

Yujuan Fu

<https://github.com/velvinnn> | velvinfu@uw.edu

Academic Proficiency

- **Computing skills:** predictive modeling, data mining, database management, website design, machine learning, deep learning.
- **Statistics:** statistical modeling, hypothesis testing, regression, correlation analysis, survival analysis, bayesian data analysis, time series analysis.
- **Programming languages:** Python, JAVA, R, SQL, Matlab, C++
- **Outstanding qualities:** a quick learner, a passionate contributor, a strong collaborator, with self-motivation, rigorous and disciplined working style.

Education

University of Washington - Seattle

- **Ph.D.**

Biomedical Informatics, supervised by Prof. Gang Luo, UW Medicine, Sep 2020 - Apr 2025 (planned)

University of Michigan - Ann Arbor

- **B.S.** (*dual-degree*)

Data Science, Statistics and Mathematics (Minor), College of Engineering, Sep 2018 - Apr 2020

- GPA: 3.85/4.00
- Awards: Dean's List, University Honors, James B. Angell Scholar

Shanghai Jiao Tong University

- **B.S.** (*dual-degree*)

Electrical and Computer Engineering, Dual Degree with University of Michigan, UM-SJTU Joint Institute, Sep 2016 - Aug 2018 Shanghai, China

- GPA: 3.54/4.00
- Awards: 2020 Shanghai Outstanding Graduates, John Wu & Jane Sun Outstanding Scholarship (Top 5%), Merit Student, Dean's List, Volunteer Spirit Scholarship

Project Experience

Protein Contact Map Prediction

Capstone Design Project, Prof. Yang Zhang's Lab, Department of Bioinformatics, University of Michigan, Oct 2019 - Apr 2020

- Collected and cleaned protein sequence and structural data, visualized protein 3D structures.
- Designed and implemented a predictive model for 3D protein structure using convolutional neural network (CNN) and network architecture search, boosted the accuracy from 17% to 35%.

Database Management

Class Project - EECS 484 Database Management Systems, University of Michigan, Jan 2019 - May 2019

- Designed and implemented “Facebook Oracle”, to simulate the data storage and answer queries about Facebook friend relationship.
- Exported SQL data to JSON using JDBC.

In-Hospital Mortality Prediction of Intensive Care Unit (ICU) Patients

Student, Big Data Summer Institute, Department of Biostatistics, University of Michigan, Jun 2019 - Jul 2019

- Cleaned and visualized ICU patients' longitudinal electronic medical record (EMR) data.
- Imputed missing information using correlation analysis and regression.
- Developed a convolutional neural network model for in-hospital mortality based on a CNN model, and achieved an accuracy increase from 82% to 85%.

Research Experience

Tonotopy Reconstruction of Mouse Cochlear Duct

Research Assistant, Prof. Joerg Waldhaus's Lab, Medical School, University of Michigan, Oct 2019 - May 2020

- Designed and implemented a tonotopy reconstruction method based on Principal Component Analysis, constructed a 3D duct structure model using single cell RNA-Seq data.
- Discovered 118 gradiently expressed genes along the tonotopic axis, and came up with a dynamic intercalating model to explain the proliferation mechanism.

TAD Structure Dynamics

Research Assistant, Prof. Jie Liu's Lab, Department of Bioinformatics, University of Michigan, May 2019 - Aug 2019

- Define a metric for chromosome contact, came up with a curve-clustering method, identified types of variation dynamics for TAD boundaries.
- Proved the chromosome substructure, namely topologically associating domains (TAD), existence along the cell cycle.

Problem Diagnostics for Detroit Connector (Public Transportation)

Research Assistant, supervised by Dr. Aditi Misra, University of Michigan Transportation Research Institute, Feb 2019 - Apr 2019

- Designed and distributed online questionnaires for Detroit Connector riders.
- Analyzed the survey data using correlation analysis, diagnosed problems of the Detroit Connector such as route planning, safety, buses' inside environment and bus stops' conditions, improved ridership by 53%.

Leadership Experience

Miyuan Volunteering Team

Vice-captain, Shanghai Jiao Tong University, Shanghai, China, May 2017 - Aug 2018

- Supervised Wechat official account operation, Miyuan culture development, poster design, and mascot design, etc.
- Held weekly seminars on photography and video clips in the Propaganda Department.
- Hired volunteers, provided nursing training, and led volunteers to accompany mentally disabled people once every two weeks in Sunshine House and Yuemiao Home.
- Oriented and carried out detailed activity and propaganda plans with other captains to make Miyuan one of the Top 10 Volunteering Teams in Shanghai Jiao Tong University, 2017.

Aid Education in Weiliang Primary School

Volunteer, Miyuan Volunteering Team, Yunnan, China, Dec 2016 - Jan 2017

- Gave classes, organized art and engineering workshops, and offered help in coursework thirty hours per week.
- Wrote and published articles about the lives of school children, local teachers and volunteer teams in the official account on Wechat, earned a 10,000 RMB funding for local students and schools.

Publications

1. Shuze Wang, Joerg Waldhaus, Jie Liu, Mary Lee, **Yujuan Fu**, Scott Jones and Jenna Diegel. *Single Cell Chromatin Accessibility Delineates Cellular Identities of the Neonatal Organ of Corti. iRNA COSI: Integrative RNA Biology* - under review
2. **Yujuan Fu**, Joerg Waldhaus, Jie Liu, Shuze Wang, Mary Lee and Scott Jones. *Transcriptional Regulation of Gene3: Control Differentially Expressed Genes In Cochlear Duct, Mouse Embryo.* - under preparation