Lele Chen

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EDUCATION

University of Rochester June 2018 - present
Ph.D Candidate in Computer Science *Sponsor: Prof. Chenliang Xu*

University of Rochester *September 2016 - May 2018*
M.S. in Computer Science *Sponsor: Prof. Chenliang Xu*

University of Reutlingen *March 2015 - October 2015*
Exchange student in Informatics

Donghua University *September 2012 - May 2016*
B.S. in Computer Science

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.*
- ***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, RK. 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. Wismller. MRI Tumor Segmentation with Densely Connected 3D CNN, SPIE, 2018 (oral presentation)*
- ***L. Chen****, *S. Srivastava**, *Z. Duan and C. Xu. Deep Cross-Modal Audio-Visual Generation, ACM MMW, 2017*
- *VFS: Low-Latency Continuous Vision via Front-End Speculation. Under submission*
- *H. Zheng, **L. Chen**, C. Xu and J. Luo. Texture Preserving Flow for Pose Guided Synthesis. Under submission*

HONORS & AWARDS

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 will be released soon.

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. Wismller, 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) *May 2019 - September 2019*
Innopeak Tech, USA

Vision Research Scientist (R&D intern) *May 2018 - September 2018*
JD.com, JDX Autonomous Driving Lab, USA

Research Assistant (Sponsored) *September 2017 - May 2018*
University of Rochester, USA

Teaching Assistant *July 2017 - October 2017*
University of Rochester, USA

Vision Science Engineer (Research Intern) *June 2017 - October 2017*
VisualDX, USA

Software Engineering trainee *May 2015–August 2015*
Shaumal, China

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, Haddop, Omigraffle
Familiar with: Caffe, Tensorflow