

YIXUAN HE

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University of Edinburgh / South China University of Technology

EDUCATION

University of Edinburgh, UoE Sept.2018 - June 2020
Major: **(BSc Hons) Mathematics & Statistics (93% Avg., Rank # 1 in Math & Stats)**
Courses: Statistical Methodology(**100%**), Statistical Computing(95%), Statistical Learning(90%)etc.

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

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 Chinese Ministry of Education Supervisors: *Shifu Wang, Miaoxi 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

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

MAJOR AWARDS

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

COMPUTER SKILLS

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

WORK EXPERIENCE

Head of Class	Sept. 2013-June 2018
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- 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
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- 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
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- **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
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- 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
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- Devised & delivered lectures in singing, dancing, craftsmanship & story-telling.
- **Leader** in hosting the closing ceremony.
- **Visited families** to collect information & offer suggestions.