Ruixian LI

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EDUCATION

Shanghai Jiao Tong University, School of Mechanical Engineering — Sept. 2019-Jun. 2022(Expected)
Academic Master in Industrial Engineering
GPA: **3.68/4**

Shanghai Jiao Tong University, School of Mechanical Engineering — Sept. 2015-Jun. 2019
B.Eng. in Industrial Engineering, Minor in Business Administration
GPA: **3.68/4.3**

PUBLICATION

- **R. Li**, L. Zhuang, Y. Li, and C. Shen, "Intelligent bearing fault diagnosis based on scaled Ramanujan filter banks in noisy environments," *IEEE Transactions on Instrumentation and Measurement* (Accepted), 2021.
- J. Huang, **R. Li**, and R. Miao, "Analysis and countermeasure research on plan issues of heavy lift crane pontoon project," *DEStech Transactions on Engineering and Technology Research*, 2017.
- L. Wang, **R. Li**, R. Miao, R. Feng, and X. Zan, "The efficient combination of supplier management and the guarantee of the quality of product," *DEStech Transactions on Environment, Energy and Earth Sciences*, 2017.

RESEARCH

Intelligent Bearing Fault Diagnosis Based on Scaled RFB in Noisy Environments

Supervised by Yongxiang Li (Department of Industrial Engineering and Management) — Sept. 2019-Jun. 2021

- Proposed the scaled version of the Ramanujan filter banks (**Scaled-RFB**) to suppress the **noises** while converting original time series vibration data into representative **RGB images**
- Developed a strip convolutional neural network (**Strip-CNN**) with the proposed strip convolution to recognize the health condition of bearings based on the Scaled-RFB
- Improved the average F1 score on two datasets by at least 52.47% compared to 6 state-of-art benchmarking methods when the signal-noise ratio is -10 dB

Intelligent Push of Automobile Knowledge Based on Preference & User Group

Supervised by Yu Zheng (Institute of Intelligent Manufacturing and Information Engineering) — Dec. 2018-Jun. 2019

- Constructed the user-knowledge model and user-keyword model in the form of a vector space model to describe their personalized **knowledge preference** based on the 6 kinds of behaviors
- Considered the **decay** of preference weight over time based on the project situation of SAIC
- Divided users into groups according to their "similarity" and "relevance" through clustering (**binary K-Means**) and community discovery (**modified GN**) algorithms, respectively
- Realized the personalized knowledge intelligent push based on a **hybrid algorithm** consists of the user-based collaborative push, content-based push, and hotspot-based push

Batch Scheduling Optimization of Flexible Workshop Based on Memetic Algorithm

Supervised by Wei Jiang (Department of Management Sciences) — Feb. 2019-Jun. 2019

- Built the programming model for a workshop based on the **dynamic** batch strategy, which has 10 **parallel stations**, 3 kinds of workpieces (**random arrival**), and 6 types of constraints
- Reduced the time by 16.4% through the solution obtained by **memetic algorithm**, which consists of the **differential evolution** (global) and the **insert neighborhood search** (local)

Temperature Control Scheme Design of Rice Storage Tank, and Study on The Influence of Stacking Mode on Rice Storage at Low Temperature

Supervised by Xiao Liu (Department of Industrial Engineering and Management) — Sept. 2018-Jun. 2019

- Selected 18 sampling points in the tank according to the **Taguchi experimental design** for temperature measurement, and applied **ANOVA** to obtain the temperature control scheme
- Programmed the scheme to an Excel macro through VBA, and got a **software copyright**
- Designed the storage container and 17 stacking modes for experiments in the incubator, compared their influence on the rice storage at low temperature based on 30 sensors' data

Lean Day Surgery Process Optimization and Its Management Information System (Prototype System) Development

Supervised by Zhibin Jiang (Department of Management Sciences) Sept. 2017-Mar. 2019

- Proposed the standard treatment process of day surgery according to the **lean thinking** of Industrial Engineering and its implementation status in Ruijin Hospital and Renji Hospital
- Designed and programmed 5 clients (3 types) in the system through Java and MySQL
- Rated as an **excellent** project by the school and got a **software copyright**

Establishment of Evaluation Index of Medical Service Level in Internet Era

Supervised by Rui Miao (Department of Industrial Engineering and Management) Mar. 2018-Mar. 2019

- Evaluated the **hospital, patient, disease, and policy** from 10 accessible parameters
- Established the self-assessment index for **patients** to assess the online medical services
- Obtained the score criterion for choosing online medical service through a **numerical simulation** with Parkinson's disease (which required long-term medication) as an example

INTERNSHIP

Audit Intern, Financial Department, KPMG (Shanghai Office) Jan. 2018-Feb. 2018

- Participated in the audit work including preparing the financial statements, checking the reimbursement vouchers, and contacting the bank's staff
- Completed 1 audit project with another colleague in 1 week (without overtime) based on the accounting knowledge, which required 3 employees and 2 weeks in previous years

Process Intern, Hotel Service Department, Ctrip (Shanghai Headquarters) Jul. 2018-Sept. 2018

- Made suggestions for the process of telephone customer service (such as optimizing the system interface layout) to improve their work efficiency in hotel reservations
- Optimized the process for customers to book hotels through the Ctrip APP and calls
- Analyzed the impact of some processes on order volume using statistical methods of the Excel

CERTIFICATES & AWARDS

- **Outstanding Graduate (Top 13%)** Jun. 2019
- Suzhou Yucai Scholarship **(Top 1%)** Dec. 2018
- National Computer Skill Test (SQL server) Level 3 Nov. 2018
- Outstanding League Cadre (**Top 4%**) May 2018
- Toyota Boshuku Scholarship (Second Prize) **(Top 9%)** Dec. 2017
- **Merit Student (Top 10%)** Oct. 2017
- First Prize of Society Practical Activities **(Top 7%)** Oct. 2017
- Outstanding League Member (**Top 6%**) May 2017
- Academic Excellence Scholarship (Second Class) **(Top 13%)** Dec. 2016
- Top Ten of Society Practical Activities **(Top 2%)** Nov. 2016

SKILLS

- **Programming Languages:** MATLAB, Python, MySQL, Java, VBA

CAMPUS ACTIVITY

- Teaching Assistant Feb. 2020-Jun. 2021
  - Answered questions, marked assignments, prepared the courseware
  - Taught the use of statistical software: Minitab, SPSS
- Assistant Head Teacher Sept. 2019-Jun. 2020
- Head of Dell Supply Chain Club Oct. 2017-Sept. 2018
- Marketing Director of Microsoft Student Club Mar. 2016-Jun. 2017
- Deputy Director of Academic Center of Student Union Sept. 2015-May 2017
- Participated in 8 society practical activities and 28 volunteering activities