

# LIAN JIE

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## EDUCATIONAL EXPERIENCE

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### University of Edinburgh, School of Informatics

09/2018 - 09/2019

- Master of Data Science with **Distinction**
- **Optional Modules:** Introductory Applied Machine Learning, Machine Learning Practical, Database System, Social Technology and Network, Probabilistic Modelling and Reasoning.

### Northwestern Polytechnical University, Department of Applied Mathematics, School of Science (in "Project 211 & 985")

09/2014 - 07/2018

- **Optional Modules:** Mathematical Analysis, Advanced Algebra, ODE (Ordinary Differential Equation), Probability Theory, Advanced Mathematics, Multiple Statistical Analysis, Mathematical Modeling, Statistical Computation and Software, Graph Theory
- Ranked 4/132
- Honorable Graduate (only top 7% obtained)
- National scholarship in 2017(top 2%)
- Pacemaker to Merit Student in 2017(ranked 1/327, highest honor)
- Qualification of Being Recommended for Admission Student

## WORK EXPERIENCE

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### Full-time Research Assistant

10/2019 - present

*AutoID Labs ETH and the University of St. Gallen*

- Research Direction: Artificial Intelligence and Digital Health

### Part-time Research Assistant

03/2017 - 03/2018

*Bayesian Evaluation from Multi-source information (National Basic Research Program, initiated by the Chinese government; 973 Program)*

- Part time research assistant and leader of undergraduates
- Evaluating the accuracy of missile from multi-source data: simulation data, semi-physical data and real shooting data
- Building the progressive Bayesian Model to deal with data swallow problem
- Bayesian estimation of credibility considering prior-test information

## TECHNICAL STRENGTHS

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### Computer Languages Software & Tools

Python, R, C, MATLAB, JavaScript, Wolfram Mathematica  
LaTeX, Excel, SPSS

## PUBLICATION

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Giarratano Y., Pavel A., Lian J., Sarkar R., Pugh D., Farrah T., Dhaun N., Reid L., Forbes S. *Optical coherence tomography angiography (OCTA) analysis of the diabetic eye: network-level vascular changes and patient classification*. 2020 ARVO Annual Meeting.

Giarratano, Y., Gray, C., Bianchi, E., Pavel, A., Lian, J., Sarkar, R., Reid, L. *A framework for revealing retinal biomarkers in Optical Coherence Tomography Angiography (OCTA)*. MICCAI2020. (submitted)

Fuchs, K., Lian, J., Michels, L., Mayer, S., Toniato, E., Tiefenbeck, V. (2020). *Effects of Digital Food Labels on Healthy Food Choices in Online Grocery Shopping*. International Conference for Information Systems (ICIS). (submitted)

## PROJECTS EXPERIENCE

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### Computational approaches to vascular network analysis

03/2019 - 08/2019

*Master Degree Project*

*Supervisor Prof. Rik Sarkar and Dr. Miguel O. Bernabeu*

- Analyzing retinal vascular vtk images and defining feature metrics based on the embedding networks;

- Using networkx package to build vascular networking and implement computation;
- Proposing new metrics based on hierarchical Ordering of vascular networks;
- Detecting difference between healthy and diabetic retinal vascular networks.

### **Predicting the probability of adverse drug reaction for individuals**

*Edinburgh Usher Center Project*

*04/2019 - 07/2019*

*Dr. Honghan Wu*

- As the only student assistant in the project, mainly devoting in the building of knowledge graphs to represent the process within the body of patient after taking a certain drug by using given dataset;
- Using the individuals gene module data to predict the patients protein interaction given a certain chemical situation;
- When given the patients data, using machine learning methods to make prediction of which drugs are at high probability of causing adverse drug reaction.

### **Cancer detection on Pcam dataset**

*Graduate Coursework*

*01/2019 - 05/2019*

- Using G-CNN DenseNet model to detect tumor tissue on 400 WSIs (including 262144 training examples; 32769 validation and testing examples);
- Comparing several rotation methods with learning steerable filters to see the performance improvement;
- Analyzing the evaluation of models' performance.

### **eCommerce Widget for Nutrition and Sustainability**

*10/2019 - 05/2020*

- Leveraging personal eCommerce widget to support decision making towards healthier and more sustainable food choices;
- Collecting behavior data from the experiments and analysing the user behavior as a response to label exposure using descriptive statistics and machine learning to detect if and how such labels can influence customer decision-making during shopping journeys in eCommerce environments;
- One paper was submitted to ICIS 2020.

### **FoodCoach**

*Switzerland National Funds Project*

*10/2019 - 12/2023*

*Korean-Swiss Science and Technology Programme by SNF and NRF*

- Societal implications of digital receipt-based diet monitoring interventions;
- Apply artificial intelligence to process customers automatically collected digital receipts from grocery purchases ;
- Tailor adaptive interventions to participants, based on their purchase behavior and estimated nutritional context, in order to support healthier food choices.

### **Convolutional neural networks**

*Graduate Coursework, top 10%*

*10/2018 - 12/2018*

- Implementing convolutional and max-pooling layers in MLP framework based on scipy.signal.convolve2d and analyze its efficiency with "Serialisation"
- Comparing 4 major dimension reduction methods and implement them on a fixed CNN structure with different layers number on MNIST and Cifar10 datasets

## **INTERNSHIP AND ACTIVITIES**

### **Jaguar Land Rover China Intern**

*03/2018 - 06/ 2018*

- Working in Purchasing Business Office Department and took responsibility of communicating with other parts of purchasing departments and 600 suppliers
- Taking part in the selecting of suppliers case and cooperating with 380 suppliers
- Analyzing the suppliers' information and give supplier standers using SQL
- Winning "Outstanding Intern" price

### **Secretary of UMUNC National Model United Nations Conference (Partner of United Nations) 08/2014 - 08/2015**

- Organizing six meetings in XianJinan, Chongqing, Wuxi, Xiamen and Beijing in one year
- More than 1,000 people attended the meetings totally
- Becoming the official partner of the United Nations Development Program in China
- Helping "My World(UNDP) to do China's "Next Millennium Development Cycle Target" research

## **SKILLS AND HOBBIES**

### **Skills**

Yoga (Advanced coach)

### **Hobbies**

Guzheng (Traditional Chinese instrument), Travelling, Photography