QIXIN DENG

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EDUCATION

University of Houston[GPA: 3.9 / 4.0] Jan 2018 - May 2023

[Computer Science] PhD

Purdue University[GPA: 3.7 / 4.0] Sep 2015 - May 2017

[Electrical and Computer Engineering] Master of Science

Zhengzhou University [GPA: 3.8 / 4.0] Aug 2010 - May 2014

[Electronic Information Engineering] Bachelor of Engineering

PROFESSIONAL EXPERIENCE

CGIM Lab, University of Houston Jan 2018 - Apr 2019

Research Assistant Houston, US

- Design a LSTM model which can synthesize realistic three-party animation by feeding live speech. The generated motions include not only body motion, but also head and eye motion.
- Apply motion controller and lip-sync technology to enrich animation results. Animation results are made by Maya software combined with V-ray and Mental ray renderers.
- The paper is accepted by Symposium on Computer Animation (SCA) 2019.

CGIM Lab, University of Houston Aug 2019 - Jan 2021

Research Assistant Houston, US

- Design an immersive telepresence system using Unity in shared online virtual world in which users are able to customize outlook and drive avatar via live speech in real time.
- Propose a method to generate head and eye motion in real time and use HMM and CRF to synthesis body gesture in real time.
- The paper is accepted by "PRESENCE: Virtual and Augmented Reality" 2022.

CGIM Lab, University of Houston Jan 2019 - Jan 2021

Research Assistant Houston, US

- Design a CNN model, which includes a Variational Auto-Encoder and a Supervised Network in Tensorflow framework, trained by proposed wrinkle edge aware loss. Displacement maps can be sampled and interpolated from the Lantent Space of the model.
- Design a framework to apply displacement map to other face models with different topologies. An improved motion transfer scheme and adaptive subdivision are deployed.
- The paper is accepted by IEEE Transactions on Visualization and Computer Graphics(TVCG) 2021.

CGIM Lab & EA SEED Lab May 2020 - Nov 2021

Research Assistant Houston, US

- Design a CNN model with differentiable renderer to reconstruct face model from single In-the-Wild images. The model is capable to reconstruct not only face shape, but also face pose, diffuse albedo and diffuse lighting, specular albedo and specular lighting, and expressions.
- A group of hybrid loss functions are proposed to train the model. The losses aim to preserve identity (shape), constrain visual pleasure (albedo and lighting) and restore mouth expression.
- Several face related technologies are introduced into the model: face recognition network(FaceNet), face segmentation network (Unet), Face landmark detection network, face detection and alignment network (MTCNN) and Face Morphable Model.
- The paper is accepted by Proceeding of ACM International Conference on Multimedia (MM) 2022.

PROJECT EXPERIENCE

Internship at EA SEED Lab May 2022 - Aug 2022

R&D Houston,US

- Build a flask based front-end, kubernete based back-end web API for user to upload and reconstruct face model from single in-the-wild image.
- Build dockers to holds web server and deep-learning model for dustributed deployment.
- On the webpage, the user is able to select deep-learning model, upload image, download results, render results and delete from database.
- Use Wrap3D to build a pipline which is able to do pre-alignment and non-rigit registration between our 3D model result and other face Rig(ex. EA FaceRig).

SKILLS

- **Software** Maya; Unity; Matlab; Tensorflow;
- **Languages:** C++; Python; Matlab;C#

HONORS & AWARDS

Best PhD Award (Department of Computer Science at University of Houston)	2022
President Scholarship (Department of Computer Science at University of Houston)	2018
Outstanding Undergraduate Student (Education Department of Henan Province, China)	2014
National Scholarship (Ministry of Education of the People's Republic of China)	2012

PUBLICATIONS

- Qixin Deng, Luming Ma, Aobo Jin, Huikun Bi, Binh Huy Le, and Zhigang Deng. "Plausible 3D Face Wrinkle Generation Using Variational Autoencoders." IEEE Transactions on Visualization and Computer Graphics (accepted in Jan 2021)
- Qixin Deng, Aobo Jin, Binh Huy Le, and Zhigang Deng, "End to End 3D Face Reconstruction with Expressions and Specular Albedos from Single In the wild Images". Proceeding of ACM International Conference on Multimedia (MM) 2022
- Aobo Jin, Qixin Deng, Yuting Zhang, and Zhigang Deng. "A Deep Learning-Based Model for Head and Eye Motion Generation in Three-party Conversations." Proceeding of the ACM on Computer Graphics and Interactive Techniques (PCM-CGIT), Special Issue for ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA) 2019, July 2019, 2(2), Article 9, pp. 9:1-9:19.
- Aobo Jin*, Qixin Deng* and Zhigang Deng, "A Live Speech Driven Avatar-mediated Three-party Telepresence System: Design and Evaluation". PRESENCE: Virtual and Augmented Reality, MIT press(2022).