

LELE CHEN

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EDUCATION

University of Rochester <i>Ph.D Candidate in Computer Science</i>	June 2018 - present Sponsor: Prof. Chenliang Xu
University of Rochester <i>M.S. in Computer Science</i>	September 2016 - May 2018 Sponsor: Prof. Chenliang Xu
University of Reutlingen <i>Exchange student in Informatics</i>	March 2015 - October 2015
Donghua University <i>B.S. in Computer Science</i>	September 2012 - May 2016

RESEARCH INTERESTS

Visual understanding: Audio-Visual Generation, video/image segmentation, and multi-modal vision-and-x modeling.

PUBLICATIONS

- Z. Li*, L. Chen*, C. Liu, Y. Gao, Y. Ha, C. Xu, S. Quan, Y. Xu. *Human Shape Avatar Digitization at a Glance*. **Best paper awrd** VRCAI 2019 (*: equal contribution)
- L. Chen, G. Li, J. Tian, C. Wu, E. King, K. Chen, S. Hsieh, C. Xu. *TailorGAN: Making User-Defined Fashion Designs*. WACV 2020
- L. Chen, H. Zheng, R.K. Maddox, Z. Duan, C. Xu. *Sound to Visual: Hierarchical Cross-Modal Talking Face Video Generation*, CVPR Sight and Sound Workshop, 2019. **(spotlight)**
- L. Chen, R. Maddox, Z. Duan and C. Xu. *Hierarchical Cross-modal Talking Face Generation with Dynamic Pixel-wise Loss*, CVPR, 2019
- L. Chen*, Z. Li*, R.k. Maddox, Z. Duan and C. Xu. *Lip movements generation at a glance*, ECCV, 2018
- L. Chen, S. E. Eskimez, Z. Li, R. Maddox, Z. Duan and C. Xu. *Face movements generation at a glance v0.1*, ECCV Demo, 2018
- L. Chen, E. Eskimez, Z. Li, Z. Duan, C. Xu, R.K. Maddox. *Toward a visual assistive listening device: Real-time synthesis of a virtual talking face from acoustic speech using deep neural networks*, The Journal of ASA, 2018
- L. Chen, Y. Wu, A.M. DSouza, A.Z. Abidin, C. Xu and A. Wismler. *MRI Tumor Segmentation with Densely Connected 3D CNN*, SPIE, 2018 **(oral)**
- L. Chen*, S. Srivastava*, Z. Duan and C. Xu. *Deep Cross-Modal Audio-Visual Generation*, ACM MMW, 2017
- Y. Gan, Y. Qiu, L. Chen, J. Leng, Y. Zhu. *Low-Latency Proactive Continuous Vision*. Under submission

- H. Zheng, L. Chen, C. Xu and J. Luo. *Texture Preserving Flow for Pose Guided Synthesis*. Under submission

HONORS & AWARDS

17th ACM SIGGRAPH VRCAI Best Paper Award	2019
Scholarship by University of Rochester (30% of tuition)	2016
Bronze Medal of Mathematical Contest in Modeling of Shanghai	2014
Scholarship for Academic Excellence	2013
Jinbao Scholarship for Top 10 Students	2013
Bronze Medal of ACM Contest of Donghua University	2013

SELECTED PROJECTS

Texture Preserving Flow for Pose Guided Synthesis *March 2019*

Advisor: Prof. Chenliang Xu, Prof. Jiebo Luo

Pose guided synthesis aims to generate a new image in an arbitrary target pose while preserving the appearance details from the source image. Existing approaches rely on hard-coded spatial transformations or thin-plate spline transformer and often overlook the complex non-rigid pose deformation and occlusion problems, thus failing to effectively preserve appearance information. In this paper, we propose an unsupervised optical flow learning scheme that directly learns to transfer the appearance details from the pose guided dataset. Based on a trained flow estimator for multi-scale feature-domain alignment, we design Garment2PoseNet, which is a unified network for coarse-to-fine synthesis.

Hierarchical Cross-modal Talking Face Generation with Dynamic Pixel-wise Loss *September 2018*

Advisor: Prof. Ross Maddox, Prof. Zhiyao Duan, Prof. Chenliang Xu

We devise a cascade GAN approach to generate talking face video, which is robust to different face shapes, view angles, facial characteristics, and noisy audio conditions. We, humans, are sensitive to temporal discontinuities and subtle artifacts in video. To avoid those pixel jittering problems and to enforce the network to focus on audiovisual-correlated regions, we propose a novel dynamically adjustable pixel-wise loss with an attention mechanism. Code and demo are available at: <https://github.com/lelechen63/ATVGnet>

Lip movements generation at a glance *October 2017*

Advisor: Prof. Ross Maddox, Prof. Zhiyao Duan, Prof. Chenliang Xu

Explored the best modeling of the audio-visual correlations in building and training a lip-movement generator network. Specifically, we devised novel methods to fuse audio and image embeddings in generating multiple lip images and propose a novel correlation loss to synchronize lip changes and speech changes. demo video can be found in <https://www.youtube.com/watch?v=mmI31GdGL5g>.

MRI tumor segmentation with densely connected 3D CNN *July 2017*

Advisor: Prof. Axel W. E. Wismüller, Prof. Chenliang Xu

Introduced a new approach of segmenting sub-regions in gliomas using densely connected 3D convolutional networks. Code has been released in <https://github.com/lelechen63/MRI-tumor-segmentation-Brats>.

Video segmentation considering actor and action (*on going*) *August 2017*

Advisor: Prof. Chenliang Xu

Built a hierarchical model to segment video sequences by sharing useful information among different actors and actions.

Region of Interest Detection in satellite Images *April 2017*

Advisor: Prof. Jiebo Luo

Developed an application to automatically detect 'hidden' smelters on Google Satellite Map using transfer learning.

Deep Cross-Modal Audio-Visual Generation *January-April 2017*

Advisor: Prof. Chenliang Xu

Designed conditional generative adversarial networks to achieve cross-modal audio-visual generation of musical performances.

EXPERIENCE

Vision Research Scientist (R&D intern) Innopeak Tech, USA	May 2019 - September 2019
Vision Research Scientist (R&D intern) JD.com, JDX Autonomous Driving Lab, USA	May 2018 - September 2018
Research Assistant (Sponsored) University of Rochester, USA	September 2017 - Now
Teaching Assistant University of Rochester, USA	July 2017 - October 2017
Vision Science Engineer (Research Intern) VisualDX, USA	June 2017 - October 2017
Software Engineering trainee Shaumal, China	May 2015–August 2015

TECHNICAL SKILLS

Courses

Advanced Topics in Computer Vision, Deep learning and Graphical models, Machine learning (audit), Data mining, Machine vision

Programming Languages

Proficient in: Python, R, Lua, C++, MATLAB
Familiar with: Ruby, C, CUDA, SQL

Software Skills

Proficient in: Pytorch, Torch, Keras, OpenCV, Hadoop, Omigraffe
Familiar with: Caffe, Tensorflow