

# Xinrui Chen

639 Longmian Avenue, Jiangning District, Nanjing, 211198, China

+86 18912135113, xinruichen@stu.cpu.edu.cn

## EDUCATION

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### China Pharmaceutical University (CPU)

B.S. in Pharmaceutical Preparation

Nanjing, China

Sep. 2015–Present

- GPA: Overall 91.19/100; Compulsory courses 90.86/100; WES: 3.89/4.0; Rank 5<sup>th</sup>/297
- Core courses: Advanced Mathematics I, II; Mathematical Model; Mathematical Statistics; Linear Algebra; Biopharmaceutics and Pharmacokinetics; Programming Language
- Coursera courses: HI-FIVE: Health Informatics For Innovation (Columbia University); Data Science in Stratified Healthcare and Precision Medicine (The University of Edinburgh)

### University of Strathclyde

Summer School, Institute of Pharmacy and Biomedical Sciences

Scotland, UK

Jul. 2017–Aug. 2017

- Core courses: Industrial Biotechnology; Introduction to NHS (National Health Service) and Pharmaceutical Care; Optimization of Medicine Workshop

## RESEARCH EXPERIENCE

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### Applications of Data Mining and Web Crawler Technology

Research Assistant

CPU, China

May 2017–Present

- Crawled data on patents, stocks and academic papers using the Beautiful Soup module and established a module in Python to overcome anti-crawlers on websites.
- Visualized hot topics in biomedical literature with cloud graphs made with Rwordseg and the tm package in R.
- Generated document topics, distinguished their relationship, and predicted future research topics using latent Dirichlet allocation (LDA) and structural topic models (STM).
- Established a platform to auto-crawl biomedical data and conduct text analysis to guide research (in progress).

### Preparation of Highly Active Nano-catalytic Materials from Transition Metals

Research Assistant

CPU, China

May 2016–May 2017

- Explored the best experimental method to synthesize catalytic metal oxide composite modified with transition metals.
- Analyzed UV spectrum graph and processed HPLC chromatographic data using area normalization method, internal standard method, and external standard method to evaluate catalytic performance.
- Synthesized the best catalytic material Cu-ZnO using the improved hydrothermal method.

## WORK EXPERIENCE

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### Jiao Fu Biomedicine Technology

Bioinformatics Intern, Bioinformatics Department

Shanghai, China

Jul. 2018–Aug. 2018

- Conducted GeneChip data analysis on GEO database to identify potential cancer mechanisms using Limma difference analysis, enrichment analysis in R and Cytoscape.
- Designed bio-research workflow with Visio and drew experiment charts with Abode Illustrator.
- Co-screened drugs using Connectivity Map analysis.

### Huatai Securities

Quantitative Intern, Research Institute

Nanjing, China

Jul. 2018

- Worked remotely on a project to investigate the effect of changes in stock investment ratings on stock prices by using STATA with the Event method, and wrote a 4,500-word report on the findings: showed that ratings upgrades or downgrades have a corresponding positive or negative market effect in the short term.
- Retrieved real-time stock data from the Choice Financial terminal, carried out descriptive statistical analysis, estimated normal income using market model, calculated cumulative abnormal return and cumulative average abnormal return, and conducted t-tests with STATA.

## ACADEMIC PROJECTS

### Udacity Data Analyst Certificate (Advanced)

Dec. 2017–Apr. 2018

- Project 1: Audited and cleaned OpenStreetMap data for Chicago in Python and proposed improvements in a report of 5 pages by making a statistical overview with SQL.
- Project 2: Conducted multivariate analysis on red wine quality evaluation data using R and wrote a report.
- Project 3: Identified suspects in Enron data sets using the DecisionTreeClassifier, screening parameter with GridSearchCV and conducting cross-validation with StratifiedShuffleSplit.
- Project 4: Created an interactive visualization of baseball player data using d3.js.

### Kaggle, *Corporacion Favorita Grocery Sales Forecasting*

Oct. 2017–Dec. 2017

- Ranked in the top 4% on the public results board.
- Co-forecasted sales for items based on more than 125 million records from 5 years of training data using log moving average model, lightGBM and XGboost algorithms after conducting EDA (exploratory data analysis), which involved cleaning data, exploring data patterns, and handling missing data.
- Co-wrote a 18-page EDA and machine learning report

### Udacity Business Analyst Certificate (Basic)

Oct. 2017

- Project 1: Cleaned and analyzed questionnaire data using pivot tables, and plot graphs in Excel.
- Project 2: Made business decisions in a report of 4 pages about how many brochures a company should distribute to make the highest net profits based on linear regression fitting prediction in Excel.
- Project 3: Cleaned data on 10,000 movies in Excel; visualized data in Tableau to explore movie performance and success; made suggestions in a report to a startup film company about how to make their first movie.

### Maths China, *Authority Cup International Mathematical Modeling Contest*

Oct. 2016

- Led a team of 3 students and awarded a merit for finishing in the top 10%.
- Analyzed an antibiotic interest chain using a multi-objective dynamic game model.
- Predicted antibiotic resistance development by obtaining the Nash equilibrium equation with hierarchical evaluation.
- Designed a portable management system for antibiotic circulation based on simulation prediction in a report.

## HONORS AND AWARDS

Scholarship for Outstanding Students (20<sup>th</sup>/297)

CPU, Sep. 2018

National Encouragement Scholarship (13<sup>th</sup>/297)

China's Ministry of Education, Sep. 2017

National Scholarship (1<sup>st</sup>/297)

China's Ministry of Education, Sep. 2016

Certificate for Outstanding Volunteers

CPU, Sep. 2016

Utility Model Patent for A New Type of Portable Raincoat

CNIPA, Jul. 2016

## EXTRACURRICULAR ACTIVITIES

### CPU Mathematical Modeling Club

CPU, China

*Head, Academic Department*

Nov. 2016–Sep. 2017

- Taught mathematical modeling theories such as the SIR epidemic model to 30 freshmen and arranged academic seminars on topics such as predicting the ozone hole crisis.

### Nanjing Children's Hospital

Nanjing, China

*Volunteer*

Nov. 2015–Sep. 2016

- Processed drug usage data in hospital database and instructed patients to use self-service registration machine.

## SKILLS

**IT:** AutoCAD, R, Python, Tableau, SQL, Adobe Illustrator, STATA, Cytoscape, MS Visio, MS Office.