

# YIXUAN HE

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University of Edinburgh /South China University of Technology

## EDUCATION

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**University of Edinburgh, UoE** Sept.2018 - June 2020

Major: (**BSc Hons**) **Mathematics & Statistics** (**93%** Avg., **Rank # 1** in Math & Stats)

Courses: Statistical Methodology(**100%**), Financial Mathematics(**100%**), Fundamentals of Optimization(**98%**), Statistical Computing(95%), Bayesian Theory(94%), Statistical Learning(90%) etc.

Paid job at UoE: **Digital Skills Trainer-Python**

**University of California, Berkeley**

Jan. 2018 - May 2018

Semester abroad (GPA: **4.0/4.0**)

Courses: Numerical Analysis (**A+**), Complex Analysis (**A+**), Abstract Algebra (**A**)

**South China University of Technology, SCUT**

Sept.2016 - June 2020

Major: **Mathematics & Applied Mathematics** (Rank **1/60**)

Overall GPA: **3.99/4.0**, Major GPA: **4.0/4.0**; transfered to Edinburgh on 2+2 program

Winning 2 years' **National Scholarship** granted by Ministry of Education of China

**650/710** in CET6, overtaking **99.98%** students in SCUT

## RESEARCH EXPERIENCE

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***UoE: AUROC vs AUPRC: A Comparison of Performance Measures in Classification Problems*** Sept. 2019 - Present

*UoE Honors Project*

*Supervisor: Timothy I. Cannings*

- Collected data, compared measure scores, **analysed measure properties** & data properties.

***UCLA CSST summer research/REU: Deforestation Brazil***

June 2019 - Present

*Funded by NGA & NSF Supervisors: Christian Parkinson, Andrea L. Bertozzi, Stanley J. Osher*

- Conducted data mining, data analysis, matlab programming & model construction.
- Implemented **level set method**, numerical PDEs, optimal path searching, satellite image processing, Maximum Penalized Likelihood Estimation (MPLE), time series simulation etc.
- **Delivered a talk** at IPAM's "The Level Set Collective" seminar invited by Professor Stanley Osher.
- **Presented a poster** at Intelligence Community Academic Research Symposium (ICARS) 2019.

***SCUT: Robust Image Salient Object Perception Prior for Image Segmentation based on PDEs Related Methods***

May 2018 - Present

*Funded by National Natural Science Foundation of China (NSFC)*

*Supervisor: Delu Zeng*

- Studied level set methods and **neural networks** on **semantic image segmentation**.
- **First author** of paper at workshop of **CVPR 2019: Scan-flood Fill (SCAFF): an Efficient Automatic Precise Region Filling Algorithm for Complicated Regions**.
- Worked on lung nodule segmentation using MEnet.
- Second author of paper: **Ro-SOS: Metric Expression Network (MEnet) for Robust Salient Object Segmentation**.
- Utilized Linux, Colab, Caffe, TensorFlow, PyTorch & programming in Python.

***SCUT: Efficiency of Collaborative Innovation Knowledge Output in Professional Towns in Internet + Times***

May 2017 - May 2018

*Funded by the Chinese Ministry of Education*

*Supervisors: Shifu Wang, Miaoqi Zhao, Shenquan Liu*

- **Cross-disciplinary**: Mathematics & Urban Planning.
- Responsible for data mining, data analysis, paper writing (pending publication).
- **Led** the project as part of the National Training Program of Innovation for Undergraduates.

## CONFERENCES

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Berkeley Undergraduate Number Theory Conference	Attendee	Apr. 2018
European Conference on Computer Vision( <b>ECCV</b> ) pre-conference	Attendee	July 2018
Computer Vision and Pattern Recognition( <b>CVPR</b> )	Workshop <b>1<sup>st</sup></b> author	June 2019
Intelligence Community Academic Research Symposium ( <b>ICARS</b> )	Poster presenter	Sept. 2019

## MAJOR AWARDS

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<b>Prize</b>	2019's Arthur Erdelyi Prize (For top 3 performing Math students @UoE)
<b>Prize</b>	2019's James Ward Memorial Prize (For <b>top</b> student in Math & Stats @UoE)
<b>Second Prize</b>	2018's ICM/MCM International <b>Mathematical Modeling</b> Competition
<b>Grand Prize</b>	2018's Maths Competition of SCUT (Maths Group) ( <b>Rank # 1</b> )
<b>Honor</b>	2017-2018's one of the ten <b>Role Models to Merit Students</b> at SCUT
<b>Prize</b>	2017's & 2018's <b>National Scholarship</b>
<b>Second Prize</b>	2017's "9 <sup>th</sup> National College Student <b>Maths Competition</b> (Maths)" in Guangdong
<b>Second Prize</b>	2017's National College Student Mathematical Modeling Competition (Guangdong)
<b>Gold medal</b>	2014's CYCC (China Youth <b>Creativity Competition</b> ) for creation
<b>Silver award</b>	2014's IENA international creation competition

## COMPUTER SKILLS

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Programming:	<b>Python (Advanced)</b> , C++ (Intermediate), VB (Basic) & Pascal (Basic)
Statistical Analysis:	<b>R (Advanced)</b> , SQL (Intermediate) & SPSS (Intermediate)
Modelling:	<b>Matlab (Advanced)</b> , Maple (Intermediate) & Xpress (Intermediate)
Paper writing:	<b>Latex (Advanced)</b>

## WORK EXPERIENCE

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**UoE's Digital Skills Trainer - Python** Dec. 2019-May 2020

- **Deliver Python training courses**, review and improve existing Python training, & assist in delivering digital skills courses in other areas.
- Workload: 7 hours a week.

**Head of Class** Sept. 2013-June 2018

- Conveyed notifications, organized activities & led by example.
- 2017's & 2018's South China University of Technology **Outstanding Student Leader**.
- 2016-2017's **outstanding class** of SCUT & 2017-2018's top-16 classes of SCUT.

**University Student Representative** May 2017-May 2018

- Actively listened to students' opinions & participated in raising proposals.
- Outstanding Student Representative of South China University of Technology in 2017.

**Member of Public Relationship Dept., Math Student Union** Sept. 2016-Oct. 2017

- **Led** the hosting of a social party in School of Mathematics.
- 2017's **Star** in Mathematics Student Union.

**Student Assistant for School of Mathematics** Sept. 2016-Aug. 2017

- Assisted in organizing materials & releasing notifications.
- Outstanding individual in work study of South China University of Technology.

**Teaching Support in a Primary School in Longsheng Rural Village** July 2017

- Devised & delivered lectures in singing, dancing, craftsmanship & story-telling.
- **Leader** in hosting the closing ceremony.
- **Visited families** to collect information & offer suggestions.