Le Liu

112 Heritage Riverwood Drive,
Apartment N,
Central SC, 29630

Phone: (864) 643-8079
Email: lel@g.clemson.edu
Homepage: https://lel304.bitbucket.io

EDUCATION

Ph.D., Computer Science, Clemson University, USA — July 2017
M.S., Computer Science, Clemson University, USA — December 2012
B.Eng., Computer Science, Chongqing University, China. — July 2010

ACADEMIC EXPERIENCE

Postdoctoral Research Fellow, University of Miami **2017 2018**

- Conducted research in visualizing uncertainty in prediction ensembles, representative sampling higher dimensional data, and analyzing and visualizing optical axons ensemble generated using optical pathway regeneration techniques.

Research Assistant, Clemson Computing and Information Technology **2016 2017**

- Conducted and led visualization training sessions and workshops for faculty, students, and stuff.
- Provided technical support of using cutting-edge visualization tools on Clemson University's Palmetto high-performance computing cluster.
- Constructed user's guides of conducting scientific visualization projects on Palmetto cluster.
- Experienced Kanban board and sprint review process.

Research Assistant, Clemson University **2013 2017**

Conducted research of visualizing uncertainty in hurricane forecasts for proactive decision-making.

- Developed an uncertainty visualization for time-specific hurricane prediction ensembles by using a RBF-based interpolation technique.
- Developed a representative sampling framework for points ensembles and direct ensemble visualizations based on selected representatives.
- Developed a representative sampling framework for hurricane predicted paths ensembles and direct ensemble visualizations portraying multiple storm characteristics.
- Collaborated in a cognitive study comparing viewers' interpretation of direct ensemble visualizations and statistical summary displays.

Visualization Designer, Clemson University **2014 2015**

Developed a robot with an interactive visualization system for assessment of soybean plants in a field. This project won the 4th place in the 2015 American Society Agricultural and Biological Engineers Robotic Competition.

Research Assistant, Clemson University **2011 2012**

Conducted research in identifying target features in a layered stereoscopic display. Implemented an interactive system attached with a 3D eye tracking system for exploring human stereo vision.

VISITING POSITIONS

Visiting Scholar, Texas A&M University **spring semester 2015**
Conducted research in visualizing uncertainty by representative sampling from prediction ensembles.

INDUSTRIAL EXPERIENCE

MagicWeaver, Inc. **2018 Present**
DeDevelop novel technique for computing 3D human body shape models from 2D images, featuring visualization, computer vision, computer graphics, deep learning, cloud computing.

Software Engineer Intern, Virtroid Inc. (Acquired by Magic Leap) **2015 2016**
- Designed and implemented algorithms for reconstructing 3D CAD models of houses from 2D projection images.
- Designed and implemented algorithms for fast and accurately recognizing structures and objects of 3D mesh of indoor scenes.
- Designed and implemented algorithms for refining and topologically repairing 3D mesh of indoor scenes.

PROFESSIONAL SOCIETIES

- IEEE Computer Society
- Consumer Technology Association

AWARDS

1. Innovation Award, Silicon Valley Innovation Entrepreneurship Forum, September 2019.
2. Top 10 of Southern California AI and Data Science Conference Startup Pitch Session, October 2018.
3. The 2nd Place in the 9th Annual Postdoctoral Research Poster Competition, University of Miami, March 2018.
4. The 3rd Prize in Global Innovation Exchange Competition, September 2017.
5. The 4th Place in International Robotics Competition, American Society of Agriculture and Biological Engineers, October 2015.

PHD DISSERTATION

Title: Effective Visualizations of the Uncertainty in Hurricane Forecasts
Committee Members: Donald House (Chair), Brian Dean, Joshua Levine, and Amy Apon

JOURNAL ARTICLES

1. **L. Liu**, L. Padilla, M. Hegarty, S. H. Creem-Regehr, D. H. House. Visualizing uncertainty tropical cyclone predictions using representative samples from ensembles

of forecast tracks. *IEEE Transactions on Visualization and Computer Graphics* 25.1 (2019): 882-891

2. **L. Liu**, A. Boone, I. Ruginski, L. Padilla, M. Hegarty, S. H. Creem-Regehr, W. B. Thompson, C. Yuksel, D. H. House. Uncertainty visualization by representative sampling from prediction ensembles. *IEEE Transactions on Visualization and Computer Graphics*, 23.9 (2016): 2165-2178
3. **L. Liu**, M. Mirzargar, R.M. Kirby, R. Whitaker, D. H. House. Visualizing time-specific hurricane predictions, with uncertainty, from storm path ensembles. *Computer Graphics Forum (Proceedings of EUROVIS '15)*, 34(3): 371–380, 2015.
4. Ian T. Ruginski, Alexander P. Boone, Lace M. Padilla, **Le Liu**, Nahal Heydari, Heidi S. Kramer, Mary Hegarty, William B. Thompson, Donald H. House, Sarah H. Creem-Regehr. Understanding the cone of uncertainty: non-expert interpretations of hurricane forecast uncertainty visualizations. *Spatial Cognition and Computation*, 16(2), pp. 154-172, 2016.

PREPRINTS

1. Padilla, Lace, Ian Ruginski, Sarah Creem-Regehr, **Le Liu**, Donald H. House, and William Thompson. Exploring Decision Biases with Ensemble Display Visualizations." OSF Preprints. August 16, 2019. doi:10.31219/osf.io/85jmz.

PAPER REVIEWER

- IEEE Visualization Conference 2018, 2019
- EuroVis 2018
- ChinaVis 2018
- IEEE Virtual Reality Conference 2016

TEACHING EXPERIENCE

1. Visualization Training Session, Clemson University 2016 2017

INVITED TALKS

1. **Le Liu**, Effective Visualization of The Uncertainty in Hurricane Forecasts, *Doctoral Colloquium for IEEE Visualization 2016*, October 22nd, 2016.
2. **Le Liu**, AI-Based Human Body Modeling & Measuring Solution for Mobile Platform, *2018 Southern California AI and Data Science Conference*, October 20th, 2018.

WORKSHOPS

1. D. House, **L. Liu**, Re-envisioning hurricane predictions using ensemble displays. *IEEE Visualization 2015 Workshop "Visualization for Decision Making Under Uncertainty"*.
2. **Le Liu** and Oyewole Oyekoya, Introduction to Scientific Visualization, *Clemson Computing and Information Technology Visualization Workshop*, April 14th, 2017.
3. **Le Liu**, Ruben Canlas, Oyewole Oyekoya, Introduction to Information Visualization, *Clemson Computing and Information Technology Visualization Workshop*, March 10th, 2017.
4. **Le Liu**, Jamar Robinson, Ruben Canlas, Joseph James, Oyewole Oyekoya, Visualization and Virtual Reality Open House Tutorials and Demos, *Clemson Computing and Information Technology Visualization Workshop*, December 2nd, 2016.

5. **Le Liu**, Mitchell Rainsford, Jamar Robinson, Oyewole Oyekoya, Visualizing Scientific and Engineering Data, *Clemson Computing and Information Technology Visualization Workshop*, November 4th, 2016.
6. **Le Liu**, Mitchell Rainsford, Jamar Robinson, Ruben Canlas, Zachariah Inks, Oyewole Oyekoya, Visualizing Research Data, *Clemson Computing and Information Technology Visualization Workshop*, October 7th, 2016.
7. **Le Liu**, Mitchell Rainsford, Zachariah Inks, Oyewole Oyekoya, Visualizing Research Data, *Clemson Computing and Information Technology Visualization Workshop*, September 7th, 2016.
8. **Le Liu**, Uncertainty Visualizations for Hurricane Forecasts, *IEEE Virtual Reality Conference Reception and Demo Nigh at WFIC*, March 21st, 2016.

SERVICES

- (Demo) School of Computing tours for prospective students. 2011—2017
- (Demo) Clemson University Brilliant Orange Days. November 5, 2012
- (Demo) Clemson University HCC Lab Tour for Intel visitors. February 28, 2012

FUNDING EXPERIENCE

- Collaborated on raising $2 million venture capital funds for MagicWeaver, Inc.

PERSONAL DEVELOPMENT

- Completed a 2-Day NVIDIA GPU Deep Learning and CUDA Workshop at Clemson University organized by NVIDIA, March 2017.