

# LIEW YING JIA

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## EDUCATION

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### **Beihang University (Beijing, China)**

**2020.09 – 2023.12**

*MEng, Flight Vehicle Design and Engineering (Astronautics)*

- GPA: 3.78/4.00
- Relevant coursework: Structural Analysis and Optimization, Object-oriented Programming, Statistics
- Award:
  - Full Chinese Government Scholarship by the China Scholarship Council (CSC)
  - Distinguished Foreign Student Scholarships of Outstanding Performance at Beihang University (Second Prize) for the year 2021

### **Beihang University (Beijing, China)**

**2016.09 – 2020.07**

*BEng, Flight Vehicle Design and Engineering (Astronautics)*

- GPA: 3.71/4.00 (Ranking: 5/70)
- Relevant coursework: Probability and Statistics, Linear Algebra, Spacecraft Design Optimization, Practice of Artificial Intelligence
- Award and Honor:
  - Excellent International Graduate of Beihang University of the year 2020
  - Excellent Thesis (School of Astronautics)
  - Chinese Government Outstanding International Student Scholarship of the year 2019
  - Distinguished Foreign Student Scholarships of Excellent Study at Beihang University (First Prize) for the year 2017–2019

## RESEARCH EXPERIENCE

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### **Parameter Updating for Digital Satellite Model via Data Mining Approach**

**2021.06 – 2023.12**

*Advisor: Professor Yunfeng DONG (Master's Thesis)*

- Leveraged NLTK library and text mining techniques to analyze the text similarity of the ontology-based satellite parameters obtained from web-crawled open-access journal articles
- Constructed a Neo4j knowledge graph containing the ontology-based satellite parameters and their node similarity, correlation, and sensitivity
- Utilized data mining and graph reasoning algorithms (i.e., Jaccard node similarity, PageRank centrality, and Louvain community detection) to select and divide digital model parameters into groups based on their importance in the knowledge graph
- Performed parameter identification and updated the selected digital satellite model parameters group-wise using nonlinear least square methods

### **Satellite Collision Risk Analysis based on Data Mining**

**2020.01 – 2020.06**

*Advisor: Professor Yunfeng DONG (Undergraduate Thesis)*

- Analyzed and predicted the collision risk of satellites by employing data mining techniques, including KMeans clustering and Random Forest classification, based on orbital data web-crawled from the CelesTrak website
- Developed a GUI using PyQt5 to automate the entire analysis process and generate an analysis report

### **Handwritten Digits, Alphabets, and Symbols Recognition Model**

**2019.04 – 2019.06**

*Practice of Artificial Intelligence course delivered by Microsoft Research Asia*

- Developed a convolutional neural network recognition model of handwritten digits, alphabets, and math symbols
- Developed a calculator GUI that solves handwritten mathematical equations on a touchscreen pad

## PUBLICATIONS

1. Li, Peiyun, Yunfeng Dong, Hongjue Li, Yue Deng, and **Yingjia Liew**. "Vision-Only-Based Control of Approaching Disabled Satellites via Deep Learning." IEEE Transactions on Aerospace and Electronic Systems (2024).
2. He, Changyuan, Yunfeng Dong, Hongjue Li, and **Yingjia Liew**. "Reasoning-Based Scheduling Method for Agile Earth Observation Satellite with Multi-Subsystem Coupling." Remote Sensing 15, no. 6 (2023): 1577.
3. Li, Peiyun, Yunfeng Dong, and **Yingjia Liew**. "A Controller Design for Approaching Disabled Satellites Based on Discrete Sample Points." Sensors 22, no. 14 (2022): 5091.
4. Li, Zhi, Yunfeng Dong, Peiyun Li, Hongjue Li, and **Yingjia Liew**. "A New Method for Remote Sensing Satellite Observation Effectiveness Evaluation." Aerospace 9, no. 6 (2022): 317.
5. Li, Zhi, Yunfeng Dong, Peiyun Li, Hongjue Li, and **Yingjia Liew**. "A Real-Time Effectiveness Evaluation Method for Remote Sensing Satellite Clusters on Moving Targets." Sensors 22, no. 8 (2022): 2993.

## CONFERENCE

1. **Yingjia Liew**, Yunfeng Dong. "Parameter Selection for Digital Satellite Model Updating with Knowledge Graph." The 3rd International Conference on Applied Mathematics, Modeling and Computer Simulation, Wuhan, China. September 2023.

## SKILLS & LANGUAGES

<b>Skill</b>	Python (Pandas, Numpy, Matplotlib, Scikit-learn, TensorFlow, PyTorch, PyQt, OpenCV, NLTK), MATLAB (Simulink, GUI), C, C#, Cypher, Java, LaTeX, Android, Arduino
<b>Software</b>	SolidWorks, AutoCAD, STK, Adobe Illustrator, Neo4j
<b>Language</b>	Fluent in English (TOEFL 106, IELTS 7.5), Mandarin, Malay, Cantonese

## WORK EXPERIENCE

### Technical Marketing Engineer (Internship) 2019.04 – 2020.01

*Beijing Aerospace Measurement & Control Technology Co., Ltd.*

- Conducted market research and communicated with aerospace-related companies and universities in Southeast Asia led to future cooperation opportunities
- Based on in-depth knowledge of aerospace technology, translated three company catalogs and product manuals from Chinese into English that serve as a basis for other language translation versions. These translated product manuals were used on a business visit to Russia and indirectly helped to win several collaboration contracts.

### Popular Science Editor (Internship) 2018.07 – 2018.09

*Shaoniantoutiao Technology Co., Ltd.*

- Wrote popular science articles related to cutting-edge high-tech, including aerospace, using easy and understandable language for children

## ADDITIONAL ACTIVITIES

### Member of the Design Department 2018.02 – 2023.07

*International Student Press Centre of Beihang University*

- Edit and typeset WeChat articles regarding campus events using the Xiumi website

### Class Monitor 2016.09 – 2020.06

*International Undergraduate Students of the year 2016*

- Provided assistance to classmates and solved their problems and questions

### Director of Media Wing 2016.10 – 2018.04

*Beihang International Scientific Society*

- Spread awareness of science and advertise scientific activities organized by the society on the campus
- Managed and operated four departments (Design, Website, Video, and Writer)