

# Northwestern | THE GRADUATE SCHOOL

## Application for Admission

App Type **New Student** Submitted Date **11-29-2018** App ID# **79258624**

Intended **Full-time** Status Entry **Fall 2019** Quarter Prior TGS Applicant (Program)

Last Name **Wu** First **Lingjie** Middle

Gender Pronouns (US only) Birthdate **02-22-1997** Gender **Female**

Program **Computer Science: MS** Secondary PhD (MEAS Only)

Specialization/Area of Interest **Artificial Intelligence and Machine Learning** MS Consideration (MEAS Only)

Cluster

JD/PhD No DPT/PhD No Fee Waiver US Vet/Active Forces

Ethnicity Hispanic

Citizenship **CHINA** Visa

Citizenship Status **International Student**

Country of Birth **CHINA** Green Card #

Current Address

**71-2-301,WanQingYuan, Sun City of Orient  
Liqiao Town, Shunyi District  
Beijing  
CHINA**

Permanent Address

**71-2-301,WanQingYuan, Sun City of Orient  
Liqiao Town, Shunyi District  
Beijing  
CHINA**

Current Phone

Permanent Phone

Cell Phone

Preferred Phone Number

Email Address **3150103968@zju.edu.cn**

Previous Institution	From	To	Field of Study	Level	Degree	Date
<b>Zhejiang University</b>	<b>09-01-2015</b>	<b>06-30-2019</b>	<b>Information Engineering</b>		International Undergraduate Degree	
<b>National University of Singapore</b>	<b>01-15-2018</b>	<b>05-15-2018</b>			International Non-Degree coursework	

Cumulative UG GPA	<b>3.55</b>	UG Junior/Senior Year GPA	
Cumulative UG GPA - Unconverted		Max UG GPA Scale	
Cumulative Grad GPA			
Cumulative Grad GPA - Unconverted		Max Grad GPA Scale	

## Letters of Recommendation

- |                           |                                 |
|---------------------------|---------------------------------|
| 1. <b>Mehul Motani</b>    | <b>motani@nus.edu.sg</b>        |
| 2. <b>Xiaowu Tang</b>     | <b>tangxiaowu@zju.edu.cn</b>    |
| 3. <b>Shuangshuang Li</b> | <b>shuangshuang.li@ia.ac.cn</b> |
| 4.                        |                                 |
| 5.                        |                                 |

Are you interested in studying with specific faculty members? (List names below)

- |    |            |           |
|----|------------|-----------|
| 1. | First Name | Last Name |
| 2. | First Name | Last Name |
| 3. | First Name | Last Name |
| 4. | First Name | Last Name |

Please indicate the highest level of education completed by your parent(s) or guardian(s) (the one or two people most responsible for raising you)

First individual's highest level of education completed:

If other, please explain:

Second individual's highest level of education completed:

If other, please explain:

## Language

## Reading

## Writing

## Speaking

---

Self-Reported Test Scores

GRE Gen **04-16-2018** Verbal **160** **86** Quant **167** **92** A.W. **3.0** **18**

GRE Sub     LSAT

TOEFL **07-14-2018** Ovr **110** Read **29** List **30** Speak **26** Writ **25** IELTS  Ovr

GMAT  Tot   Verb   Quant   A.W.   I.R.

MCAT  Bioscience   Verbal   Physical Science

---

Please list any honors you have been awarded

---

Have you applied for or been awarded an external fellowship?

Yes  No  If yes, please specify:

---

Please describe your plans for the future.

**I plan to continue my study with a focus on data science and pursue a PhD's degree if possible. I hope to be an excellent data scientist who digs for the value behind data and helps steering the development of an enterprise.**

---

Other Universities Applied (in preferred rank order)

- |                     |                   |
|---------------------|-------------------|
| 1. School Drop Down | 5. School "other" |
| 2. School Drop Down | 6. School "other" |
| 3. School Drop Down | 7. School "other" |
| 4. School Drop Down | 8. School "other" |
- 

Academic misconduct? Yes  No  Convicted of crime? Yes  No

---

If answered yes, applicant is asked to upload explanation. If uploaded, explanation will be attached to end of application PDF.

# Statement of Purpose

Harboring an ambition to be an excellent data scientist, who is committed to mining the greatest value behind cold data for enterprises with machine learning techniques to make their decision-making more scientific and accurate, I prepare this statement with great sincerity, hoping to gain a precious chance to study in your prestigious university.

Thanks to the 2017 summer internship at Beijing ZhongJiaoHuaLian Technology Development Co. Ltd, I was given a taste of the potential value of data and the great importance of managing and analyzing data. During this internship, I was honored to join the Project Group and take part in the project of Bridge Health Monitoring System. This system was designed to measure and monitor the health of the bridge through the statistical analysis of the parameter data collected from the sensors installed in the key parts of the bridge, and to provide valuable suggestions on its maintenance schemes. While participating in the preparation of data statistical analysis module and the actual monitoring process, I personally experienced several abnormal situations in data. So we quickly pinpointed the position needed to be repaired after a series of data analysis and specific field inspection. The data-based monitoring system really helped save considerable time and manpower, and reduced the possible omissions in manual inspections. This is the first time for me to be exposed to the fact that computer-based analysis was used to support the decision-making in real work, which greatly kindled my enthusiasm for this specific area.

With a burning interest in data science, I am more devoted to course learning at Zhejiang University, which I think is the necessary prerequisite for future exploration in this area. As a student majoring in Information Engineering in Chu Kochen Honors College, I received professional and overall education from a systematic perspective. From the computer-based courses like *Software Technology*, *Computer Organization and Design* and *Data Analysis and Algorithm Design*, I knew the basic methods of storing and processing data and the common algorithms of solving actual problems; from the statistics courses like *Probability and Mathematical Statistics* and *Stochastic Process*, I learned the basic principles of statistics, probability density function, distribution function, conditional probability, etc. as the basis of data calculation, and the statistical concepts such as covariance and correlation coefficient as important reference for feature extraction, prediction model and other operations. Besides, I took the *Machine Learning* course in my senior year, from which I studied the principle, application range and characteristics of machine learning methods, and attempted to design a machine learning framework and to conduct algorithm implementation for specific applications.

Owing to my competitive advantages in academic achievement (3.55/4.0), English proficiency (TOEFL 110/120), and excellent performance at the final interview, I was successful in being selected for entering the National University of Singapore as an exchange student from January to August 2018, funded by China Scholarship Council (CSC). During the exchange period, I overcame the language barrier, and strived to achieve good results (overall GPA: 4.5/5.0) in all courses including *Communication Systems*, *French*, *Introduction to Computing*, *Computer Vision* (audit). In particular, while studying *Communication Systems*, I got acquainted with Professor Mehul Motani whose research focused on information theory, data science and machine learning. Therefore, I took

the initiative to join his research group and later participated in the topic “Machine Learning in Communication Systems”. We mainly used neutral network to construct a receiver. In the process, we found that the receiver trained under high signal-to-noise ratio (SNR) could still work well under the low SNR. Then when examining the weight matrix of neural network, we also found that the increase of network complexity could make the system perform better. This discovery allowed us to use simple BPSK signals to train and detect systems, and in turn understand the flow of data between nodes within the neural network.

After my exploration in data science and machine learning at the National University of Singapore, I started my internship in the Research Center on Fictitious Economy & Data Science (FEDS), Chinese Academy of Sciences in August 2018. Under the guidance of Professor Yingjie Tian, I got involved in the project “Stock Forecast Model Based on Text News by Random Forest” and greatly upgraded my professional knowledge and practical ability. During our research, I learned and used word2vector model to calculate the vector representation of daily news text. After training the random forest classifier, we found that the accuracy rate was only 59%. Though I adjusted the parameters of the network for several times, there was still not obvious improvement. After analysis, I noticed that when I increased the dimension of text vector from 100 to 500, the accuracy of text vector could rise to as high as 82%, which indicated that we had lost too much data while adopting the lower dimension of text vector. Due to time constraints, we calculated the vector representation of text by simply adopting the method of taking the average of all word vectors. If there is a chance in the future, I hope I can try a more concise doc2vector model and compare it with word2vector model.

Thanks to these fulfilling and rewarding studying experiences, I have built a strong theoretical background in mathematics, statistics and computer science, and considerably improved my data mining & analyzing ability as well as practical operation ability. As an ambitious student who wants to make achievements in data science, I think it is a necessary step for me to pursue a higher degree of education in this field, and joining your MS program in Computer Science will be very helpful since it provides the most crucial knowledge and training on skills required as a data scientist. As a prestigious university with all-inclusive culture, collaborative atmosphere and state-of-the-art research level, your graduate program is quite suitable for my pursuit. I am convinced that, with your great help, I can achieve my academic goal to be an outstanding data scientist in the near future.

Thanks for your time and consideration.

## 浙江大学生绩一览表

姓名: 武铃捷	院系: 信息与电子工程学院	专业: 信息工程	学号: 3150103968
性别: 女	生日: 1997年02月22日	出生地点: 北京	入学日期: 2015年09月01日 毕业日期: 2019年06月30日 学制: 4年
2015-2016学年 第1学期课程	学分	成绩	
C程序设计·专题	2.0	79	电磁场与电磁波
数学分析(甲) II (II)	4.5	73	电磁场与微波实验
毛泽东思想和中国特色社会主义理论体系概论	4.0	83	
化学实验(乙)	1.0	89	第1学期课程
第1学期课程	学分	成绩	
个人理财规划	1.5	80	信号与系统实验
复变函数与积分变换	1.5	48	电子产品策划与设计 I
数字系统设计	4.0	78	
思想道德修养与法律基础	2.5	80	第1学期课程
军事理论	1.5	88	专业实习
体育舞蹈(女生: 初级班)	1.0	92	认识实习
英美文学	1.5	90	信息与电子工程导论
思想道德修养与法律基础	2.5	80	体育舞蹈(女生: 初级班)
军事理论	1.5	88	电子工程训练
数学分析(甲) I (H)	4.5	81	马克思主义基本原理概论
敦煌历史与文化	1.5	80	电子电路基础
程序设计基础	3.0	90	电子电路设计实验 I
线性代数 I (H)	3.5	82	英语口语
第2学期课程	学分	成绩	
普通物理学实验 II	1.5	89	数据结构与算法设计
中国民族舞蹈赏析	1.0	89	信息、控制与计算
形势与政策 I	1.0	74	离散数学
体育舞蹈(男生·初级班)	1.0	89	概率论与数理统计
工程图学 (H)	2.5	81	普通物理学 II (H)
普通物理学实验 I	1.5	78	数字信号处理
普通物理力学 I (H)	4.0	53	计算机组成与设计
中国绘画史	1.5	85	大学物理(甲) II
英语写作	2.0	90	数据库原理
西方文明史	3.0	良好	随机过程
中国近现代史纲要 (H)	2.5	83	数字系统设计实验
毕业最低学分应为: 160+4+5			已获得学分: 141.7
授予学位:			

注释或说明:

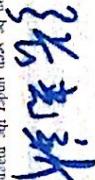
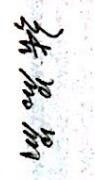
1. 合格: 60分及60分以上为及格, 60分为及格;

2. 五级计分制: 优秀、良好、中等、及格、不及格;

3. 二级计分制: 全优、合格;

4. 标志: 表示该门课转入的课程;

5. "EXC" 表示成绩未通过; "UNPASSED" 表示未通过; "ZHU" 表示副教务长; "办" 表示经办人;

副教务长:  经办人: 

签发时间: 2018年10月31日

# Zhejiang University

## Student's Academic Records

Name: Wu Lingjie	College/Bapt.: College of Information Science and Electronic Engineering	Specialty: Information Engineering	Student ID: 3150103968
Sex: Female	Birthday: 02/22/1997	Birth Place: Beijing	Entrance Date: 09/01/2015 Graduation Date: 06/30/2019 Years of Program: 4 Years
<b>Academic Year 2015-2016</b>	Lectures on C Programming	2.0	79
Courses(1st Term)	*Cr *Sc	Mathematical Analysis (A) II (H)	4.5
Military Training	2.0	81	<b>Academic Year 2016-2017</b>
General Chemistry Experiment (B)	1.0	89	Courses(1st Term)
Introduction to Life Science & Biological Technology	1.5	81	*Cr *Sc
Principles of Chemistry	3.0	87	Personal Investment and Financial Management
Sports Dance (for Girls: Basic Level)	1.0	92	Complex Variable Functions & Integral Transformation
English Literature	1.5	90	Field Trips
Mental Education and Foundation of Law	2.5	80	Introduction to Information Science and Electronic Engineering
Military Theory	1.5	88	Sports Dance (for Girls: Basic Level)
Mathematical Analysis (A) I (H)	4.5	81	Academic Year 2017-2018
The History and Culture of Dunhuang	1.5	80	Courses(1st Term)
Fundamentals of Programming	3.0	90	*Cr *Sc
Linear Algebra I (H)	3.5	82	Electronic Engineering Training
Courses(2nd Term)	*Cr *Sc	Oral English	1.5
Appreciation of Chinese Folk Dance (Level)	1.0	89	Major Practice
Situation and Policy I	1.0	74	Experiments I
Sports Dancing (for Boys: Basic Level)	1.0	89	Electronic Circuit Design
Engineering Graphics (H)	2.5	81	Complex Variable Functions & Integral Transformation
Physics Lab I	1.5	78	Experiments II
Physics I (H)	4.0	73	Physics Lab II
Chinese Painting	1.5	85	Information, Control & Computing
English Writing	2.0	90	Physics II (H)
History of Western Civilization	3.0	B	Computer Organization and Design
Modern Chinese History (II)	2.5	83	Probability and Mathematical Statistics
Credits Required for Graduation:	160-4+5	Credits Obtained:	141.7
Degree Granted:			

Three grade systems are used simultaneously in Zhejiang University specifically as follows: \*Cr-Credits,\*Sc-Score:

1.The percentage system Above 60 is passing,100 is full mark.

2 Five degree grading:Excellent(A),Good(B),Fair(C),Passing(D),Failed(F);

3 Two degree grading: Passing(P), Failed(F);

4 Courses identified with "P" are transferred from partner universities to Zhejiang University according to the highest score on the lower right corner as a line, they can be seen under the magnifying glass.

5 Courses identified with "X" are taken and calculated into GPA according to the line on the center of the paper will turn purple under the UV light. 3 The words "ZJU" on the center of the paper will turn purple under the sunlight.

4 This style transcript has been formally in use since September 1, 1994.

Associate Provost:

Registrar:

Date Issued:10/31/2018

Overall GPA:3.554.0(81.72/100)



NATIONAL UNIVERSITY  
of SINGAPORE

OFFICIAL TRANSCRIPT

NAME: WU LINGJIE

STUDENT NO.: A0179457L

DATE OF BIRTH: 22/02/1997

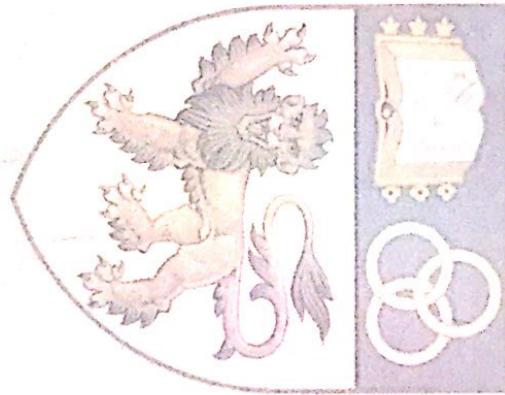
DATE ISSUED: 04/07/2018

PROGRAMME: NON GRADUATING PROGRAMME  
PROGRAMME: NON GRADUATING PROGRAMME

MODULE	GRADE	CREDITS
ACADEMIC YEAR 2017/2018 SEMESTER 2		
EE3131C COMMUNICATION SYSTEMS	A	4.00
EE4212 COMPUTER VISION	AUD	4.00
IT1001 INTRODUCTION TO COMPUTING	A-	4.00
LAF1201 FRENCH 1	B+	4.00
EE4212 - Module was not included in the computation of the Cumulative Average Point.		

EE3131C COMMUNICATION SYSTEMS  
EE4212 COMPUTER VISION  
IT1001 INTRODUCTION TO COMPUTING  
LAF1201 FRENCH 1  
  
EE4212 - Module was not included in the computation of the Cumulative Average Point.

.....END OF TRANSCRIPT.....



**NATIONAL UNIVERSITY OF SINGAPORE (NUS)**  
Registrar's Office, University Hall (Lee Kong Chian Wing),  
#UHL04-01, 21 Lower Kent Ridge Road,  
Singapore 119077

Telephone : (65) 6516 2301 / (65) 6516 2304  
Facsimile : (65) 6778 6371  
Website : <http://www.nus.edu.sg/registrar>

**TRANSCRIPT INFORMATION**  
**Applicable to Undergraduate and Graduate programmes (unless specified otherwise)**

**MEDIUM OF INSTRUCTION**

The medium of instruction used in the University is English, unless specified otherwise.

**GRADE LEGEND**

<b>Grade</b>	<b>Grade Point</b>	<b>Additional Grading Options</b>
A+, A	5.00	S Satisfactory
A-	4.50	U Unsatisfactory
B+	4.00	C Completed (Satisfactory)
B	3.50	CU Completed (Unsatisfactory)
B-	3.00	IC Incomplete
C+	2.50	IP In Progress
C	2.00	AUD Audit
D+	1.50	EXE Exempted
D	1.00	W Withdrawn
F	0.00	WU Withdrawal from University

**CUMULATIVE AVERAGE POINT (CAP)**

The Cumulative Average Point (CAP) was introduced for students admitted from the Academic Year (AY) 1998/1999 onwards to track the progress of students under the Modular System. It is the weighted average grade point of all modules taken by the student. Modules with no assigned modular credit or grade point are excluded from the calculation of CAP.

**MODULAR CREDIT (MC)**

A modular credit (MC) is a unit of the effort, stated in terms of time, expected of a typical student in managing his/her workload. One MC is equivalent to 2.5 hours of study and preparation per week. Thus, a 4-MC module would require 10 hours of work a week, including lectures, tutorials, laboratory sessions, assignments, and independent or group study, over 13 instructional Weeks in a semester.

**GRADE-FREE SCHEME (GFS)**

The Grade-free Scheme (GFS), in the form of 32 MCs of Satisfactory/Unsatisfactory (SU) option, was introduced for undergraduate students admitted from AY2014/2015 onwards to provide a supportive and enabling environment for them to make a successful transition into

the academic and social culture of university life. It serves to facilitate a transformation in students' mindsets towards grades and learning in the university setting, as well as enable them to leverage opportunities for a holistic education.

It was enhanced from a grade-free first semester to a grade-free first year for undergraduate students admitted from AY2016/2017 onwards.

At the end of a semester, students may choose to retain the letter grade or to exercise the SU option on a module, in which case the letter grade will not be shown on the transcript nor computed towards the CAP. An 'S' grade is assigned if students receive a C grade or above while a 'U' grade is assigned if the grade obtained is D+, D or F. Students will receive credits towards the degree only if they attain an 'S' grade.

At the end of a semester, students may choose to retain the letter grade or to exercise the SU option on a module, in which case the letter grade will not be shown on the transcript nor computed towards the CAP. An 'S' grade is assigned if students receive a C grade or above while a 'U' grade is assigned if the grade obtained is D+, D or F. Students will receive credits towards the degree only if they attain an 'S' grade.

**DEGREE CLASSIFICATION**

The criteria for degree classification applicable to students admitted from AY2012/2013 onwards are as follows:

**Honours Degree Classification**<sup>(i)</sup>

Honours (Highest Distinction)  
Honours (Distinction)  
Honours (Merit)

Honours

Pass

**Bachelor's Degree Classification**<sup>(ii)</sup>

Pass with Merit  
Pass

<sup>(i)</sup> This refers to 160-MC degree programmes.  
<sup>(ii)</sup> Particular Faculties/Schools may stipulate other requirements.  
<sup>(iii)</sup> This refers to 120-MC degree programmes.

**LEAVE OF ABSENCE**

Only leave of absence of one semester or longer is recorded in the transcript.

**NUS BULLETIN**

More information on the University's programmes is available in the NUS Bulletin at: <http://www.nus.edu.sg/nusbulletin>.

This transcript shows the latest information. For information on earlier grade legends, please visit:  
<http://www.nus.edu.sg/registrar/adminpolicy/transcripts.html>.

For degree verification, please visit:  
<http://www.nus.edu.sg/registrar/administrative-policies/degree-verification.html>.

**CHECK FOR AUTHENTICITY:**

NUS official transcript is printed in landscape format on paper with security fibres and displays the NUS coat of arms as a watermark with a smaller NUS coat of arms in full colour as part of the letterhead. Each page of the official transcript is individually validated with the NUS seal and the Registrar's endorsement (on a tri-colour background) or by an authorised staff of the University.

**The following information is specific to the respective Faculties/Schools:**

**FACULTY OF DENTISTRY (BDS) / YONG LOO LIN SCHOOL OF MEDICINE (MBBS)**

<b>Grade</b>	<b>Descriptor</b>	<b>Additional Grading Options</b>
A+	Distinction	DT Distinction
A-	M Merit	P Pass
B+	IC Incomplete	IP In Progress
B-	W Withdrawn	WU Withdrawal from University
C+		
C		
F		

**SUPPLEMENTARY EXAMINATION AND RE-EXAMINATION**

Students who sit for Supplementary Examination or Re-examination are awarded the grade appropriate to the marks they obtain.

**FACULTY OF LAW (LLB)**

**DEGREE CLASSIFICATION**

The criteria for degree classification applicable to students conferred their LLB degrees from 30 June 2016 are as follows:

**Degree Classification**

First Class Honours<sup>(i)</sup>

Second Class Honours<sup>(ii)</sup>

Second Class (Lower Division) Honours<sup>(iii)</sup>

Third Class Honours

Completed the number of credits required for a LLB (Honours) degree but do not qualify for First Class, Second Class (Upper Division) or Second Class (Lower Division) Honours.

Obtained a Cumulative Weighted Numerical Average for all modules taken at NUS that is equivalent to a grade of C or better, and do not qualify either for First Class or Second Class (Upper Division) Honours.

Completed the number of credits required for a LLB (Honours) degree but do not qualify for First Class, Second Class (Upper Division) or Second Class (Lower Division) Honours.

No student will be eligible for First Class or Second Class (Upper Division) Honours if:

- a) the student has failed more than 12 credits of modules at NUS for while on an approved exchange programme; or
- b) the student has taken more than 9 semesters to complete the 4-year LLB programme or 7 semesters to complete the 3-year Graduate LLB programme (excluding periods where the student has been granted a leave of absence).

**SUPPLEMENTARY EXAMINATION**

Unless otherwise indicated, a student who passes a subject by supplementary examination is awarded only a 'D' grade irrespective of his/her performance.

# Lingjie Wu

Mobile: (86)18158519871 | E-mail: 3150103968@zju.edu.cn  
Address: 38 Zheda Road, West Lake District, Hangzhou 310027, P.R. China

---

## Education Background

<b>College of Information Science and Electronic Engineering, Zhejiang University</b>	<b>09/2015-07/2019</b>
Degree: Bachelor of Engineering in Information Engineering, GPA: 3.55/4.0	
<b>Engineering Department, National University of Singapore</b>	<b>01/2018-08/2018</b>
Exchange Program, GPA: 4.5/5.0	
Courses: Communication Systems, French, Introduction to Computing, Computer Vision (audit)	

## Standardized Tests

TOEFL	110 (R29+L30+S26+W25)	Test Date: 07/14/2018
GRE	327 (V160+Q167) +AW3.0	Test Date: 04/18/2018

## Patent

**Lingjie Wu**, Yuwen Xia, Zhihan Chang, Zhen Yuan, Stock Forecast Model Based on Text News by Random Forest, Australia Innovation Patent, No.: 2018101531, 2018

## Research Experience

<b>Stock Forecast Model Based on Text News by Random Forest</b>	<b>08/2018-09/2018</b>
<i>Research Center on Fictitious Economy &amp; Data Science (FEDS), Chinese Academy of Sciences</i>	

Advisor: Yingjie Tian, Professor

- Established the forecast system with Word2vector Model and Random Forest Classifier;
- Preprocessed the text data extracted from stock news (e.g. word segmentation) and constructed a news text corpus;
- Trained the corpus with Word2vector Model and obtained the vector representation of the text;
- Input vector representation of the text and the corresponding ups & downs label into Random Forest Classifier, trained and obtained the forecast system.

<b>Machine Learning in Communication Systems</b>	<b>05/2018-08/2018</b>
<i>Advisor:</i> Mehul Motani, Associate Professor, ECE Department, National University of Singapore	

- Constructed neural network receiver and generated BPSK signals with AWGN channel;
- Transmitted BPSK signals to neural network through AWGN, and trained the receiver;
- Tested the performance of the receiver with testing samples, changed the signal-to-noise ratio of channel and observed the corresponding performance of the receiver;
- Switched to more complicated modulation schemes like QPSK and 16-QAM, and implemented the function of demodulating random constellation.

Creativity: Constructing the receiver by using neural network could dispense with the complicated demodulation (decoding) equation written according to different modulation or encoding methods.

<b>Multi-Function Digital Cymometer</b>	<b>06/2017-08/2017</b>
<i>National Undergraduate Electronics Design Contest</i>	

- Generated square-wave signal based on 555 Timer, generated changed the shape, amplitude and frequency of the signal by potential-divider network;
- Calculated and measured the signal's amplitude, frequency and other characteristics with FPGA, and compared the result with the standard value to verify the accuracy of the Cymometer.

# Lingjie Wu

Mobile: (86)18158519871 | E-mail: 3150103968@zju.edu.cn  
Address: 38 Zheda Road, West Lake District, Hangzhou 310027, P.R. China

---

## Design of Pipeline CPU (Central Processing Unit)

11/2017-12/2017

- Designed the modules of the CPU, including memory, ALU, command processing module, etc.;
- Connected all modules together through the top-level design in order to realize the targeted functions.

## Design and Implementation of Music Player

05/2017-06/2017

- Read the pitches in the music score and generated sinusoidal signal with the corresponding frequency by using DDS technique;
- Converted sinusoidal signals to voltage with AC97 audio system to activate the loudspeaker;
- Designed the key control module and connected it with the main controller module.

## Design and Implementation of Intelligent Tracking Car

06/2017

- Utilized Arduino open-source code for single-chip microcontroller programming;
- Realized the function of automatic tracking with loaded sensors.

## Internship Experience

*Trainee of Project Group, Beijing ZhongJiaoHuaLian Technology Development Co. Ltd.* 07/2017-09/2017

- Participated in the project of Bridge Health Monitoring System;
- Used C# to write the Data Statistical Analysis Module that can present the statistical result in the user interface in real time;
- Requested data for one year from the database, used Python to analyze and predict the change trend of dynamic and static parameters of Bridge, tried to fit the curve with linear, quadratic to fifth power function and exponential function, respectively to complete the annual report, so as to provide the basis for customers' maintenance decision.

Highlight: The Project has been applied for the Science and Technology Progress Award of China Highway and Transportation Society.

*Technical Support Trainee, China Putian Information Industry Group Corp.*

01/2017-02/2017

- Collected operation data of system, and arranged the implementation status of those functions in different conditions;
- Learned system architecture, eliminated system errors, and carried out preliminary analysis;
- Tested and improved the running situation of system, and wrote the function table and instructions.

## Extra-curricular Activity

*Class Commissary* in charge of entertainment 09/2016-Present

*Planner*, Volunteer teaching at Gehe Primary School of Guizhou Province 04/2017

*Leader and Planner*, a two-week social practice for visiting naval surveillance ships, coastal defense & emptying museum, experiencing naval barracks life, etc. 07/2016

*Member*, Youth Volunteer Activity Center of Zhejiang University 09/2015-06/2016

*Leader and Volunteer*, Volunteer Service for caring children with leukemia (once a week) 03/2016-05/2016

*Volunteer*, International Student Information Desk for offering counseling service like course selection, school clubs, and other related questions. 03/2016-04/2016

## Highlight

Skills: Matlab, AD, C Language, Python, Multisim, AutoCAD

Hobbies: Classical dance and Ballet, Guzheng, Fashion, Music

THIS IS A PDF DOWNLOADED AND PRINTED BY THE TEST TAKER, INTENDED FOR THE TEST TAKER'S PERSONAL RECORDS.

**Name:** WU, LINGJIE

Last (Family/Surname) Name, First (Given) Name Middle Name

**Email:** 2363047812@qq.com**Gender:** F**Registration Number:** 0000-0000-3380-8586**Date of Birth:** 22 Feb 1997**Test Date:** 14 Jul 2018**Sponsor Code:**

WU, LINGJIE  
 71-2-301, WANQINGYUAN  
 ORIENTAL SUN CITY  
 LIQIAOZHEN  
 SHUNYI DISTRICT  
 BEIJING, BEIJING  
 China

**TOEFL iBT Scaled Scores**

Reading ..... 29

Reading Skills	Level	Your Performance	
Reading	High	<p>Test takers who receive a score at the <b>HIGH level</b>, as you did, typically understand academic texts in English that require a wide range of reading abilities regardless of the difficulty of the texts.</p> <p>Test takers who score at the <b>HIGH level</b>, typically</p> <ul style="list-style-type: none"> <li>have a very good command of academic vocabulary and grammatical structure;</li> <li>can understand and connect information, make appropriate inferences, and synthesize ideas, even when the text is conceptually dense and the language is complex;</li> <li>can recognize the expository organization of a text and the role that specific information serves within the larger text, even when the text is conceptually dense; and</li> <li>can abstract major ideas from a text, even when the text is conceptually dense and contains complex language.</li> </ul>	
Listening Skills	Level	<th>Your Performance</th>	Your Performance
Listening	High	<p>Test takers who receive a score at the <b>HIGH level</b>, as you did, typically understand conversations and lectures in English that present a wide range of listening demands. These demands can include difficult vocabulary (uncommon terms, or colloquial or figurative language), complex grammatical structures, abstract or complex ideas, and/or making sense of unexpected or seemingly contradictory information.</p> <p>When listening to lectures and conversations like these, test takers at the <b>HIGH level</b> typically can</p> <ul style="list-style-type: none"> <li>understand main ideas and important details, whether they are stated or implied;</li> <li>distinguish more important ideas from less important ones;</li> <li>understand how information is being used (for example, to provide evidence for a claim or describe a step in a complex process);</li> <li>recognize how pieces of information are connected (for example, in a cause-and-effect relationship);</li> <li>understand many different ways that speakers use language for purposes other than to give information (for example, to emphasize a point, express agreement or disagreement, or convey intentions indirectly); and</li> <li>synthesize information, even when it is not presented in sequence, and make correct inferences on the basis of that information.</li> </ul>	

<b>Country of Birth:</b> China	<b>Inst. Code</b>	<b>Dept. Code</b>	Listening .....	30
<b>Native Language:</b> CHINESE			Speaking .....	26
<b>Test Center:</b> STN14263B - ITTS Singapore (c/o Cliftons)			Writing .....	25
<b>Test Center Country:</b> Singapore			<b>Total Score</b> .....	<b>110</b>

----- Security Identification -----

30

**ID Type:** Passport

**ID No.:** xxxxxxxxxxxxxxxxx5075

**Issuing Country:** China

Speaking about Familiar Topics	Fair	Your responses indicate you are able to speak in English about your personal experiences and opinions in a mostly clear and coherent manner. Your speech is mostly clear with only occasional errors. Grammar and vocabulary are somewhat limited and include some errors. At times, the limitations prevent you from elaborating fully on your ideas, but they do not seriously interfere with overall communication.
Speaking about Campus Situation	Good	Your responses indicate an ability to speak effectively in English about reading material and conversations typically encountered by university students. Overall, your responses are clear and coherent, with only occasional errors of pronunciation, grammar, or vocabulary.
Speaking about Academic Course Content	Good	Your responses demonstrate an ability to communicate effectively in English about academic topics typical of first-year university studies. Your speech is mostly clear and fluent. You are able to use appropriate vocabulary and grammar to explain concepts and ideas from reading or lecture material. You are able to talk about key information and relevant details with only minor inaccuracies.
Writing based on Reading and Listening	Good	You responded well to the task, relating the lecture to the reading. Weaknesses, if you have any, might have to do with slight imprecision in your summary of some of the main points and/or use of English that is occasionally ungrammatical or unclear.
Writing based on Knowledge and Experience	Good	You responded with a well-organized and developed essay. Weaknesses, if you have any, might have to do with use of English that is occasionally ungrammatical, unclear, or unidiomatic and/or elaboration of ideas or connection of ideas that could have been stronger.

**THIS IS A PDF DOWNLOADED AND PRINTED BY THE TEST TAKER, INTENDED FOR THE TEST TAKER'S PERSONAL RECORDS.**

This score report provides four section scores and a total score. An analysis of your strengths and weaknesses in English is included. The level pertaining to each skill should not be generalized beyond the performance on this test. Skill levels and their associated descriptions are not intended for use by institutions as part of their admissions criteria and will not be shared unless you grant permission.

**Information About Scores:** The following scaled scores are reported for the TOEFL iBT test. A total score is not reported when one or more sections have not been administered. These scores have the following ranges:

Sections	Scaled Scores
Reading	0-30
Listening	0-30
Speaking	0-30
Writing	0-30

**Institution Codes:** The code numbers shown on page 1 of this report are the ones you selected before you took the test. If any institution code you selected is missing, it was incorrect and the TOEFL Program was unable to send a score report to that institution.

WHERE THE REPORT WAS SENT	
DEPT.	Admissions office for undergraduate study or an
00	
02	Admissions office of a graduate school of management (business)
03	Admissions office of a graduate school of law

**Score Legends:**

Reading Skills	
Level	Total Scaled Score Range
High	22-30
Intermediate	15-21
Low	0-14

Speaking Skills	
Level	Total Scaled Score Range
Good	26-30
Fair	18-25
Limited	10-17
Weak	0-9

Listening Skills	
Level	Total Scaled Score Range
High	22-30
Intermediate	14-21
Low	0-13

Writing Skills	
Level	Total Scaled Score Range
Good	24-30
Fair	17-23
Limited	1-16
Score of Zero	0

gistered

**Total Score**

0-120

2015 by Educational Testing Service. All rights reserved. ETS, the ETS logos, TOEFL, and TOEFL iBT are registered trademarks of Educational Testing Service (ETS) in the

Additional information about TOEFL iBT scores can be found on the Test Takers section of the TOEFL website at [www.ets.org/toefl](http://www.ets.org/toefl).

\* Skill levels for speaking and writing individual skills are estimates of performance at the *item* level. The total writing and speaking scaled scores and ranges are more accurate. Therefore it is not appropriate to combine the individual skill levels. Doing so may lead to apparent inconsistencies between the diagnostic feedback and reported writing and speaking scores.

**IMPORTANT NOTE TO SCORE USERS:** This PDF score report was downloaded and printed by the test taker. It is not an Official Score Report sent by ETS directly to an organization designated by the test taker. If you find it necessary to verify the scores on this report, please contact the TOEFL Score Verification Service at +1-800-257-9547 or +1-609-771-7100. Scores more than two years old cannot be reported or validated.

LINGJIE WU

Address: 71-2-301, SUN CITY OF ORIENT,, LIQIAO TOWN, SHUNYI DISTRICT, BEIJING, 101399 China

Email: 13701083584@139.COM

Phone: 86-13701083584

Date of Birth: February 22, 1997

Social Security Number (Last Four Digits):

Gender: Female

Intended Graduate Major: Undecided (0000)

Most Recent Test Date: April 16, 2018

Registration Number: 3045039

Print Date: May 14, 2018



## Your Test Score History

Verbal Reasoning		Quantitative Reasoning		Analytical Writing	
Test Date	Scaled Score	Percentile	Scaled Score	Percentile	Score
for Test Date April 16, 2018	, Verbal Scaled Score, 160, and Percentile,				86 , QU
for Test Date September 2016	, Quantitative Scaled Score 167	92			Analytical Sc

## General Test Scores

## Subject Test Scores

You do not have reportable test scores at this time.

## Undergraduate Institution

Report Date	Institution (Code)	Department (Code)	Test Title	Test Date

## Designated Score Recipient(s)

Report Date	Score Recipient (Code)	Department (Code)	Test Title	Test Date

**TEST TAKER SCORE REPORT****Note:** This report is not valid for transmission of scores to an institution.**LINGJIE WU****Most Recent Test Date: April 16, 2018****Date of Birth:** February 22, 1997**Registration Number:** 3045039**About Your GRE® Score Report****Print Date:** May 14, 2018**Score Reporting Policies**

With the *ScoreSelect* option, you can decide which test scores to send to the institutions you designate. There are three options to choose from:

Most Recent option Send your scores from your most recent test administration

All option Send your scores from all administrations in the last five years

Any option Send your scores from one OR as many test administrations in the last five years (this option is not available on test day when you select up to four FREE score reports)

Scores for a test administration must be reported in their entirety. Institutions will receive score reports that show only the scores that you selected to send to them. There will be no special indication if you have taken additional GRE tests. See the *GRE Information Bulletin* for details. The policies and procedures explained in the Bulletin for the current testing year supersede previous policies and procedures in previous bulletins.

Scores will be sent to designated score recipients approximately 10-15 days after a computer-delivered test and 5 weeks after a paper-delivered test. If your scores are not available for any reason, you will see **Not Available** in Your Test Score History.

GRE test scores are reportable according to the following policies:

For tests taken prior to July 1, 2016, scores are reportable for five (5) years following the testing year in which you tested (July 1–June 30). For example, scores for a test taken on May 15, 2015, are reportable through June 30, 2020. GRE scores earned prior to August 2011 are no longer reportable.

For tests taken on or after July 1, 2016, scores are reportable for five (5) years following your test date. For example, scores for a test taken on July 3, 2016, are reportable through July 2, 2021.

Note: Score recipients will only receive scores from test administrations that you have selected to send to them.

**Percentile Rank (% Below)**

A percentile rank for a test score indicates the percentage of test takers who took that test and received a lower score. Regardless of when the reported scores were earned, the percentile ranks for General Test and Subject Test scores are based on the scores of all test takers who tested within the most recent three-year period.

**Retaking a GRE Test**

You can take the *GRE* once every 21 days, up to five times within any continuous rolling 12-month period (365 days). This applies even if you canceled your scores on a test taken previously. You can take the paper-delivered GRE General Test and *GRE* Tests as often as they are offered.

Note: This policy will be enforced even if a violation is not immediately identified (e.g., inconsistent registration information) and test scores have been reported. In such cases, the invalid scores will be canceled and score recipients will be notified of the cancellation. Test fees will be forfeited.

**For More Information**

For information about interpreting your scores, see *Interpreting Your GRE Scores* at [www.ets.org/gre/understand](http://www.ets.org/gre/understand).

For detailed information about your performance on the Verbal Reasoning and Quantitative Reasoning sections of the computer-delivered GRE General Test, access the free GRE Diagnostic Service from your ETS account. This service includes a description of the types of questions you answered right and wrong, the difficulty level of each question, and the time spent on each question. This service is available approximately 15 days after your test administration and for six months following your test administration.

If you have any questions concerning your score report, email GRE Services at [gre-info@ets.org](mailto:gre-info@ets.org) or call 1-609-771-7670 or 1-866-473-4373 (toll free for test takers in the U.S., U.S. Territories and Canada) between 8 a.m. and 7:45 p.m. (New York Time).



Australian Government

IP Australia

# CERTIFICATE OF GRANT INNOVATION PATENT

**Patent number:** 2018101531

The Commissioner of Patents has granted the above patent on 31 October 2018, and certifies that the below particulars have been registered in the Register of Patents.

**Name and address of patentee(s):**

LINGJIE WU of 19 unit building 208 Jia No.3 Haidian District Beijing China

YUWEN XIA of No.5 Tanggu Xia'an Village Rengong Xiang Qingtian County Zhejing Provicne China

ZHIHAN CHANG of Student Apartment No.25 Zhujiang Road Hexi District Tianjin China

Zhen Yuan of No. 262 Tiyu Road Yunyang County Chongqing China

**Title of invention:**

Stock forecast model based on text news by random forest

**Name of inventor(s):**

WU, LINGJIE; XIA, YUWEN; CHANG, ZHIHAN and Yuan, Zhen

**Term of Patent:**

Eight years from 14 October 2018

NOTE: This Innovation Patent cannot be enforced unless and until it has been examined by the Commissioner of Patents and a Certificate of Examination has been issued. See sections 120(1A) and 129A of the Patents Act 1990, set out on the reverse of this document.



Dated this 31<sup>st</sup> day of October 2018

Commissioner of Patents

## PATENTS ACT 1990

The Australian Patents Register is the official record and should be referred to for the full details pertaining to this IP Right.

## Extracts from the Patents Act, 1990

<b>Sect 120(1A)</b>	Infringement proceedings in respect of an innovation patent cannot be started unless the patent has been certified.
<b>Sec 128</b>	<b>Application for relief from unjustified threats</b>
(1)	Where a person, by means of circulars, advertisements or otherwise, threatens a person with infringement proceedings or other similar proceedings a person aggrieved may apply to a prescribed court, or to another court having jurisdiction to hear and determine the application, for: (a) a declaration that the threats are unjustifiable; and (b) an injunction against the continuance of the threats; and (c) the recovery of any damages sustained by the applicant as a result of the threats.
(2)	Subsection (1) applies whether or not the person who made the threats is entitled to, or interested in, the patent or a patent application.
<b>Sec 129A</b>	<b>Threats related to an innovation patent application or innovation patent and courts power to grant relief.</b>
<i>Certain threats of infringement proceedings are always unjustifiable.</i>	
(1)	If: (a) a person: (i) has applied for an innovation patent, but the application has not been determined; or (ii) has an innovation patent that has not been certified; and (b) the person, by means of circulars, advertisements or otherwise, threatens a person with infringement proceedings or other similar proceedings in respect of the patent applied for, or the patent, as the case may be; then, for the purposes of an application for relief under section 128 by the person threatened, the threats are unjustifiable.
<i>Courts power to grant relief in respect of threats made by the applicant for an innovation patent or the patentee of an uncertified innovation patent</i>	
(2)	If an application under section 128 for relief relates to threats made in respect of an innovation patent that has not been certified or an application for an innovation patent, the court may grant the application the relief applied for.
<i>Courts power to grant relief in respect of threats made by the patentee of certified innovation patent</i>	
(3)	If an application under section 128 for relief relates to threats made in respect of a certified innovation patent, the court may grant the applicant the relief applied for unless the respondent satisfies the court that the acts about which the threats were made infringed, or would infringe, a claim that is not shown by the applicant to be invalid.
<b>Schedule 1</b>	<b>Dictionary</b>
	<b>certified</b> , in respect of an innovation patent other than in section 19, means a certificate of examination issued by the Commissioner under paragraph 101E(e) in respect of the patent

# Northwestern | THE GRADUATE SCHOOL

## Recommendation Form

---

The Graduate School Northwestern University Evanston, IL 60208-1113

Applicant Name: **Lingjie Wu**

Program: **Computer Science: MS**

Applicant Waived Rights\*: **This applicant has waived the right to view their recommendation.**

Recommender Name: **Mehul Motani**

Organization Name: **National University of Singapore**

Title: **Associate Professor**

E-mail Address: **motani@nus.edu.sg**

Telephone Number: **[65]6516 6918**

Relationship to Applicant: **Instructor**

Certification (Date): **12-28-2018**

\*“Public Law 93-380, Educational Amendments Act of 1974, grants students the right to have access to letters of recommendation in their placement files. By selecting the "Waive access" option you are waiving access to these letters.”

15 Nov 2018

Re: Letter of Support for Ms. WU Lingjie

To Whom It May Concern:

I am writing this letter to support the application of Ms. Wu Lingjie for graduate studies. I have known and interacted with Lingjie for about one year. I first met Lingjie in January 2018 when she was an exchange student at the National University of Singapore and took a class I was teaching. She strikes me as an innovative, intelligent and responsible person. Based on my interaction with her, I can say that she has good command of the English language and is able to express herself well.

Based on her transcript and the scores in the courses she has taken, it is clear that Lingjie possesses the academic ability to grasp engineering concepts and apply them. She demonstrated this ability many times during the Communication Systems class she took with me. During the class, Lingjie was quite independent and did not need to be handheld. She made it a point to dive into the depths of a topic to understand the concepts and ask insightful questions. Lingjie earned an "A" and was one of the top 10 students in the class.

Lingjie was also proactive and approached me to do a research attachment in the area of communication systems. I suggested exploring research in the area of machine learning for wireless communication systems. Wireless communication systems are an integral part of our daily lives. As such, system designers and operators are constantly looking for ways to improve the performance of such systems. The aim of this internship was to explore how machine learning ideas could be used to improve the reliability and robustness communication systems. Lingjie was quick to come up to speed on machine learning and applying the ideas to communication problems.

Lingjie strikes me as a highly self-motivated individual and she is very proactive in seeking out opportunities to contribute. In my interactions with her, I have noticed she is quick to pick up new ideas and always asks good questions. Overall, I would rank her among the top 10% of all undergraduates I have evaluated. I strongly support Lingjie for graduate studies and am certain that she will succeed. Please feel free to contact me if you require any further information. Thank you.

Sincerely,



Mehul Motani

Associate Professor

Fellow, IEEE

Electrical and Computer Engineering

National University of Singapore

Tel: (65) 6516 6918, Email: [motani@nus.edu.sg](mailto:motani@nus.edu.sg)

Biography of Mehul Motani:

Dr. Mehul Motani received the B.E. degree from Cooper Union, New York, NY, the M.S. degree from Syracuse University, Syracuse, NY, and the Ph.D. degree from Cornell University, Ithaca, NY, all in Electrical and Computer Engineering.

Dr. Motani is currently an Associate Professor in the Electrical and Computer Engineering Department at the National University of Singapore (NUS) and a Visiting Research Collaborator at Princeton University. Previously, he was a Visiting Fellow at Princeton University. He was also a Research Scientist at the Institute for Infocomm Research in Singapore, for three years, and a Systems Engineer at Lockheed Martin in Syracuse, NY for over four years. His research interests are in the area of network information theory, wireless networks, and machine learning. His teaching interests are in communication systems, computer networking and data science and he has taught various courses in these areas at both the undergraduate and graduate levels. He has been interacting with students for over fifteen years and have advised over 30 PhD and Master's students and supervised over 200 undergraduate students.

Dr. Motani was the recipient of the Intel Foundation Fellowship for his Ph.D. research, the NUS Annual Teaching Excellence Award, the NUS Faculty of Engineering Innovative Teaching Award, and the NUS Faculty of Engineering Teaching Honours List Award. He actively participates in the Institute of Electrical and Electronics Engineers (IEEE) and the Association for Computing Machinery (ACM). He is a Fellow of the IEEE and has served as the Secretary of the IEEE Information Theory Society Board of Governors. He has served as an Associate Editor for both the IEEE Transactions on Information Theory and the IEEE Transactions on Communications. He has also served on the Organizing and Technical Program Committees of numerous IEEE and ACM conferences.

# Northwestern | THE GRADUATE SCHOOL

## Recommendation Form

---

The Graduate School Northwestern University Evanston, IL 60208-1113

Applicant Name: **Lingjie Wu**

Program: **Computer Science: MS**

Applicant Waived Rights\*: **This applicant has waived the right to view their recommendation.**

Recommender Name: **Xiao-Wu Tang**

Organization Name: **Zhejiang University**

Title: **Professor**

E-mail Address: **tangxiaowu@zju.edu.cn**

Telephone Number: **[86]13958091045**

Relationship to Applicant: **Teacher and student**

Certification (Date): **11-30-2018**

\*“Public Law 93-380, Educational Amendments Act of 1974, grants students the right to have access to letters of recommendation in their placement files. By selecting the "Waive access" option you are waiving access to these letters.”

Professor Xiao Wu TANG

Former Deputy-Dean of Chu Kochen Honors College, (2009-2017)

Deputy Dean of International College, Zhejiang University

Supervisor of Chinese Technical Association on Geosynthetics

November 13, 2018

To Whom It May Concern,

It's my pleasure to recommend Miss WU Lingjie, a very talented student, for admission to the Master program in Data Science offered by University of Pennsylvania. I knew Miss Wu when I worked as the Deputy Dean of Chu Kochen Honors College (CKC) in Zhejiang University.

Miss Wu is a responsible student with excellent leadership. In July 2016, I got to know her well when she acted as the team leader for the two-week social practice in the naval forces of Ningbo, Zhejiang. When planning the activity, she took full account of her teammates' interests as well as the basic conditions and requirements of the troops. Then during the practice, she reasonably assigned tasks to her teammates, united them together, and seriously played the role of an effective communicator between the troops and her team. As a result, she not only led the team to complete their practice in an orderly and safe way, but also stood out in the final defense and won the first prize.

Miss Wu is a slow-type girl, however, once she sets herself a goal, she will stick at it until she succeed. She often came to my office and talked about her recent study, major selection, and career plan. Although the honors courses offered by CKC are very demanding (For example, the mathematical courses are even more difficult than those ones offered for students majoring in math. One of our students got 99 in Calculus offered by General Undergraduate School while he only got 75 in the honors class.), Miss Wu was still able to do well in these courses. In view of her excellent academic performance and her intention of pursuing further study abroad, I encouraged her to participate in the exchange program at National University of Singapore (NUS), which would provide her with the valuable experience of the western education system. The program is one of the most competitive exchange programs in our university, and only four students among the entire university were

chosen. To my delight, she successfully gained the qualification in the second semester of her junior year. Moreover, she also obtained a chance to do research programs under the instruction of Prof. Mehul Motani in National University of Singapore for three months after the end of the semester.

Besides, Miss Wu assisted me in managing the WeChat public platform in 2017. She not only actively shared the experience of the outstanding senior students on the platform and the interpretation of the hot educational events, etc., but also compiled a ranking list of the world's leading universities together with me, which involved some data processing work. Through this work, she got a better understanding of the famous universities as well as gained higher proficiency in data analysis and processing.

In recent years, I have recommended over 50 outstanding students for overseas graduate education with full scholarships (Please refer to the appendix for their information). In light of my past recommendation records, I am strongly confident in recommending Miss Wu, an outstanding student with great potential, both academically and professionally, to the Master program in Data Science offered by University of Pennsylvania.

I hold a strong belief that this aspiring girl has a bright future ahead of her and therefore I am writing this recommendation letter to offer her my full support, for no one is more deserving of this fine opportunity. Your favorable consideration upon her application would be highly appreciated. If you have any question regarding her, please do not hesitate to contact me directly.

Yours Sincerely,



Prof. Xiao Wu TANG,

Department of Civil Engineering,

Deputy Dean of International College, Zhejiang University

Email: tangxiaowu@zju.edu.cn

Phone: +86 13958091045, +86 0571-87953229

Address: No. 38, Zheda Road, Hangzhou, Zhejiang, China 310027

## APPENDIX

**(The latest 3 years)**

### **2018**

- LIU Jiaokun**, Stanford University, Master program in Civil Engineering
- TANG Jiajie**, Kyoto University, Master program in Environmental Engineering
- SHI Jiujun**, University of Chicago, Ph.D. in Chemistry
- LAO Guanming**, University of California, Los Angeles, Ph.D. in Physics
- FAN Yuhang**, Stanford University, Ph.D. in Biological Engineering
- YANG Sichen**, John Hopkins University, Ph.D. in Applied Mathematics and Statistic
- TANG tian**, Cornell University, Ph.D. in Material Science

### **2017**

- LIU Yibing**, The University of Tokyo, Master-of-International Technology Management program
- CHENG Mengjie**, Stanford University, Master in Finance
- ZHAO Xuan**, University of Chicago, Postdoc at Booth School of Business
- XIE Yubin**, Cornell University, Ph.D. in Computational Biology
- CHEN Ran**, Stanford University, Master in Archaeology
- LU Shuning**, Georgetown University, Walsh School of Foreign Service
- WU Qiaofeng**, Columbia University, Master in Electrical Engineering

### **2016**

- ZHAO Rui**, Harvard University, Master in Computer Science and Engineering
- LIN Ziao**, Harvard University, Ph.D. in Medicine
- QIAN Xin**, Carnegie Mellon University, Information Retrieval Program
- ZHANG Mengyao**, Carnegie Mellon University, Master in Information System
- CHEN Shihui**, Massachusetts Institutes of Technology, Master in Finance
- ZHANG Xueye**, Columbia University, Master in Economics
- CHEN Congying**, Cornell University, Master in Hospitality Management
- ZHOU Xiaonan**, University of California-Berkeley, Master of Business Administration
- SHEN Yandi**, University of Washington, Ph.D. in Statistics

# Northwestern | THE GRADUATE SCHOOL

## Recommendation Form

---

The Graduate School Northwestern University Evanston, IL 60208-1113

Applicant Name: **Lingjie Wu**

Program: **Computer Science: MS**

Applicant Waived Rights\*: **This applicant has waived the right to view their recommendation.**

Recommender Name: **Shuangshuang Li**

Organization Name: **Chinese Academy of Sciences**

Title: **Associate Professor**

E-mail Address: **shuangshuang.li@ia.ac.cn**

Telephone Number: **+8615201375290**

Relationship to Applicant: **advisor & student**

Certification (Date): **11-29-2018**

\*“Public Law 93-380, Educational Amendments Act of 1974, grants students the right to have access to letters of recommendation in their placement files. By selecting the "Waive access" option you are waiving access to these letters.”

---

## Reference Letter

Sep 27, 2018

To Whom It May Concern,

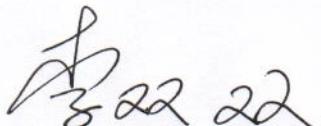
I met Lingjie Wu at the Artificial Intelligence Summer Camp in August 2018. Throughout the project, she had consistently displayed remarkable ability to cope with high stress situation as well as academic performance. I am glad to recommend Lingjie to you.

Lingjie is a quick learner. The project she participated in was a 20-days' online course that introduced machine learning and Python programming, followed by a one-week project, in which python was used to analyze the data extracted from stock news and build a model to predict the stock market. Even though started with little experience in text processing projects, Lingjie did excellent and made a major contribution in this program. She was responsible for the major parts of coding in the project, including model establishment of word segmentation and vectorisation, as well as feature classification with the random forest classifier. She learned all these knowledge and skills freshly in this project via extensive self-study and intensive communication with team members and the project supervisor. Besides, Lingjie contributed a lot in completing a related patent based on her work. Her talent and passion in computer science has deeply impressed me.

I also want to highlight that Lingjie is good at teamwork. She kept very good communication and cooperation with the team members. And she was very active to share her ideas during daily discussions.

I firmly believe that Lingjie is a well-qualified student with self-motivation. Therefore, I highly recommend her to you and deeply appreciate your favorable consideration. If you may require any further information, please do not hesitate to contact me.

Yours,



**Associate Professor  
Institute of Automation, Chinese Academy of Sciences**

Email: shuangshuang.li@ia.ac.cn

Phone: +86 15201375290

95 Zhongguancun East Road, Haidian District, 100190, Beijing, China