

Curriculum Vitae

Li Sun

University of Pittsburgh
Intelligent Systems PhD Student

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EDUCATION	University of Pittsburgh <i>PhD student in Intelligent Systems</i> GPA: 3.92/4.00, advisor: Prof. Kayhan Batmanghelich	<i>Sept 2019-Current</i> Pittsburgh
	Southern University of Science and Technology <i>B.Sc. in Bioinformatics</i> GPA: 3.86/4.00, ranking: 2/22 (in class) 2/79 (in department)	<i>Sept 2015-June 2019</i> Shenzhen
	Johns Hopkins University <i>Visiting student</i> Undergraduate research assistant in Prof. Yun Chen's lab	<i>June 2018-Sept 2018</i> Baltimore
AWARDS	National Scholarship Award (Top 0.5%) First-Class Undergraduate Scholarship, SUSTech (Top 5%) Outstanding Volunteer of XIX International Botanical Congress (Top 10%)	
PUBLICATIONS	Sun, L. , Zhang, S., Chen, H., & Luo, L. (2019). Brain Tumor Segmentation and Survival Prediction Using Multimodal MRI Scans With Deep Learning. <i>Frontiers in neuroscience</i> , 13, 810.	
	Zhang, S.*, Sun, L.* , Wang, R., Tang, H., Zhang, J., and Luo, L., Structure-aware staging for breast cancer metastases. In: <i>Image Analysis for Moving Organ, Breast, and Thoracic Images</i> . LNCS vol 11040. Springer, Cham	
RESEARCH EXPERIENCE	Bakas, S., Reyes, M., Jakab, A., Bauer, S., Rempfler, M., Crimi, A., ... & Prastawa, M. (2018). Identifying the best machine learning algorithms for brain tumor segmentation, progression assessment, and overall survival prediction in the BRATS challenge. arXiv preprint arXiv:1811.02629.	
	Brain Tumor Segmentation and Survival Prediction with Deep Learning <i>Mentor: Prof. Lin Luo, Peking University</i> <ul style="list-style-type: none">•Developed an ensemble model of 3D CNNs to segment brain tumor from multimodal MRI scans, then extracted radiomic features from segmented tumor combined with clinical features to predict patients' overall survival•Ranked 2nd place and 5th place out of 60+ teams in 2018 MICCAI BraTS challenge on survival prediction task and segmentation task respectively, received prize from Intel AI•Paper accepted by MICCAI BrainLes 2018 workshop and was invited for spotlight presentation	<i>May 2018-Aug 2018</i>
	Structure-aware Staging for Breast Cancer Metastases <i>Mentor: Prof. Lin Luo, Peking University</i> <ul style="list-style-type: none">•Developed a deep learning approach to determine the stage of for breast cancer metastases using gigapixel pathology images•Introduced lymph structure information to guide training patch selection and design of features for survival prediction•Paper accepted by 4th MICCAI Workshop on Breast Image Analysis and was invited for spotlight presentation	<i>Nov 2017-June 2018</i>
	Investigating Cis Elements in Alternative Splicing with Deep Learning <i>Mentor: Prof. Wei Chen, SUSTech & Prof. Xin Gao, KAUST</i> <ul style="list-style-type: none">•Use synthetic DNA library to systematically study Cis-regulatory element in alternative splicing•Developed CNN model to predict PSI level based on DNA sequence•Use Activation Maximization/ Minimization to find sequence pattern corresponding to high/low PSI•One research paper currently in preparation	<i>Sept 2018-Current</i>

	Modular and Portable Device for Tissue Mechanical Property Measurement <i>Jul 2018-Nov 2018</i> <i>Mentor: Prof. Yun Chen, Johns Hopkins University</i> <ul style="list-style-type: none"> •Designed and built indentation-based mechanical analyzer (IMA) for skin viscoelastic properties characterization •Wrote C++ code to automatically control the indentation •Manuscript submitted to IEEE Transactions on Biomedical Engineering 	
	Investigating Species-specific Gene Expression Regulation using Mouse-rat Fusion Cell <i>Sept 2016-Aug 2017</i> <i>Mentor: Prof. Wei Chen, SUSTech</i> <ul style="list-style-type: none"> •Identified genes and alternative splicing events that show cis/trans-divergent regulation between mouse and rat using RNA-seq •Discovered that the regulation of alternative splicing is under more predominant contribution of cis-divergence than gene expression •Poster presentation on Otto Warburg International Research Symposium, 2017 	
CONFERENCE	Otto Warburg International Research Symposium <i>Aug 2017</i> “Investigating Species-specific Regulation of Gene Expression Using Mouse-rat Allodiploid Cell”, Poster presentation Shanghai	
	4th MICCAI Workshop on Breast Image Analysis <i>Sept 2018</i> “Structure-aware staging for breast cancer metastases”, Spotlight presentation Granada	
	International MICCAI Brainlesion Workshop 2018 <i>Sept 2018</i> “Prediction of Survival in Glioma with Deep Learning-Based Segmentation and Radiomics: 2nd Place Solution to Survival Prediction Task”, Spotlight presentation Granada	
OVERSEAS EXPERIENCE	Undergraduate Research Assistant at JHU <i>June 2018-Sept 2018</i> <i>Johns Hopkins University</i> Participated in three research projects under the guidance of Prof. Yun Chen Baltimore	
	UBC Vancouver Summer Program <i>July 2016-Aug 2016</i> <i>University of British Columbia</i> Completed two courses taught by UBC faculty and guest lecturers Vancouver	
RELEVANT COURSES	GE105: Basic Computer Programming GE106: Computer System Design and Application EE207: Data Structures and Algorithm Analysis BIO309: Computational Biology MA333: Introduction to Big Data Science MA307: Numerical Analysis CS303: Artificial Intelligence BIO304: Systems Biology BIO306: Bioinformatics	
COMPUTER SKILLS	Languages: C++, Python, JAVA, R, MATLAB Software: Photoshop, Illustrator, ImageJ Operating Systems: Windows, Mac OS X, Linux	
EXTRA-CURRICULARS	Peer Mentor of International Students <i>Sept 2016-Current</i> Provided life and academic support to Cambodian students Shenzhen Students’ Union of Zhixin Residential College <i>Sept 2016-Sept 2017</i> Active member Shenzhen	
REFERENCES	Lin Luo, Vice Dean, Associate Researcher Beijing Institute of Collaborative Innovation Peking University Email: luol@pku.edu.cn Kayhan Batmanghelich, Assistant Professor University of Pittsburgh Email: kayhan@pitt.edu Yun Chen, Assistant Professor Johns Hopkins University Email: yun.chen@jhu.edu	