Chengan HE

Curriculum Vitae

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Education

Since 2019 **Yale University, New Haven, USA**
Ph.D. in Computer Science
Advisors: Prof. Julie Dorsey, Prof. Holly Rushmeier

2015 - 2019 **Zhejiang University, Hangzhou, China**
B.E. in Computer Science and Technology
Advisor: Prof. Hongzhi Wu
Thesis: *Image-based Reconstruction of High-precision 3D Geometry and Material*

Research Interests

My research interests lie in the areas of computer graphics and 3D computer vision, with previous projects involving 3D reconstruction, reflectance capture, and appearance modeling. My recent work focuses on high-quality human digitization, leveraging emerging neural representations to model human motion, hair, head, etc. My long-term goal is to build high-fidelity, lifelike digital humans applicable to our daily life.

Publications

3DGH: 3D Head Generation with Composable Hair and Face

Chengan He, Junxuan Li, Tobias Kirschstein, Artem Sevastopolsky, Shunsuke Saito, Qingyang Tan, Javier Romero, Chen Cao, Holly Rushmeier, Giljoo Nam

Under Review

Augmented Mass-Spring Model for Real-Time Dense Hair Simulation

Jorge Alejandro Amador Herrera, Yi Zhou, Xin Sun, Zhixin Shu, **Chengan He**, Sören Pirk, Dominik L. Michels

arXiv

Perm: A Parametric Representation for Multi-Style 3D Hair Modeling

Chengan He, Xin Sun, Zhixin Shu, Fujun Luan, Sören Pirk, Jorge Alejandro Amador Herrera, Dominik L. Michels, Tuanfeng Y. Wang, Meng Zhang, Holly Rushmeier, Yi Zhou

ICLR 2025 **(Spotlight)**

NeMF: Neural Motion Fields for Kinematic Animation

Chengan He, Jun Saito, James Zachary, Holly Rushmeier, Yi Zhou

NeurIPS 2022 **(Spotlight)**

An Inverse Procedural Modeling Pipeline for SVBRDF Maps

Yiwei Hu, **Chengan He**, Valentin Deschaintre, Julie Dorsey, Holly Rushmeier

ACM Transactions on Graphics (SIGGRAPH 2022), 41(2)

Learning Efficient Illumination Multiplexing for Joint Capture of Reflectance and Shape

Kaizhang Kang, Cihui Xie, **Chengan He**, Mingqi Yi, Minyi Gu, Zimin Chen, Kun Zhou, Hongzhi Wu

ACM Transactions on Graphics (SIGGRAPH Asia 2019), 38(6)

Live Demos

Digital Salon: An AI and Physics-Driven Tool for 3D Hair Grooming and Simulation

Chengan He*, Jorge Alejandro Amador Herrera*, Yi Zhou*, Zhixin Shu, Xin Sun, Yao Feng, Sören Pirk, Dominik L. Michels, Meng Zhang, Tuanfeng Y. Wang, Holly Rushmeier

SIGGRAPH Asia 2024 Real-Time Live!

Project Motion Mix: Human Animation in a Loop from Images

Jae Shin Yoon, Duygu Ceylan, Tuanfeng Y. Wang, Jingwan Lu, Jimei Yang, Zhixin Shu, **Chengan He**, Yi Zhou, Jun Saito, James Zachary

Adobe Max Sneaks 2022

Research Experiences

Since 2019 **Ph.D. Candidate at Yale Computer Graphics Group, Yale University**
Advisors: Prof. Julie Dorsey, Prof. Holly Rushmeier
Topic: Neural representations for digital humans

2017 - 2019 **Research Assistant at State Key Lab of CAD&CG, Zhejiang University**
Advisor: Prof. Hongzhi Wu
Topic: Reflectance capture and shape reconstruction

Summer 2018 **Research Assistant at University of California, Davis**
Advisor: Prof. Michael Neff
Topic: Real-time 3D scene reconstruction

Work Experiences

Summer 2024 **Research Intern at Meta Reality Labs Research, Pittsburgh, USA**
Mentors: Dr. Giljoo Nam, Dr. Junxuan Li, Dr. Shunsuke Saito, Dr. Javier Romero, Dr. Chen Cao
Topic: Universal 3D hair modeling

Summer 2023 **Research Intern at Tencent AI Lab, Shenzhen, China**
Mentor: Dr. Di Kang
Topic: Controllable 3D avatar synthesis

Summer 2022 **Research Intern at Adobe Research, San Jose, USA**
Mentors: Dr. Yi Zhou, Dr. Fujun Luan, Dr. Tuanfeng Y. Wang, Dr. Xin Sun, Dr. Zhixin Shu
Topic: Parametric model of 3D hair

Summer 2021 **Research Intern at Adobe Research, San Jose, USA**
Mentors: Dr. Yi Zhou, Dr. Jun Saito
Topic: Neural motion fields

Summer 2019 **Research Intern at miHoYo, Shanghai, China**
Mentor: Dr. Jun Xing
Topic: Stylized texture synthesis

Teaching Experiences

Spring 2024	CPSC 482/582: Current Topics in Applied Machine Learning	Teaching Assistant
Fall 2023	CPSC 446/546: Data and Information Visualization	Teaching Assistant
Spring 2023	CPSC 480/580: Introduction to Computer Vision	Teaching Assistant
Spring 2022	CPSC 276/376: Digital Humanities	Teaching Assistant

Fall 2021 CPSC 446/546: Data and Information Visualization Teaching Assistant

Professional Services

Peer Reviews ACM SIGGRAPH, ACM SIGGRAPH Asia, Eurographics, CVPR, ECCV, NeurIPS, ICLR, ICML

Patents

Parametric Hair Model for Digital Hair Generation
US patent pending

Generating Three-Dimensional Looping Animations from Still Images
US Patent App. 18/340445

Selected Awards and Honors

National Scholarship, China Ministry of Education 2018
Scholarship for Academic Excellence, Zhejiang University 2016, 2018
Meritorious Winner, Interdisciplinary Contest in Modeling 2018