

# Lu Qikun 卢启昆

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Data Analyst with track record of excellence in multidisciplinary project on agriculture domain. Extensive experience in multi-source data processing, analysis and machine learning to provide data service. Cooperating with colleagues and clients to complete several projects on meteorological data service and object classification.

**Objective:** Seeking to join a big data PhD program within field experts with agriculture or data science.

## Relevant Knowledge, Skills, and Training

Big Data • Machine Learning • Multidisciplinary Background • MSc in Agriculture • Multi-source Data  
Satellite • Multidisciplinary Teams • Data Analytics

## SKILLS&QUALIFICATIONS

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- ❖ Interdisciplinary background of data analyst, agriculture, environment.
- ❖ Frequent user of **Python, R, PySpark, QGIS**; Practical experience in **Scikit-Learn, GDAL**.
- ❖ Familiar with **Keras, Scrapy, CDO, wgrib2, Delft3D, Power BI, Microsoft Office, Ubuntu, Linux**.
- ❖ CDA (Certified Data Analyst) LEVEL II, Data Modelling Analyst.
- ❖ English: moderate in reading, writing, listening and speaking.

## PROFESSIONAL EXPERIENCE

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- ❖ **China Mobile IoT Co. LTD (CMIOT)** **Beijing, China**  
*Integrated Circuit Center/ Data Analyst* *12/2018 - Present*

The company is a wholly owned subsidiary of China Mobile. It focuses on operating IoT private network, provides IoT solutions including environment, agriculture, security, and so on.

My responsibilities included **data processing, analysis, modelling, NLU(e.g. intention classification)**. Two parts of my projects listed as follows.

1. **The task-oriented dialogue intent identification** (Keras)
2. **Chinese error diagnosis task** (Keras)

**key model:** word embedding, LSTM, language model, BiLSTM

- ❖ **Beijing Jiage-Tiandi Technology Co. LTD (GAGO)** **Beijing, China**  
*Data Department/ Big Data Analyst* *10/2016 - 03/2018*

This is a start-up company that provides agricultural and environmental solutions through environmental and agricultural big data collection, processing, analysis and visualization systems. Founding members formerly worked at NASA, United States Department of Energy National Laboratory, and Monsanto.

My responsibilities included **data processing, analysis, modelling, visualization and analysis report**. Complete **10 data services**, the total of which was more than **\$0.3 million**. The main were as follows.

1. **Inner Mongolia ecological big data services** **Persons Responsible** **210 days**

- a) 45000 km<sup>2</sup>, 3 months, object classification (forest, farmland, etc.), grass yield prediction.
  - b) **Data sources:** satellite (Landsat-8, Sentinel-2, etc.), field sampling data, etc.
  - c) **Tools and methods:** Python, R, GDAL, GIS; supervised classification, threshold analysis, etc.
  - d) **Processing:** acquisition, processing (correction, clip, etc.), analysis, spatial statistics, visualization.
  - e) **Achievements:** 72 copies of geospatial map, 60 copies of image data, 3 copies of pending patents.
2. **The research experiment based on a deep learning model for building recognition** **Participant**
- a) satellite (Sentinel-2), the area of training data is 1485 km<sup>2</sup>, the area of test data is 100 km<sup>2</sup>
  - b) **Tools and methods:** Python, Tensorflow, Keras, QGIS, GDAL; U-Net
  - c) **Data processing:** histogram stretch, format conversion of label data, flip, random rotation, etc.
  - d) **Model evaluation:** evaluation metrics (F-score: 0.7), training time (5 h, NVIDIA Tesla P100 GPU).
3. **The historical meteorological data service in 11 places** **Participant** **45 days**
- a) 11 regions (Anning, etc.), 10 to 50 years, 7 meteorological elements (sunshine duration, etc.).
  - b) **Key tools:** Python, CDO, SQL, wgrib2 and Shell.
  - c) **Data sources:** NCEP Climate Forecast System Reanalysis (CFSR), etc.
  - d) **Processes:** data acquisition, data fusion, missing data processing, etc.
4. **The evaluation study of the 2006-2016 reanalysis data in China** **Participant** **25 days**
- a) 194 international exchange station locations, temperature
  - b) **Data sources:** CFSR and ERA-Interim, Chinese Ground International Exchange Station (CMA)
  - c) **Key tools:** Python, R, GIS

❖ **Beijing Hengchang Financial Service Group (HCFS)** **Beijing, China**  
*Big Data Department/ Algorithm Engineer (Part-Time Job)* **03/2018 - 07/2018**

It is an online loan information intermediary company devoting itself to FinTech innovations.

Completed two parts of a project, and listed as follows.

- 3. **The feature importance evaluation of the customers' credit cards** (Spark, Xgboost, sklearn)
  - 4. **The feature creation of the customer anti-cheating project** (Spark, Xgboost, sklearn)
- key processes:** missing value processing, discretization, bucketing, one-hot encoding.

❖ **Tsinghua Holdings Human Settlements Environment Institute** **Beijing, China**  
*Eco-Environment Center/ Environmental Planner* **05/2015 - 03/2016**

It is the team that Tsinghua University engages in integrated environmental technology services.

Participated in a project, and my responsibilities were as follows.

- 1. **The first municipal pilot project of strategic environmental assessment launching by the former Ministry of Environmental Protection of China**
  - a) **Data collection:** 3 days, 300 pieces of data from 35 departments, 8 types (economic, etc.).
  - b) **Analysis:** a spatial map of 7615 km<sup>2</sup>, a sub-topic of the current situation of offshore waters, etc.
  - c) **Others:** maintain collaborations with other institute (TPRI), explore the water environment model.

❖ **China Academy of Urban Planning and Design** **Beijing, China**

Participated in a project and my responsibilities were to complete the processes.

### 1. The project of ecological environment planning for Poyang Lake

- a) Check the information (coordinates, pollutant emission, etc.) of 976 enterprises;
- b) Collect, sort, check the information (location, address, etc.) of 133 parks, form two Shapefile files.

## EDUCATION

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❖ <b>Master of Science</b>	<b>China Agricultural University (CAU)</b>	09/2012 - 07/2014
Agricultural Engineering/ Agricultural Biological Environment and Energy Engineering		GPA: 3.53/4.00

CAU is a research university specializing in agriculture and biology. It is directly under the Ministry of Education of China and is one of the universities receiving by the “211 Project” and “985 Project”.

### Main Courses:

**Agriculture:** *Engineering Technology on Equipped Agriculture; Environmental Management in Animal Agriculture; Advances on Agricultural and Bioenvironmental Engineering, etc.*

**Data Analysis:** *Technology in Bio-Environmental Factors Test and Data Analysis; Applied Mathematical Statistics; Design of Experiment and Multivariate Statistical Analysis.*

### Graduate Thesis: *Emission Flux of CH<sub>4</sub> and N<sub>2</sub>O from Dairy Manure Stored Field and the Key Factors of Static Chamber Test Method*

It is part of an academic project (*Research on Greenhouse Gas Emission Characteristics of Dairy Farm and Model Construction of Emission Mechanism*), which is funded by Natural Science Foundation of China.

❖ <b>Bachelor of Engineering</b>	<b>Tianjin University (TJU)</b>	09/2008 - 07/2012
Hydraulic Engineering/ Port, Channel and Coast Engineering		GPA: 2.93/4.00

TJU is a national key university focusing on engineering and the first modern university in China. It is directly under the Ministry of Education of China and also one of the “211 Project” and “985 Project” universities.

### Main Courses:

**Mathematics and Programming:** *Probability Theory and Mathematic Statistics; Linear Algebra and Application; Operational Research; Fundamentals of Computer Software, etc.*

**Geography and Hydraulic:** *Geographic Information System Engineering; Engineering Geology; Engineering Surveying; Hydraulic Economics; Engineering Hydrology; Structural Mechanics, etc.*

### Graduate Thesis: *Study on the Accurate Assessment of Wave Power Based on Boussinesq Equation*

It is part of an academic project (*The State Oceanic Energy Independent Power Generation System Comprehensive Test Technology Project*), which is funded by State Oceanic Administration, P.R.C.

## AWARDS

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❖ 11/2010: The Outstanding Volunteer of Tianjin University	(Participate in The Sixth Census)
❖ 05/2009: Scholarship of Hongkong Fuhui	Proportion: 1%

## PERSONAL CHARACTERISTICS

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- ❖ Persevering and Dashing (e.g. 1000 km cycling), Modest, Detail Oriented, Cooperative, Friendly.

❖ Personal Hobbies: Badminton (Chairman), Running (Marathon), Rock Climbing (YDS5.9a).

## **PUBLICATIONS**

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1. Ding Luyu, **Lu Qikun**, Xie Lina, et al. **Greenhouse gas emissions from dairy open lot and manure stockpile in northern China: A case study**. Journal of the Air & Waste Management Association, 2016, 66 (3): 267-279.
2. Ding Luyu, **Lu Qikun**, Wang Chaoyuan, et al. **Effects of configuration and headspace mixing on the accuracy of closed chambers for dairy farm gas emission measurement**. Applied Engineering in Agriculture, 2015, 31 (1): 153-162.
3. Ding Luyu, Wang Chaoyuan, **Lu Qikun**, et al. **Effects of configuration and headspace wind profile on the performances of flux chambers in gas emission measurement: A laboratory study**. 2013 Kansas City, Missouri, July 21-July 24, 2013. American Society of Agricultural and Biological Engineers, 2013: 1.