



# Jinyang Liu

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## EDUCATION

**Peking University**

Bachelor of Mathematics and Applied Mathematics (GPA 3.0/4)

**Beijing, China**

Sep.2011- Jul. 2016

**Peking University**

Master of Data Science (GPA 83.4/100)

**Beijing, China**

Sep.2016- Present

## RESEARCH INTERESTS

**Machine Learning Theory and Applications**

**Deep Learning Methods**

**Natural Language Processing**

## ACADEMIC EXPERIENCE

**Research and Practice of API Recommending Techniques in Mobile Application Software Programming 2016**

Undergraduate Thesis

- Builds Models to predict and recommend classes and packages imported in java codes;
- Applies Apriori Algorithm, PageRank Algorithm and Artificial Neural Network to deal with the task.

**Analysis of the Evolution of the UML metamodel**

**Jan. 2017 to Aug. 2017**

Lab Research Project, participant

- The work of mine is modeling and calculation on the graph structure of UML packages;
- Supported by the National Natural Science Foundation of China (No. 61672046);
- Data analysis for the historical versions of UML (Unified Modeling Language);
- Provides insight into the constructive mechanism and future trends of UML, and potentially form the basis for eliciting improved or novel laws of UML evolution;
- Published on MODELSWARD 2018 Conference, Jan. 2018 in Portugal.

**An Approach to Modeling Microservice Solutions**

**Oct. 2017 to Mar. 2018**

Lab Research Project, participant

- Supported by the National Natural Science Foundation of China (No. 61672046);
- Presents an approach to modeling microservice solutions based on CDBI SAE metamodel for SOA 3;
- Discusses which modeling activities can output which models and how to build and describe the models, and prescribes the relations between the models.

**Design of an API Recommendation System in Android Programming**

**Dec. 2017 to Present**

Lab Research Project, leader

- Designs an API recommendation system in android programming, which makes recommendation of import information and method invocations in Android codes;
- Uses AST tools in Java to extract key features of codes, and uses several models on the data to generate recommendation results;
- Periodical achievement submitted to ICCEE 2018, and has been accepted. To be published in Oct. 2018.

**Media Resource Metadata Extractor**

**2017**

Cooperation project with enterprise, participant

- Part of a synthetic Media Resource Online Platform;

- An online tool of transfer the information of media file in the database into unified metadata, and upload it onto cloud database;
- Focus on Video data, and can extract key frames from video;
- Written in Python.

### **Wind Power Big Data Prediction Problem**

*Nov. 2016 to Dec. 2016*

#### Final Coursework of Introduction to Data Science

- Task of wind speed and power prediction: given history weather data and power record of one wind power station, build a prediction model for future wind speed and power;
- Uses neural networks and gradient boosting method, build regression model of wind speed and wind power by weather data.

### **English Question-Answering System**

*Nov. 2016 to Dec. 2016*

#### Final Coursework of Computational Linguistics

- Build a system that can choose right answer from candidate answers basing on given labeled train data;
- Uses GloVe to vectorize language data;
- Tried SVM, LSTM and xgboost method to train models.

### **Stocking Selection Model Based on Deep Learning**

*May. 2017 to Jun. 2017*

#### Final Coursework of Deep Learning: Algorithms and Applications

- Use Deep Learning to predict stock price, and build a stock selection system;
- Mixed model of CNN and LSTM.

### **Named Entity Recognition in Chinese**

*May. 2018 to Jun. 2018*

#### Final Coursework of Advanced Natural Language Processing

- Design a model of NER(Named Entity Recognition) on Chinese language data;
- BiLSTM+CRF Model;
- High precision and recall rate on testing data.

## **SKILLS & AWARDS**

**Programming Language:** C, C++, Java, Python      **Software:** MATLAB

**Language:** English (Fluent) TOEFL 106 (S22) GRE V153+Q170+AW3.0; Japanese (Intermediate);

**Award for outstanding research work, Peking University, 2018.**

**Scholarship of May 4<sup>th</sup>, Peking University, 2018-2019.**

## **PUBLICATIONS**

*Analysis of the Evolution of the UML Metamodel*, Zhiyi Ma , Huihong He , Jinyang Liu and Xiao He, Proceedings of the 6th International Conference on Model-Driven Engineering and Software Development, P. 356 – 363, DOI:10.5220/0006571303560363

Ma Z., Liu J., He X. (2019) An Approach to Modeling Microservice Solutions. In: Kim K., Baek N. (eds) Information Science and Applications 2018. ICISA 2018. Lecture Notes in Electrical Engineering, vol 514. Springer, Singapore

*Design of an API Recommendation System in Android Programming*, Jinyang Liu, Zhiyi Ma, in Journal of Physics: Conference Series (doi:10.1088 ; Online ISSN: 1742-6596 / Print ISSN: 1742-6588)

Zhiyi Ma, Xiaoxi Wang, Hongjie Chen, Jinyang Liu, Xiao He. *A Metamodel For Sensor-Based Mobile Applications*. The 12th IEEE International Conference Application of Information and Communication Technologies, 2018, pp:318-323.