

Rongjie Liu

✉ rliu3@fsu.edu 🌐 My Google Scholar

Research Interests Bayesian Statistics, Bayesian Image Processing, Neuroimaging Data Analysis, Nonparametric Regression, Machine Learning, Deep Learning, Optimization

Education

Ph.D. in Statistics Rice University, Houston, TX	2020
Ph.D. in Electrical Engineering University of Texas at San Antonio, San Antonio, TX	2016
B.S. in Mathematics Southeast University, Nanjing, China	2010

Peer-Reviewed Journal Publications

1. **Liu, R.** and Zhu, H. “Statistical disease mapping for heterogeneous neuroimaging studies.” *The Canadian Journal of Statistics*. **Accepted & Recommended as Discussion Paper by Editor.**
2. Wang, J., **Liu, R.**, Zhu, H., and Yang, P. “A predictive model of radiation-related fibrosis based on the radiomic features of magnetic resonance imaging.” *Translational Cancer Research*. 9, 8, 2020.
3. **Liu, R.**, Elhalawani, H., Mohamed, A., Elgohari, B., Court, L., Fuller, C., and Zhu, H. “Stability analysis of CT radiomic features with respect to segmentation variation in oropharyngeal cancer.” *Clinical and Translational Radiation Oncology*, 21, 11-18, 2020.
4. Man, C., **Liu, R.**, and Li, S. “Three-dimensional suboptimal guidance law based on $\theta-D$ technique and nonlinear disturbance observer.” *Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering*, 233(14), 5122-5133, 2019.
5. Wang, Z., Cao, S., Morris, J., Ahn, J., **Liu, R.**, Tyekucheva, S., Gao, F., Li, B., Lu, W., Tang, X., Wistuba, I., Bowden, M., Mucci, L., Loda, M., Parmigiani, G., Holmes, C., and Wang, W. “Transcriptome deconvolution of heterogeneous tumor samples with immune infiltration.” *iScience*, 9, 451-460, 2018.
6. Elhalawani, H., et al. including **Liu, R.** “Machine learning applications in head and neck radiation oncology: lessons from open-source radiomics challenges.” *Frontiers in oncology*, 8, 294, 2018.
7. Yu, K., Zhang, Y., Yu, Y., Huang, C., **Liu, R.**, Li, T., Yang, L., Morris, J., Baladandayuthapani, V., and Zhu, H. “Radiomic analysis in prediction of human papilloma virus status.” *Clinical and Translational Radiation Oncology*, 7, 49-54, 2017.
8. Meng, Q., Qian, C., and **Liu, R.** “Dual-rate sampled-data stabilization for active suspension system of electric vehicle.” *International Journal of Robust and Nonlinear Control*, 28, 5, 1610-1623, 2018.
9. **Liu, R.**, Qian, C., Liu, S., and Jin, Y. “State feedback control design for boolean networks.” *BMC Systems Biology*, 10, 70, 2016.

10. **Liu, R.**, Gorthi, A., Jin, Y., Bishop, A., and Chen, Y. “Computational tools for genome-wide R-loops identification and characterization.” *International Journal of Computational Biology and Drug Design*, 10, 2, 123-136, 2017.
11. **Liu, R.** and Li, S. “An optimal integral sliding mode control strategy based on pseudospectral method for a class of affine systems.” *Transactions of the Institute of Measurement and Control*, 39, 6, 872-882, 2017.
12. Chu, H., Qian, C., **Liu, R.**, and Di, L. “Global practical tracking of a class of nonlinear systems using linear sampled-data control.” *International Journal of Control*, 88, 1581-1860, 2015.
13. **Liu, R.** and Li, S. “Optimal integral sliding mode control scheme based on pseudospectral method for robotic manipulators.” *International Journal of Control*, 87, 1131-1140, 2014.
14. **Liu, R.** and Li, S. “Suboptimal integral sliding mode controller design for a class of affine systems.” *Journal of Optimization Theory and Applications*, 161, 877-904, 2014.
15. **Liu, R.**, Li, S. Chen, X., and Guo, L. “Powered-descent trajectory optimization scheme for Mars landing.” *Advances in Space Research*, 52, 1888-1901, 2013.
16. **Liu, R.** and Li, S. “Optimal control design for an overhead crane system using pseudospectral method.” *Control Theory & Applications*, 30, 981-989, 2013.
17. **Liu, R.** and Li, S. “Nested saturation control for overhead crane systems.” *Transactions of the Institute of Measurement and Control*, 34, 862-875, 2012.
18. **Liu, R.** and Li, S. “Suboptimal integral sliding mode design for overhead crane systems.” *ICIC Express Letters, Part B: Applications*, 3, 759-768, 2012.

**Peer-Reviewed
Conference
Publications**

1. **Liu, R.**, Li, M., and Ma, L. “CARP: compression through adaptive recursive partitioning for multi-dimensional image data.” *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 14306-14314, 2020.
2. Ma, J., **Liu, R.**, Goldmacher, G., and Baumgartner, R. “Prediction of lesion shrinkage using CT imaging with radiomic and deep learning approaches.” *Journal of Clinical Oncology*, 37, 15, 14592, 2019.
3. Harrison, R., **Liu, R.**, Rao, V., Petersen, M., Dyson, H., Weathers, S., Alfaro-Munoz, K., De Groot, J. F., and Kesler, S. “Evaluating the capacity of connectome analysis to predict survival in high-grade astrocytoma.” *Journal of Clinical Oncology*, 37, 15, 2049, 2019.
4. Cao, S., **Liu, R.**, Yang, L., Ahn, J., Chen, J., Wang, Z., Efstathiou, E., Frigo, D., Zhu, H., and Wang, W. “Deconvolution reveals cell type specific transcriptional effects across cancer types.” *Cancer Research*, 79, 4692, 2019.
5. **Liu, R.**, Elhalawani, H., Fuller, C., and Zhu, H. “Stability analysis of CT radiomics features with respect to the variation of manual segmentation in oropharyngeal cancer.” *International Journal of Radiation Oncology Biology Physics*, 100, 5, 1359, 2018.
6. **Liu, R.**, Huang, C., Li, T., Yang, L., and Zhu, H. “Statistical disease mapping for heterogeneous neuroimaging studies.” *2018 IEEE 15th International Symposium on Biomedical Imaging (ISBI)*, 1415-1418, 2018.

7. **Liu, R.**, Qian, C., and Jin, Y. “Observability and sensor allocation for Boolean networks.” *American Control Conference (ACC)*, 3880-3885, 2017.
8. **Liu, R.**, Qian, C., and Li, S. “Decentralized output feedback control of a class of nonlinear systems with unsynchronized sampling instants.” *IEEE Conference on Decision and Control*, 2987-2992, 2015.
9. Chu, H., Qian, C., **Liu, R.**, Li, S., and Gao, H. “Global practical tracking for a class of nonlinear systems via linear sampled-data control.” *Proceedings of the American Control Conference*, 2667-2672, 2015.
10. **Liu, R.**, Qian, C., Li, S., and Sun, J. “Decentralized sampled-data control of interconnected systems using low gain and high gain output feedback.” *Proceeding of the 11th World Congress on Intelligent Control and Automation (WCICA)*, 1664-1669, 2015.
11. **Liu, R.**, Yan, S., and Qian, C. “Practical tracking of variable-speed wind turbine system using sampled-data output feedback controller.” *ISA Power Industry (PO-WID) Symposium*, 2014.
12. **Liu, R.**, Li, S., and Chen, X. “An optimal integral sliding mode control design based on pseudospectral method for overhead crane systems.” *Chinese Control Conference*, 2195-2200, 2013.

Self-developed Softwares

CARP

- A command-line software program written in **MATLAB/C++** and designed to compress multi-dimensional images.
- URL: <https://github.com/RJstat/CARP>

PPA

- A command-line software program written in **Python** and designed to learn the relevant ROIs automatically based on white matter fiber bundles in human brains.
- URL: <https://github.com/RJstat/PPA>

SDM

- A command-line software program written in **Python/R** and designed to propose a novel statistical disease mapping (SDM) framework to address some abnormal pattern detection challenges.
- URL: <https://github.com/RJstat/SDM>

ContrBN

- A graphical user interface software program written in **MATLAB** and designed to quickly and efficiently determine the controllability of boolean networks.
- URL: <https://github.com/RJstat/ContrBN>

ObserBN

- A graphical user interface software program written in **MATLAB** and designed to quickly and efficiently determine the observability of boolean networks.
- URL: <https://github.com/RJstat/ObserBN>

Awards

- James Thompson Student Award, Rice, USA
- Student Travel Awards, Rice, USA
- Student Paper Awards, ASA Mental Health Statistics Section (MHSS)
“SDRD: statistical diseased region detection for large-scale neuroimaging studies.”
Philadelphia, USA
- Valero Foreign PhD Student Award at UTSA, San Antonio, TX, USA

- Outstanding Dissertation of Jiangsu Province, China
- Outstanding Dissertation of Southeast University, China
- Student Paper Award, First Prize
Yangtze River Delta Graduate Forum of advanced control and a new generation of information technology, Shanghai, China
- Excellent Graduate of Southeast University, China
- Outstanding Undergraduate Graduation Thesis, China

Oral Presentations (Contributed)

- The Joint Statistical Meetings (JSM), 08/2020
Philadelphia, PA, USA
Title: *SDRD: statistical diseased region detection for large-scale neuroimaging studies*
- Eastern North American Region (ENAR), 03/2018
Atlanta, GA, USA
Title: *Monte Carlo expectation maximization algorithm for the heterogeneous deconvolution of mixed tumor expression*
- International Conference on Intelligent Biology and Medicine (ICIBM), 11/2015
Indianapolis, IN, USA
Title: *State feedback control design for boolean networks*
- International Conference on Intelligent Biology and Medicine (ICIBM), 11/2015
Indianapolis, IN, USA
Title: *Computational tools for genome-wide R-loops identification and characterization*
- Proceedings of the American Control Conference (ACC), 07/2015
Chicago, IL, USA
Title: *Global practical tracking for a class of nonlinear systems via linear sampled-data control*
- ISA Power Industry Symposium (POWID), 06/2014
Scottsdale, AZ, USA
Title: *Practical tracking of variable-speed wind turbine system using sampled-data output feedback controller*
- Chinese Control Conference (CCC), 07/2013
Xi'an, China
Title: *An optimal integral sliding mode control design based on pseudospectral method for overhead crane systems*
- Yangtze River Delta Graduate Forum of advanced control and a new generation of information technology (YRDP), 09/2012
Shanghai, China
Title: *θ -D suboptimal control of overhead crane systems*
- Mini Symposium on Intelligent Informatics (MSII), 08/2012
Dalian, China
Title: *Suboptimal integral sliding mode design for overhead crane systems*

Poster Presentations (Contributed)

- Computer Vision and Pattern Recognition (CVPR), 06/2020
Seattle, WA, USA
Title: *CARP: compression through adaptive recursive partitioning for multidimensional image data*
- ONR meeting at Duke (ONR), 10/2019
Durham, NC, USA
Title: *CARP: compression through adaptive recursive partitioning for multidimensional image data*
- IEEE Engineering in Medicine and Biology Society (ISBI), 04/2018
Washington D.C., USA
Title: *Statistical disease mapping for heterogeneous neuroimaging studies*
- Multidisciplinary Head and Neck Cancers Symposium (ASTRO), 02/2018

Scottsdale, AZ, USA

Title: *Stability analysis of CT radiomics features with respect to the variation of manual segmentation in oropharyngeal cancer*

- The American Society of Human Genetics (ASHG), 10/2017
Orlando, FL, USA

Title: *Heterogeneous deconvolution of mixed tumor expression - DeMixPy*

- The Organization for Human Brain Mapping (OHBM), 06/2017
Vancouver, CA

Title: *Statistical disease mapping for heterogeneous Alzheimer's disease PET images*

- COAT Summer Course on RNA bioinformatics (COAT), 08/2015
UC Santa Cruz, USA

Title: *Computational tools for genomewide R-loops identification and characterization*