Curriculum Vitae

Li Sun

Southern University of Science and Technology
Bioinformatics

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EDUCATION

Southern University of Science and Technology — *Sept 2015-June 2019*, **Shenzhen**
Ranked #8 in mainland China universities by Times Higher Education
B.Sc. in Bioinformatics
GPA: 3.86/4.00, ranking: 2/22 (in class) 2/79 (in department)
English ability: TOEFL 104, GRE 326

Johns Hopkins University — *June 2018-Sept 2018*, **Baltimore**
Visiting student
Undergraduate research assistant in Prof. Yun Chen's lab

AWARDS

National Scholarship Award (Top 0.5%)
First-Class Undergraduate Scholarship, SUSTech (Top 5%)
Outstanding Volunteer of XIX International Botanical Congress (Top 10%)

PUBLICATIONS

Zhang, S.*, **Sun, L.***, Wang, R., Tang, H., Zhang, J., and Luo, L., Structure-aware staging for breast cancer metastases. In: Image Analysis for Moving Organ, Breast, and Thoracic Images. LNCS vol 11040. Springer, Cham

Sun, L., Zhang, S. and Luo, L., Tumor Segmentation and Survival Prediction in Glioma with Deep Learning. In: Brainlesion: Glioma, Multiple Sclerosis, Stroke and Traumatic Brain Injuries, 2018. Springer, Cham

Spyridon Bakas, Mauricio Reyes, et al., Identifying the Best Machine Learning Algorithms for Brain Tumor Segmentation, Progression Assessment, and Overall Survival Prediction in the BRATS Challenge, arXiv preprint, 2018

He J, Fu X, Zhang M, He F, Li W, Abdul MM, Zhou J, **Sun L**, Chang C, Li Y, Liu H. (2019). Transposable elements are regulated by context-specific patterns of chromatin marks in mouse embryonic stem cells. **Nature Communications**, 10(1), 34.

RESEARCH EXPERIENCE

Brain Tumor Segmentation and Survival Prediction with Deep Learning — *May 2018-Aug 2018*
Mentor: Prof. Lin Luo, Peking University
- 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

Structure-aware Staging for Breast Cancer Metastases — *Nov 2017-June 2018*
Mentor: Prof. Lin Luo, Peking University
- 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

Investigating Cis Elements in Alternative Splicing with Deep Learning — *Sept 2018-Current*
Mentor: Prof. Wei Chen, SUSTech & Prof. Xin Gao, KAUST
- 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

Modular and Portable Device for Tissue Mechanical Property Measurement *Jul 2018-Nov 2018*
Mentor: Prof. Yun Chen, Johns Hopkins University

•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 *Sept 2016-Aug 2017*
Mentor: Prof. Wei Chen, SUSTech

•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 *Aug 2017* **Shanghai**
"Investigating Species-specific Regulation of Gene Expression Using Mouse-rat Allodiploid Cell", **Poster presentation**

4th MICCAI Workshop on Breast Image Analysis *Sept 2018* **Granada**
"Structure-aware staging for breast cancer metastases", **Spotlight presentation**

International MICCAI Brainlesion Workshop 2018 *Sept 2018* **Granada**
"Prediction of Survival in Glioma with Deep Learning-Based Segmentation and Radiomics: 2nd Place Solution to Survival Prediction Task", **Spotlight presentation**

OVERSEAS EXPERIENCE

Undergraduate Research Assistant at JHU *June 2018-Sept 2018* **Baltimore**
Johns Hopkins University
Participated in three research projects under the guidance of Prof. Yun Chen

UBC Vancouver Summer Program *July 2016-Aug 2016* **Vancouver**
University of British Columbia
Completed two courses taught by UBC faculty and guest lecturers

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 *Sept 2016-Current* **Shenzhen**
Provided life and academic support to Cambodian students

Students' Union of Zhixin Residential College *Sept 2016-Sept 2017* **Shenzhen**
Active member

REFERENCES

Lin Luo, Vice Dean, Associate Researcher
Beijing Institute of Collaborative Innovation
Peking University
Email: luol@pku.edu.cn

Wei Chen, Chair Professor
Southern University of Science and Technology
Email: chenw@sustc.edu.cn

Yun Chen, Assistant Professor
Johns Hopkins University
Email: yun.chen@jhu.edu