

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 • GLSL

Package

Tensorflow • Keras • Eigen • Qt

Software

Autodesk Maya • Adobe Photoshop • Adobe Premiere

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 [1–3]

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 [2]

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 [3]

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 [1]

3D tubular structure simulation and design system

Aug. 2014 - May. 2015 | Albuquerque, NM

A framework simulates the tubular supporting structure based on the shell element FEM.

- C++, Qt, OpenGL
- Published as [4]

PUBLICATIONS

- [1] 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.
- [2] 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.
- [3] 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.
- [4] 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.