

# Jiyue Huang

MASTERS STUDENT · PEKING UNIVERSITY

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*"I am seeking a challenging PhD Position in the area of **distributed security and incentive** with emphasis on **Federated Learning** for the benefit of the department."*

## Education

### Peking University (School of Electronics and Computer Engineering)

M.S. IN COMPUTER APPLICATION TECHNOLOGY

Shenzhen, China

Sep, 2017 - Present

- **GPA 88.8%**, ranking Top 10%. **IELTS 7.0**.
- **6 Academic papers**, 4 named as the first student author.
- **1 First Prize** of Shenzhen Graduate School on the 26th Challenge Cup Competition.
- 1 of 39 **Merit Student Award** recipients in **564** students for promising students in research and study.
- Advanced Individual Award for **Scientific Research** in Peking University.

### City University of Hong Kong (Electronic Engineering Department)

Hong Kong

EXCHANGE STUDENT IN ELECTRONIC INFORMATION ENGINEERING

Aug, 2016 - Jan, 2017

- **Sole recipient** of annual exchange opportunity in Tianjin University to City University of Hong Kong.
- further advanced my comprehensive **language** ability, especially **oral fluency**.
- broadened **multicultural** horizons, and enhanced the ability to analyse and solve problems **independently**.

### Tianjin University (School of Electronic Information Engineering)

Tianjin, China

B.E. IN ELECTRONIC INFORMATION ENGINEERING

Sep, 2013 - July, 2017

- **GPA 87.9%, Mathematical Contest in Modeling**, Electronic Design Contest.
- Won the **2/55** place in National Undergraduate Innovation and Entrepreneurship Training Programs.
- **Merit Student** for 3 consecutive years., **Zhonghuan Electronic Scholarship**.
- **Outstanding Graduates Award** for postgraduate recommendation without exam.

## Research Experience

### Incentive Mechanism for Federated Learning

Project: IEN

SHENZHEN KEY LAB FOR INFORMATION CENTRIC NETWORKING & BLOCKCHAIN TECHNOLOGY

June. 2018 - PRESENT

- Due to **privacy** concerns between companies and users, this study focused on demonstrating the efficacy of **machine learning** models in a distributed way. It is now under further research involving the use of **Blockchain** as a consensus to optimize our incentive mechanism.
- Partial study results on **Attention-based Updates Aggregation** were **published** on (**IJCAI2019**) workshop of Federated Machine Learning. Contributions on incentive mechanism were submitted as **Invited Paper** for **IEEE Intelligent System(JCR2, IF 4.64)**, both as the first author.

### Semantic Similarity Measures

Project: IASO

INSTITUTE OF BIG DATA TECHNOLOGIES SHENZHEN KEY LAB FOR CLOUD COMPUTING TECHNOLOGY & APPLICATIONS

Aug. 2017 - June. 2018

- Chinese Medical Semantic Similarity Measure. Improved recognition efficacy and accuracy by introducing **linguistic** features including pinyin, radical and edit distance, and **global context** extracted from search engines.
- Research results were **published** on (**ICONIP2018**) as the first student author.

### Medical Entity Relation Extraction

Project: IASO

INSTITUTE OF BIG DATA TECHNOLOGIES SHENZHEN KEY LAB FOR CLOUD COMPUTING TECHNOLOGY & APPLICATIONS

Aug. 2017 - Apr. 2018

- Proposed RED, a neural network for Relation Extraction that fully explores Dependency information and incorporates that information into deep neural networks. The **long-range relation** between entities can be captured by organizing a sentence as a **dependency tree**, while the requirement for a large amount of training data can be reduced with the abstract-level features generated by dependency information.
- Research results were **published** on (**IJCAI2019**) workshop, as the first student author.

### Web Design for IASO Knowledge Graph

Project: IASO

INSTITUTE OF BIG DATA TECHNOLOGIES SHENZHEN KEY LAB FOR CLOUD COMPUTING TECHNOLOGY & APPLICATIONS

Oct. 2017 - Dec. 2017

- System framework: Java/SpringBoot/Nginx/FreeMarker/MySQL/Mybatis/Redis. The project displays a drug knowledge map with 45W entities to researchers in the form of RESTful API, with thousands of page views monthly.
- Implemented the TreeShow page with Path index in [www.iasokg.com/treeShow](http://www.iasokg.com/treeShow).

## Honors & Awards

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2019	<b>“Diamond Elite Team”</b> , Award for National Fintech Elite Boot Camp, Offline Competition	Merchants Bank
2019	<b>Top 100 Certification</b> , Award for National Fintech Online Competition over 8000+ competitors	Merchants Bank
2019	<b>Advanced Individual for Scientific Research</b> , Annual Student Achievement Assessment	Peking University
2018	<b>Merit Student Award</b> , Annual Student Achievement Assessment of Peking University	Peking University
2018	<b>First Prize</b> , 26th Challenge Cup Competition for Innovation in Shenzhen Graduate School	Peking University
2017	<b>Outstanding Graduate Award</b> , Annual Student Achievement Assessment for Graduations (2/88)	Tianjin University
2016	<b>Zhonghuan Electronic Scholarship</b> , Awards for Promising Researchers	Tianjin University
2016	<b>Advanced Individual for Volunteering.</b> , Annual Student Achievement Assessment of Tianjin University	Tianjin University
2016	<b>Advanced Individual for Social Services.</b> , Annual Student Achievement Assessment of Tianjin University	Tianjin University
2014-16	<b>Merit Student Award</b> , Annual Student Achievement Assessment of Tianjin University	Tianjin University

## Internships

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### Tencent

Shenzhen, China

INTERN OF RESEARCHING ON ARTIFICAL INTELLIGENCE IN PLATFORM AND CONTENT GROUP

04-09. 2019

- Independently completed the **Concept Graph** mining task of QQ browser, gradually learned Spark applications, extracted millions of general concepts and trained a **hypernym and hyponym** matching model, reaching accuracy of **98.5%**.

### China Merchants Bank

Shenzhen, China

AS ONE OF THE SELECTED 300 MEMBERS OUT OF 8000+ CANDIDATES FOR FINTECH ELITE BOOT CAMP

06. 2019

- Fintech Elite Boot Camp**, Learn the application of artificial intelligence algorithm in the financial field, get the **first place** in the **Financial Event Extraction** project, and win the title of “diamond elite team” with 10000 RMB.

## Publications

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- [1] **Jiyue Huang**<sup>1</sup>, et al. Attention-based Updates Aggregation in Federated Learning, IJCAI 2019 workshop on Federated Machine Learning. (Accepted)
- [2] **Jiyue Huang**<sup>1</sup>, et al. Toward Verifiable Client Updates for Federated Learning : A Contribution-Driven Incentive Mechanism with Attention, IEEE Intelligent Systems(JCR 2, IF: 4.464) (Invited Paper, Under Review).
- [3] Kai Lei<sup>1</sup>, **Jiyue Huang**<sup>1</sup>, et al. Semantic Similarity Measures to Disambiguate Terms in Medical Text, ICONIP 2018: Neural Information Processing pp 398-409.
- [4] Ying Shen<sup>1</sup>, **Jiyue Huang**<sup>1</sup>, et al. Discovering Medical Entity Relations from Texts using Dependency Information. IJCAI 2019 workshop (Accepted).
- [5] **Jiyue Huang**<sup>1</sup>, et al. Survey on Blockchain Incentive Mechanism, ICPCSEE 2019: Data Science pp 386-395.
- [6] Kai Lei, Maoyu Du, **Jiyue Huang**<sup>3</sup>, Tong Jin. Groupchain: Towards a Scalable Public Blockchain in Fog Computing of IoT Services Computing, IEEE Transactions on Services Computing (Accepted).
- [7] Kai Lei, Maoyu Du, Liwei Yang, **Jiyue Huang**<sup>3</sup>, et al. Towards a Blockchain-Based Equilibrium Trading Mechanism for Assets. HPCC 2019 (Accepted).
- [8] Ying Shen, Qiang Zhang, Jin Zhang, **Jiyue Huang**<sup>3</sup>, Yuming Lu, Kai Lei, Improving Medical Short Text Classification with Semantic Expansion Using Word-Cluster Embedding, ICISA 2018: Information Science and Applications 2018 pp 401-411.

## Personal Skills

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Coding **Python>Spark>Matlab>SQL>C++**, Federated Learning, NLP, Web crawler, Machine Learning

English **Great Language Ability**, Exchange student with oral fluency, able to understand English materials quickly.

Related **Knowledge**, MySQL, PyTorch, Tensorflow, Docker, Knowledge Graph, Consensus and Incentive of Blockchain

Thinking **Special Insight to Overview**, Organize ideas logically, Explore essences independently, Abstract ability.

Others **4 years Chorus Experience**, Member of Peiyang Chorus at college, Positive attitude towards life.

## Referees

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Prof. Haipeng S: Associate Dean at the university of Hong Kong.

Doctor of statistics, Patrick S C Poon Professor in Analytics and Innovation.

Email: haipeng@hku.hk.

Prof. Kai Lei: Associate Professor at School of Electronic and Computer Engineering, Peking University.

Director of Shenzhen Key Lab for Information Centric Networking & Blockchain Technology.

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