Xinran Lu

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Education

University of North Carolina, Chapel Hill — *Chapel Hill, USA*
PhD in Computer Science — *May. 2022*

Tsinghua University — *Beijing, China*
B.ENG in Automation — *Jul. 2017*

- GPA: Overall: 3.70/4.00 Ranking: 23/150, Major: 3.82/4.00 Ranking: 12/150
- Core courses: Advanced computer graphics, Digital Image Processing 90(10/120), Numerical Analysis and Algorithms 90(10/133), C++ Program Design and Training 94(8/125), Fundamentals of Computer Information Management 93(4/50), Data structures, Computer Principles and Applications 90(25/122), Computer Networks and Applications 90(8/96), Linear Algebra, Calculus, Complex Analysis, Probability Theory

Research Experience

UNC Graphics & Virtual Reality Group of Department of Computer Science | Research Assistant, Adviser: Prof. Henry Fuchs — *Chapel Hill, USA*
Project: Egocentric Face Reconstruction with Side Cameras on VR Glasses — *Aug. 2017 - Present*

- Using two side-face images captured by egocentric cameras on VR Glasses to reconstruct 3D face
- Using neural network to regress face model parameters
- Will add audio information to improve mouth reconstruction

Broadband Network & Digital Media Lab of Department of Automation | Undergraduate Thesis, Adviser: Prof. Yebin Liu — *Beijing, China*
Project: Human Animation based on motion extraction from videos — *Feb. 2017 - July. 2017*

- Proposed a new method to address character animation with only one RGB camera(video)
- Integrated shape parameter from human model and pose parameter from video and optimized results with inter-frame information
- Handled apparent occlusion and big range variation of poses
- Won Outstanding Undergraduate Thesis(top 3%)

Turing Robot Company| Summer Research Intern(Computer vision), Adviser: Dr. Yuhao Lu — *Beijing, China*
Project: Pose Imitation of Robot in ROS System — *Jul. 2016 - Sep. 2016*

- Developed a pose estimation system with binocular camera in ROS platform and make robot to perform simulations of human movement in real-time
- Proposed an algorithm to locate people, match ICP, extract skeleton and compute similarity
- Ran at 5-10 frames per second and achieved an accuracy over 90%, be used in the new version of company's product

Institute of HCI and Media Integration of Department of Computer Science | Research Assistant, Adviser: Prof. Songhai Zhang — *Beijing, China*
Project: Neural Color Transfer — *Sep. 2016 - Dec. 2016*

- Worked on photographer style transfer based on neural style transfer and colorization
- Proposed a new method to solve the problem of color bleeding during the transfer
- Trained a new neural network which improved the smoothness of results

Project: Image and Video Matting in Real-Time — *Mar. 2016 - Jun. 2016*

- Independently constructed a system to generate Trimap automatically, combine Sampling and Affinity Matting with Local and Nonlocal Smooth Priors
- Improved the algorithm by using the expanded regions to accelerate computing speed

33th Challenge Cup — *Beijing, China*
Project: An Augmented Reality Technology based on Hand Recognition — *Feb. 2015 - Mai. 2015*

- Constructed an AR system with projector, camera and computer to assist instruction. Projector cast augmented reality information manipulated by computer, camera collected input image, and computer completed image pre-processing, hand recognition and feedback generation
- Implemented algorithms to capture video, adjust image, recognize hand and optimize accuracy
- Won Third Price(10%), EMC Special Award(top 1%) and HuaWei Special Award(top 1%) in the 33th Challenging Cup

Technical Strengths

- Languages: English, German, Mandarin(native)
- Skills: -Proficient: C/C++, Python, C#, MATLAB, git, Linux, caffe, pyTorch, OpenCV, Latex -Experienced: TensorFlow, Torch, Lua

Honors & Awards

2017 **100/3600 (top 3%)**, Outstanding Tsinghua Undergraduate Thesis *Tsinghua, China*
2017 **6/150**, Undergraduate Research Excellence Award *Tsinghua, China*
2016 **20/150**, Undergraduate Academic Excellence Award *Tsinghua, China*
2015 **10/150**, been selected into ATOM project of Department of Automation *Tsinghua, China*
2015 **3/400 (top 1%)**, EMC Special Award in the 33th Challenge Cup *Tsinghua, China*
2015 **5/400 (top 1%)**, HuaWei Special Award in the 33th Challenge Cup *Tsinghua, China*
2015 **46/400**, Third price in the 33th Challenge Cup *Tsinghua, China*

Extracurricular Activity

2016 **Director**, Student Press Corps of THU *Tsinghua, China*
2015 **Director**, Student Association for Science and Technology of Department of Automation *Tsinghua, China*
2014 **Member**, Public Affairs Sector of Student Union of THU *Tsinghua, China*