ZIHAO **LI**

University of Chinese Academy of Sciences (UCAS), China

No 9.Deng Zhuang South Rd, Hai Dian Dist,Beijing,100094,China

(+86) 18813124653 | lizihao182@mails.ucas.ac.cn | pridelee.github.io | PrideLee

Education

North University of China — *Shanxi, China*

B.S. in Aircraft Manufacturing Engineering, GPA:3.92, Rank:1/110 — *Sep.2014 - Jul.2018*

Academic Experience

Technology and Engineering Center for Space Utilization (CSU), CAS — *Beijing, China*

Reliability & Product Assurance Center, visiting student — *Feb. 2018 - Jun. 2018*

Xian Jiaotong University - School of Aerospace Engineering — *Xian, China*

Excellent College Students Summer School, visiting student — *Aug. 2017*

National Space Science Center (NSSC), CAS — *Beijing, China*

"One Space, One Dream" Excellent College Students Summer School, visiting student — *Jul. 2017*

Internship Experience

Aviation Industry Corporation of China (AVIC) - Xian Aircraft Industry (Group) Company, LTD — *Xian, China*

Graduation Practice, Aircraft Design Assistance Engineer — *Sep. 2017*

Cissdata(Beijing) Technology Co,.Ltd. — *Beijing, China*

Algorithm Engineer in Data Science Department — *Jul. 2019 - Present*

Publications & Patents

Accepted Papers & Patents

[1] **Zihao Li**. Electronic Component Data Management System and Method Based on Blockchain. China Patent Application **CN109450638A**, March 08, 2019.

[2] **Zihao Li**. Alternative Selection System and Alternative Selection Method for Electronic Components. China Patent Application **CN109284420A**, January 29, 2019.

[3] **Zihao Li**. Form Recognition Method, Recognition System and Computer Device. China Patent Application **CN109086714A**, December 25, 2018.

[4] **Zihao Li**. Wei Dang, Yang Wang, Zhenxiao Wang, Dec., 2020. Research on Space Science Device Components Substitution Relation and Characterization[J]. Manned Spaceflight. (Accepted)

[5] **Zhenxiao Wang**, Wei Dang, Zihao Li. Evaluation Model of Belief Reliability of Space Science Device Supply Chain[J]. Science and Technology Management Research. (Accepted)

Selected Submitted Papers & Patents

[1] **Zihao Li**. Research on Aerospace Components Knowledge Graph Construction. China Patent Application

[2] **Zihao Li**, Wei Dang, Yang Wang, Zhenxiao Wang, Research on Component Substitution Relation Mining.

Projects and Compotetition Experience

Research on components substitution algorithm based on comprehensive similarity and auto-encoder model — *Accomplish alone*

Cissdata(Beijing) Technology Co, Internship Project — *May.2020*

Substitution components minging is of great significance for component category compression, inventory management, procurement optimization, and autonomous & controllable of critical parts. Since substitution components may be similar in function and performance, component similarity calculation models were provided. The word bag model and the topic model were considered for text data similarity. In addition, the string similarity, the word vector similarity, and manufacture mutual information were also proposed to calculate component code similarity.

Risk prediction and reliability analysis for spacecraft equipment based on the knowledge graph *Team leader*

Equipment Development Department CMC, Funded *Nov.2019*

Aerospace related reports and standards contain a wealth of expert knowledge and prior experience. It is critical and beneficial for reliability analysis and risk prediction. Therefore, constructing a knowledge graph based on the machine learning method to save that knowledge. The experiment shows that combining expert knowledge with physical models to predicate the potential risks of spacecraft can increase prediction accuracy.

Research on simulation and optimization for components reliability test scheduling *Team leader*

Cissdata(Beijing) Technology Co, Internship Project *Oct.2019*

First, based on the test sequence and requirements to simulate the scheduling schemes under different strategies. Besides, considering the state of each test equipment, a deep Q-learning model was also proposed to optimize the scheduling in a given period.

Space science equipment BOM (Bill-of-Materials) recommendation *Accomplish alone*

Master Dissertation *Mar.2019*

Realizing the ”translation” between natural language and technical documents (EBOM) in engineering applications. According to the user’s description of product or module functional performance, cost, reliability, etc., to recommend high reliability and performance, low-cost EBOM which could meet user’s requirements.

Electronic component X-Ray and SAM image defective recognition *Team member*

CAS Program *Feb.2018*

Scanning acoustic microscope (SAM) inspection and X-Ray inspection are essential for the reliability assurance of components. Representation learning based on the variational autoencoder (VAE) model was proposed to represent the defective feature of component X-Ray images. Furthermore, object detection based on the YOLO v3 model was considered to recognize the failure types for SAM images.

”Internent+”-Based Subsidy Scheme Optimization of Ridesharing *Team leader*

MCM Competition *Sep.2017*

Taking Shenzhen as a sample, we crawled driving information from a platform, and defined supply and demand ratio, empty-loaded rate to investigate the matching degree between taxi sources and public requirements in different times and locations. Considered the benefits of the platform, drivers and passengers, attraction factor, and subordinate function were proposed to optimize subsidy and dispatch schemes of taxies.

Selected Honors & Awards

Competition Awards

Oct.2017	**2nd Award,** National Undergraduate Electronic Design Contest	*China*
Aug.2017	**Excellence Award,** The 11th National College Student Mechanics Competition	*China*
Jan.2017	**Honorable Mention,** Mathematical Contest in Modeling	*International*
Nov.2016	**2nd Award,** Mathematical Contest in Modeling	*China*
Nov.2015	**First Prize,** The 7th National College Student Mathematical Competition	*China*

Scholarship

Jan.2017	**First-Class,** Hubei Chamber of Commerce Encouragement Scholarship	*Top 5%*
Oct.2016	**First-Class,** Comprehensive Quality Scholarship	*Top 4%*
Oct, 2015	**First-Class,** National College Student Mathematical Competition Scholarship	*Top 2%*

Skills

Programming: Python, C++, Matlab

Data Processing & Database: SPSS, Neo4j, MySQL

Computer-Aided Design and Modeling: AutoCAD, ProE, SolidWorks

SCM Development and Circuit Design: STM32F4, STC89C52RC, Altium Designer

Others: LINGO, Git, LaTeX

Language

Chinese	**Native,** Fluent
English	**IELTS,** 6.5