

Junchen Yang

4-221, Biology Building, Shanghai Jiao Tong University, Shanghai, China, 200240
• (+86)131-6208-0289 • 2015yang@sjtu.edu.cn • jcyang.net

EDUCATION

Shanghai Jiao Tong University, Shanghai, China
Major 1: Biotechnology (Bioinformatics Pioneering Class) 2015.9 - present
Major 2: Computer Science 2017.3 - present
Rank: **1/27** GPA: 3.81/4.0 in Department of Bioinformatics and Biostatistics

UCLA, Los Angeles, California, USA
Cross-disciplinary Scholars in Science and Technology (CSST) research program 2018.7 - 2018.9
GPA: 4.0/4.0

RELEVANT COURSES

Course	Grades	Courses	Grades
Molecular Biology	99	Biochemistry(I)	90
Bioinformatics	92	Biochemistry(II)	98
Principles of Algorithms in Bioinformatics	92	Computational Biochemistry	95
Algorithms and Data Structure	94	Database Principles	96
Functional Genomics	98	Biostatistics	95
Bioinformatics Programming	92	Genetics and Evolution	96

RESEARCH INTEREST

I have a broad interest in Bioinformatics and Computational Biology. Current major interest is in developing biological sequence analysis methods and processing next-generation sequencing data.

RESEARCH EXPERIENCE

UCLA, Los Angeles, California, USA 2018.7 - 2018.9

Research Intern, Scalable Analytics Institute, Advisor: **Prof. Wei Wang**

ANT: Alignment-Narrowed TCC Matrix in Single-cell RNA-seq Quantification

- Developed an algorithm called ANT that transforms the genome alignment results to build Transcript Compatibility Counts (TCC) matrix. ANT is comprised of 3 components, genome alignment of reads using STAR, alignment narrowing with an intersection idea, and matrix construction.
- Tested ANT on 3381 mouse cells and compared it with previous method Kallisto, in which ANT showed a capacity of saving useful information like raw reads and umis while remained competitive regarding speed. More details of the implementation and visualization are [here](#).

Shanghai Jiao Tong University, Shanghai, China

2018.3 - 2018.7

Undergraduate Researcher, Dept. Bioinformatics & Biostatistics, Advisor: **Prof. Jingfang Wang**
Computational Prediction and Functional Analysis of Arsenic Binding Proteins in Human Cells

- Developed a web-based predicting tool called Arsenic Finder for arsenic-binding proteins based on the position-specific score matrix and the single-mutation free energy profile. Arsenic Finder is based on Django (a python web framework), deployed together with Nginx and uWSGI. It is freely [available](#).
- This work has been invited as an oral presentation at the *2018 International Conference on Computational Systems Biology* and the full manuscript has been submitted to *Quantitative Biology* for publication.

Shanghai Jiao Tong University, Shanghai, China

2017.4 - 2018.3

Undergraduate Researcher, Dept. Bioinformatics & Biostatistics, Advisor: **Prof. Yi Xiong**

Drug Combination Database and Predictive Model Construction Based on Drug and Target Information

- Developed the front-end of the database (Django framework).
- Developed the ensemble prediction model of drug combinations with teammates, which can predict potential drug combinations with an accuracy of 82% and AUC of 0.88. The base classifiers are Naive Bayes, SVM, Random Forest, AdaBoost, and Gradient Boost. The meta classifier is XGBoost.
- The project received an A (highest) in the 15th Undergraduate Innovation Research Program in Shanghai Jiao Tong University, and I received an A+ (highest).

PUBLICATIONS

1. Shichao Pang, **Junchen Yang**, Yilei Zhao, Yixue Li, Jingfang Wang. Computational Prediction and Functional Analysis of Arsenic Binding Proteins in Human Cells. *Quantitative Biology*. (under review)
2. Yi Xiong, Qiankun Wang, **Junchen Yang**, Xiaolei Zhu, Dong-Qing Wei. PredT4SE-Stack: Prediction of Bacterial Type IV Secreted Effectors From Protein Sequences Using a Stacked Ensemble Method. *Frontiers in Microbiology*.

TECHNICAL STRENGTHS

Computer Languages	Python, C++, R, HTML, CSS, JavaScript
Additional Skills	BASH, Django, L ^A T _E X

SELECTED AWARDS

National Scholarship (highest honor for undergraduates in China, top 0.2% nationwide)	2017,2018
Lixin Tang Scholarship (top 1%)	2017
Merit Student Award of Shanghai Jiao Tong University	2016,2017
UCLA-CSST Scholarship	2018