platform.

Honors & Contest

Jul. 2023	**J Gordin Kaplan Graduate Student Award** (1500 CAD)	University of Alberta
Feb. 2023	**Alberta Innovate Graduate Scholarship** (31000 CAD)	Alberta Province
Nov. 2021	**Alberta Graduate Excellence Scholarship** (12000 CAD)	Alberta Province
Oct. 2016	**Qihoo 360 Scholarship** (top 5 out of 1000, 10000 RMB)	Jilin University
Nov. 2015	**National Scholarship** (top 5 out of 281, 8000 RMB)	Ministry of Education
Dec. 2015	Excellent Student of Jilin University	Jilin University
2014, 2015	Second-level Scholarship of Jilin University	Jilin University
2015, 2016	College Excellent Student	Jilin University
May 2015	The 1_{st} Prize in *Jilin Provincial Mathematical Contest in Modeling*	Jilin Province

Publications

[1] **Guo, Chuan**, Yuxuan Mu, Muhammad Gohar Javed, Sen Wang, Li Cheng. "*MoMask: Generative Masked Modeling of 3D Human Motions*." In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR). 2024. (Accept rate: 23.6%)

[2] **Guo, Chuan**, Yuxuan Mu, Xinxin Zuo, Peng Dai, Youliang Yan, Juwei Lu, Li Cheng. "*Generative Human Motion Stylization in Latent Space*." In International Conference on Learning Representations (ICLR). 2024. (Accept rate: 31%)

[3] Nhat M. Hoang, **Chuan Guo**, Michael Bi Mi and Kehong Gong. "*MotionMix: Weakly-Supervised Diffusion for Controllable Motion Generation.*" The 38th Annual AAAI Conference on Artificial Intelligence (AAAI). 2024 (Accept rate: 23.75%)

[4] Gong, Kehong, Dongze Lian, Heng Chang, **Chuan Guo**, Xinxin Zuo, Zihang Jang and Xinchao Wang. "*TM2D: Bimodality Driven 3D Dance Generation via Music-Text Integration*." IEEE International Conference on Computer Vision. 2023. (Accept rate: 26.7%)

[5] **Guo, Chuan**, Xinxin Zuo, Sen Wang, and Li Cheng. "*TM2T: Stochastic and Tokenized Modeling for the Reciprocal Generation of 3D Human Motions and Texts*." European conference on computer vision (ECCV). 2022. (Accept rate: 28%)

[6] Zou, Shihao, Xinxin Zuo, Sen Wang, Yiming Qian, **Chuan Guo**, and Li Cheng. "*Human Pose and Shape Estimation from Single Polarization Images*." IEEE Transactions on Multimedia (2022).

[7] **Guo, Chuan**, Shihao Zou, Xinxin Zuo, Sen Wang, Wei Ji, Xingyu Li, and Li Cheng. "*Generating Diverse and Natural 3D Human Motion from Text.*" In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR). 2022. (Accept rate: 25.3%)

[8] Ji, Wei, Jingjing Li, Qi Bi, **Chuan Guo**, Jie Liu, and Li Cheng. "*Promoting Saliency From Depth: Deep Unsupervised RGB-D Saliency Detection.*" In International Conference on Learning Representations (ICLR). 2022. (Accept rate: 32%)

[9] **Guo, Chuan**, Xinxin Zuo, Sen Wang, Xinshuang Liu, Shihao Zou, Minglun Gong, and Li Cheng. "*Action2video: Generating Videos of Human 3D Actions.*" International Journal of Computer Vision (2022): 1-31.

[10] Zou, Shihao, **Chuan Guo**, Xinxin Zuo, Sen Wang, Pengyu Wang, Xiaoqin Hu, Shoushun Chen, Minglun Gong, Li Cheng. "*EventHPE: Event-based 3-D Human Pose and Shape Estimation.*" IEEE International Conference on Computer Vision (ICCV), pp. 10996-11005. 2021. (Accept rate: 25.9%)

[11] **Guo, Chuan**, Xinxin Zuo, Sen Wang, Shihao Zou, Qingyao Sun, Annan Deng, Minglun Gong, and Li Cheng. "*Action2Motion: Conditioned Generation of 3D Human Motions.*" In Proceedings of the 28th ACM International Conference on Multimedia, pp. 2021-2029. 2020. (Accept rate: 27.8%)

[12] **Guo, Chuan**, Juan Cao, Xueyao Zhang, Kai Shu, and Miao Yu. "*Exploiting emotions for fake news detection on social media.*" arXiv preprint arXiv:1903.01728 (2019).

[13] Jilin University. Landscapes Recommendation System V1.0[CP/CD]. Copyright Number: 2015SR259762

Academic Talks

Feb. 2024 **Invited Speaker at MiHoYo** Montreal, Canada
Topic: 3D Human Motion Generation with Discrete Representation

Dec. 2023 **Invited Speaker at Institute of Computing Technology, CAS** Beijing, China
Topic: 3D Human Motion Generation with Discrete Representation

Dec. 2023 **Invited Speaker at Alberta Machine Intelligence Institute, AI Seminar** Alberta, Canada
Topic: Exploring 3D Human Motions with Deep Learning

Apr. 2023 **Invited Speaker at Computer Vision Meetup** Alberta, Canada
Topic: Generating Diverse and Natural 3D Human Motion from Texts

Dec. 2022 **Invited Speaker at AI TIME Seminar.** China
Topic: Reciprocal Generation of Human Motions and Texts

Professional Service

Organizer Co-Organizer, CVPR 2024 Workshop on Human Motion Generation 2024

Reviewer

Conference Reviewer

SIGGRAPH Asia 2024, SIGGRAPH 2024, ECCV 2024, ICML 2024, ICLR 2024, CVPR 2023-2024, AAAI 2023-2024, ACM MultiMedia 2024, NeurIPS 2023, ICCV 2023, Eurographics 2022, ACCV 2022, EMNLP 2021, ACML 2020-2021

Journals Reviewer

Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
IEEE Transactions on Multimedia (TMM)
IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
Pattern Recognition (PR)
Machine Learning