Songyang Li

M.S. (Agr.)

Candidate of M.Sc. in Applied Geographic Information Systems (GIS)

Department of Geography, National University of Singapore, Singapore

Contact: (+65) 84458360 • s.li@u.nus.edu • mail@lisongyang.cn

Websites: www.lisongyang.cn

EDUCATION

National University of Singapore, Singapore August 2019 — August 2020

M.Sc. in Applied GIS (1 year by coursework) *CAP (2 Semesters): 4.57 / 5*

- Department: Department of Geography, National University of Singapore
- Main Modules: Introduction to Applied GIS, GIS Applications, Spatial Programming, Spatial Data Handling
- Elective (or Audited) Modules: Research Methods in Environment Science, Internet GIS, Remote Sensing of Environment, Spatial Big Data and Analytics

Nanjing Agricultural University, China Sep. 2016 — June 2019

M.S. (Agr.) in Crop Cultivation and Farming (3 years by research) *GPA: 87.68 / 100*

- Admitted with test-exemption and graduated with the honor of Outstanding Graduate
- Department: National Engineering and Technology Center for Information Agriculture (NETCIA)
- Supervisors: Prof. Weixing Cao and A/P Qiang Cao
- Research Area: Quantitative Remote Sensing, Drone, Precision Agriculture, Crop Growth Monitoring
- Thesis Topic: Low-Altitude Unmanned Aerial Vehicle-Based Remote Sensing for Rice Growth Status Monitoring

Yangzhou University, China Sep. 2012 — June 2016

B.S. in Agronomy (Agricultural Information Technology) (4 years) *GPA: 85.5 / 100*

- Graduated with the honor of outstanding graduate and eligibility of exam-free recommendation for postgraduate
- Main Modules:

C and Visual Basic Programming, GIS, Remote Sensing in Agriculture, Software Engineering, Database Technology and Application, Agricultural Information Technology, Botany, Advance Mathematics, Agricultural Ecology, Biostatistics, Crop Cultivation, Crop Breeding, Genetics, Chemistry, E-commerce etc.

RESEARCH EXPERIENCE

NETCIA, Nanjing Agricultural University July 2016 — June 2019

Master's Research and Project *Nanjing, Sihong and Lianyungang, Jiangsu, China*

- Research on UAV-based remote sensing for rice growth and nitrogen status monitoring, which includes:
  - Remote Sensing Platform construction based on unmanned aerial vehicle (UAV) and different sensors (active multispectral sensor and RGB digital camera)
  - Establishment of suitable UAV monitoring mode using RS & GIS software (ENVI & ArcGIS), ground station system and in-season data analysis based on field experiment and chemical analysis on rice
  - 2-years fieldworks and quantitative modeling with machine learning methods for rice biomass, LAI and nitrogen status estimation and precision fertilizing recommendation
- Data analysis (based on MATLAB & R coding), research article writing and presentation in academic conferences

Research Institute of Barley, Yangzhou University Nov. 2014 — May 2016

Graduation Practice for Bachelor's Degree *Yangzhou, Jiangsu, China*

- Data analysis of genetic diversity on barley varieties using genetics and statistical methods
- Field Experiments, analyses, graduation thesis writing and presentation

PUBLICATIONS

Peer-reviewed Journal Articles

4. **Li, S.**; Yuan, F.; Ata-UI-Karim, S.T.; Zheng, H.; Cheng, T.; Liu, X.; Tian, Y.; Zhu, Y.; Cao, W.; Cao, Q. Combining Color Indices and Textures of UAV-Based Digital Imagery for Rice LAI Estimation. *Remote Sensing*, 2019, 11, 1763. doi: 10.3390/rs11151763. (Q1)
3. **Li, S.**; Ding, X.; Kuang, Q.; Ata-UI-Karim, S.T.; Cheng, T.; Liu, X.; Tian, Y.; Zhu, Y.; Cao, W.; Cao, Q. Potential of UAV-Based Active Sensing for Monitoring Rice Leaf Nitrogen Status. *Frontiers in Plant Science*, 2018, 9. doi: 10.3389/fpls.2018.01834. (Q1)
2. Zhang, K.; Liu, X.; Tahir Ata-UI-Karim, S.; Lu, J.; Krienke, B.; **Li, S.**; Cao, Q.; Zhu, Y.; Cao, W.; Tian, Y. Development of Chlorophyll-Meter-Index-Based Dynamic Models for Evaluation of High-Yield Japonica Rice Production in Yangtze River Reaches. *Agronomy*, 2019, 9, 106. doi: 10.3390/agronomy9020106 (Q2)
1. Tian, X.; **Li, S.**; Zhang, Y.; Liu, X.; Tian, Y.; Zhu, Y.; Cao, W.; Cao, Q. Estimation of nitrogen fertilizer requirement of winter wheat based on critical nitrogen dilution curve. *Journal of Triticeae Crops* (《麦类作物学报》), 2019, 9, 1-9. doi: 10.7606/j.issn.1009-1041.2019.09.012. (in Chinese)

International Conference Proceedings

2. **Li, S.**; Liu, X.; Tian, Y.; Zhu, Y.; Cao, Q. Comparison RGB Digital Camera with Active Canopy Sensor Based on UAV for Rice Nitrogen Status Monitoring. In *2018 7th International Conference on Agro-geoinformatics (Agro-geoinformatics)*, Hangzhou China; 2018; pp. 16, doi: 10.1109/Agro-Geoinformatics.2018.8476066.
1. **Li, S.**; Cao, Q.; Liu, X.; Tian, Y.; Zhu, Y. Using a UAV-based active canopy sensor to estimate rice nitrogen status. In *14th International Conference on Precision Agriculture*, Montreal, Canada; 2018; p. 4, url: www.ispag.org/proceedings/?action=abstract&id=5069.

LANGUAGE, SKILLS & QUALIFICATIONS

- **English & Exams**: IELTS 6.5 (all sub-grades≥ 6.0), CET-6 518, PETS-5 Pass
- **Coding Experience**: R, MATLAB, Visual Basic, Python (beginner) , Google Earth Engine (beginner), JavaScript
- **Software Skills**: ArcGIS Pro, ENVI, MS Office, MS Visio, SPSS, Photoshop, Pix4D, PhotoScan, Stella Architect etc.
- **Instruments**: Drone, Spectrometer, LI-3000C LAI meter, Elementar MACRO Cube, GasScouter CO_2 flux meter
- **Qualifications:**
  - Qualification Certificate of Computer and Software Technology Proficiency (Information Processor), China
  - Certificate of Level 2 of the National Computer Rank Examination, China

SCHOLORSHIPS & AWARDS

Scholarships

4. National Scholarship for Postgraduate Student (Master) (Nov. 2018)
   CHY 20,000, awarded by Ministry of Education, China
3. Excellent Student Leader Scholarship (Nov. 2017)
   CHY 2,000, awarded by Nanjing Agricultural University
2. First-class Academic Scholarship for Master Student (Nov. 2016)
   CHY 12,000, awarded by Nanjing Agricultural University
1. First-class Presidential Scholarship (2 times, Nov. 2014 & Nov. 2015)
   CHY 6,000 awarded by Yangzhou University

Awards

4. Award for Outstanding Graduate of Nanjing Agricultural University (June 2019)
   Awarded by Nanjing Agricultural University
3. First Price for Oral Presentation in the Research Forum of Crop Science in Yangtze River Delta (Nov. 2018)
   Awarded by Zhejiang University and the forum's academic committee (Oral Presentation in English)

2. Award for Outstanding volunteer, Nanjing Agricultural University (Dec. 2017)
   Awarded by Nanjing Agricultural University
1. Award for Outstanding Graduate of Yangzhou University (June 2016)
   Awarded by Yangzhou University

INTERNSHIPS & PART-TIME WORKING EXPERIENCE

Teaching Assistant (TA) for the undergraduate course of Information Agriculture — March 2018 — June 2018

- Courseware preparing, troubleshooting, arranging and marking the exam papers
- Teaching on experimental lessons (e.g. UAV operation, RS imagery capture, demonstration of spectral sensors)

Deputy Secretary of the College's Student Affairs Office — June 2015 — June 2016

- Information management on the students' test, curriculum, rewards and punishments
- Releasing announcements, organizing and managing the students' activities

Vice Chairman of the Alumni Association of Yangzhou University (2016) — June 2016 — June 2017

Chairman of the Philatelic association of Yangzhou University — May 2013 — May 2014

PRESENTATION, FIELD EXPERIENCE, TRAINING, VOLUNTEERING and MEMBERSHIP

Presentation

2. Rice leaf growth and nitrogen status estimation based on UAV-mounted sensors: comparison and combination of active canopy sensor and RGB digital camera. *Research Forum of Crop Science in Yangtze River Delta,* Nov. 11, 2018, Hangzhou China

1. Comparison RGB Digital Camera with Active Canopy Sensor Based on UAV for Rice Nitrogen Status Monitoring. *7th International Conference on Agro-geoinformatics (Agro-geoinformatics),* Aug. 7, 2018, Hangzhou China

Field Experience

Nov. 2014 – Nov. 2015 (Yangzhou, China):
Seeding, field management, hybridization, sampling, barley production

June – Nov. 2016 (Sihong, China), June – Nov. 2017 (Lianyungang & Xinhua, China):
UAV image capture, rice canopy spectrum, multispectral sensing, SPAD, leaf area index (LAI), biomass & nitrogen measurement, field management, yield estimation

Training (as participant)

5. Esri Singapore User Conference 2019. Sep. 3, 2019, Esri Singapore, Singapore

4. The 1st Summer School of Quantitative Remote Sensing. July 8-12, 2019, School of Remote Sensing and Information Engineering, Wuhan University, Wuhan, China

3. 2019 International Forum on Innovations in Food, Land, Energy and Water (FLEW) Systems in Asia. May 22-25, 2019, Nanjing Agricultural University & Michigan State University, Nanjing, China

2. The course of Plant Phenomics Series I *"Multi-scale Phenomics: Environmental Characterization and Data Management"* by Prof. Francois Tardieu. Dec. 17-18, 2018, Plant Phenomics Research Center, Nanjing Agricultural University, Nanjing, China

1. Workshop for *"Multi-source Remote Sensing and Application of Agricultural Monitoring"* (Project of Postgraduate Training and Innovation, Jiangsu Province). April 18-20, 2017, Nanjing Agricultural University, Nanjing, China

Volunteering

1. Volunteer work in 2nd Asia-Pacific Plant Phenotyping Conference. March 23-25, 2018, Nanjing Agricultural University, Nanjing, China

Membership

1. IEEE Geoscience and Remote Sensing Society (Student Member)