Ran Luo

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EDUCATION

University of New Mexico
Ph.D. Candidate in Electrical and Computer Engineering
Aug. 2014 - Present | Albuquerque,NM

Beihang University (BUAA)
B.S. in Software Engineering
Sep. 2010 - July. 2014 | Beijing, China

SKILLS

Programming
C++ • Python • Matlab • OpenGL
Package
Tensorflow • Keras • Eigen • Qt
Software
Autodesk Maya • Blender

EXPERIENCE

ECE, UNM | Research Assistant
Aug. 2016 - Present | Albuquerque,NM
My interests focus on computer graphics and machine learning. My research topics includes deformable model, physics-based animation/simulation, and deep learning.

Samsung Research America | Intern
May. 2019 - Aug. 2019 | Plano, TX
Develop a robust automatic rigging method for arbitrary 3D scanned human models.

Apple Inc. | Technology Development Intern
June. 2018 - Aug. 2018 | Cupertino, CA
Develop algorithms and applications for a machine learning project.

ECE, UNM | Teaching Assistant
Aug. 2015 - June. 2016 | Albuquerque,NM
Work as a TA in ECE412: Computer Graphics.

ECE, UNM | Graduate Assistant
Aug. 2014 - May. 2015 | Albuquerque,NM
Work as a grader in ECE231: Intermediate Programming.

PROJECTS

LoboFEM: A C++ Library and Software Interface
Aug. 2015 - Present | Albuquerque,NM
A C/C++ physics engine for three-dimensional deformable object simulation. It provides a framework to manipulate, simulate and render single or multiple 3D meshes. The engine is easy to extend and modified. Now it has 10+ different kinds of simulation methods.
- C++, Qt, OpenGL, Python
- Used in [1–4]

NNWarp: A Neural Network Based Nonlinear Deformable Simulation Framework
Aug. 2016 - May. 2017 | Albuquerque,NM
NNWarp is a highly re-usable and efficient neural network (NN) based nonlinear deformable simulation framework.
- C++, Qt, OpenGL, Python
- Published as [3]

A Real-Time Speech-Driven Visual Tongue System
Aug. 2016 - May. 2017 | Albuquerque,NM
An acoustic-VR system that converts acoustic signals of human language (Chinese) to realistic 3D tongue animation sequences in real time.
- C++, Qt, OpenGL, Matlab
- Published as [4]

An Interactive Nonlinear deformable simulation system
Aug. 2015 - May. 2017 | Albuquerque,NM
A spatial reduction framework for simulating nonlinear deformable objects interactively. This system provides multiple weight functions to compute blended quadratic transformations from frames.
- C++, Qt, OpenGL
- Published as [2]

PUBLICATIONS

[1] R. Luo, W. Xu, T. Shao, H. Xu, and Y. Yang. Accelerated complex step finite difference for expedient deformable simulation. *ACM Transactions on Graphics*, Siggraph Asia 2019.

[2] R. Luo, W. Xu, H. Wang, K. Zhou, and Y. Yang. Physics-based quadratic deformation using elastic weighting. *IEEE transactions on visualization and computer graphics*, 24(12):3188–3199, 2018.

[3] R. Luo, T. Shao, H. Wang, W. Xu, X. Chen, K. Zhou, and Y. Yang. Nnwarp: Neural network-based nonlinear deformation. *IEEE transactions on visualization and computer graphics*, 2018.

[4] R. Luo, Q. Fang, J. Wei, W. Lu, W. Xu, and Y. Yang. Acoustic vr in the mouth: A real-time speech-driven visual tongue system. In *2017 IEEE Virtual Reality (VR)*, pages 112–121. IEEE, 2017.

[5] R. Luo, L. Zhu, W. Xu, P. Kelley, V. Svihla, and Y. Yang. Interactive design and simulation of tubular supporting structure. *Graphical Models*, 80:16–30, 2015.