

EDUCATION

Zhejiang University (ZJU) <i>Ph.D Candidate in Computer Science</i> ❖ Outstanding Graduate Student Award, Postgraduate Scholarship	GPA 3.7/4.0 Rank 6/50	Hangzhou, PRC Since 2019
University of Reading (UoR) <i>Honored Bachelor of Science in Applied Chemistry</i> ❖ Second Upper Class (2:1) Honored Degree, RED Award	GPA 68% Rank 5/32	Reading, UK 2018-2019
Nanjing University of Information Science & Technology (NUIST) <i>Bachelor of Science in Applied Chemistry</i> ❖ Extraordinary Student Award, Best 10 Students Award	GPA 3.8/4.0 Rank 1/40	Nanjing, PRC 2015-2018

RESEARCH

Computational Chemistry, GCMT-Group, UoR (Supervisor: Dr. Ricardo Grau-Crespo)

- ❖ Develop the software to create the SuperCell and calculated the charge density of large-scale system, which can calculate the ionization potential of various materials with computer simulation, and improve either calculation speed or accuracy of Vienna Ab initio Simulation Package (VASP).

Artificial Intelligence for medical imaging, RealDoctor-Group, ZJU (Supervisor: Prof. Jian Wu)

- ❖ Research project on multi-modality fusion model of deep learning, to solve optic neuropathy diseases diagnosis problem, funded by national natural science foundation of china.
- ❖ Survey on latest medical image segmentation and registration methods. Ranked 1st in CT image segmentation challenge and presented in MICCAI 2019.

Drug discovery & AI, Institute of Innovative Medicine, ZJU (Supervisor: Prof. Jian Wu)

- ❖ Survey on gene data mining for personalized medication, molecular-protein docking prediction and retrosynthesis prediction, assist the design and development of the automatic synthesis platform.

Web3.0 & Blockchain Intelligence

- ❖ Develop a Ponzi scheme detection & prediction tool based on the opcode & transactions of smart contract, Ranked 2/170 in Wanxiang Blockchain Hackathon.

PAPER

1. **Cao, Z.**, Yu, B., Lei, B., Ying, H.[†], Zhang, X., Chen, D. Z., & Wu, J.[‡] (2021). Cascaded SE-ResUnet for segmentation of thoracic organs at risk. *Neurocomputing*, 453, 357-368.
2. **Cao, Z.**[†], Sun, C.[†], Wang, W., Zheng, X., Wu, J.[‡], & Gao, H.[‡] (2021). Multi-modality fusion learning for the automatic diagnosis of optic neuropathy. *Pattern Recognition Letters*, 142, 58-64.
3. **Cao, Z.**, Mu, C., Ying, H., & Wu, J.[‡]. (2021, November). Full Scale Attention for Automated COVID-19 Diagnosis from CT Images. In 2021 43rd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC) (pp. 3213-3216). IEEE.
4. **Cao, Z.**[†], Pan, X.[†], Yu, H.[†], Hua, S., Wang, D., Chen, D. Z., Min, Z & Wu, J.[‡] (2022). A Deep Learning Approach for Detecting Colorectal Cancer via Raman Spectra. *BME Frontiers*, 2022, 1-10.
5. Zhu, H.[†], **Cao, Z.**[†], Lian, L., Ye, G., Gao, H., & Wu, J.[‡]. (2022). CariesNet: a deep learning approach for segmentation of multi-stage caries lesion from oral panoramic X-ray image. *Neural Computing and Applications*, 1-9.
6. Jiang, L., Chen, D., **Cao, Z.**, Wu, F., Zhu, H., & Zhu, F.[‡]. (2021). A Two-Stage Deep Learning Architecture for Radiographic Assessment of Periodontal Bone Loss. *BMC Oral Health*.
7. Zhu, H., Yu, H., Zhang, F., **Cao, Z.**, Wu, F., & Zhu, F.[‡]. (2022). Automatic Segmentation and Detection of Ectopic Eruption of the First Permanent Molars on Panoramic Radiographs Based on nnU-Net. *International Journal of Paediatric Dentistry*.

[†]: Equal Contribution; [‡]: Corresponding Author

WORK EXPERIENCE

2021.9 - Now	Tencent Shenzhen, PRC CSIG Quantum Laboratory Research Intern
2021.5 - 2021.7	Alibaba Hangzhou, PRC DAMO Academy City Brain Laboratory Research Intern
2019.1 - 2019.6	University of Reading Reading, UK IT Service Desk and AV Assistant (Tier 3 Tech level)
2018.6 - 2018.9	Oracle Nanjing Branch, PRC Technical Support Intern
2016.6 - 2018.6	Nanjing KTY UAV Ltd. Nanjing, PRC CTO, Co-founder

AWARD

- ❖ Familiar with single chip microcomputer development, including MSP430, STM32 etc.
- ❖ Well data mining skills, familiar with professional software such as R, Lingo and Matlab.
- ❖ Experienced program skills with Python, C/C++ and Java, Full Stack Developer.
- ❖ Many Interests and hobbies including flugmodellSPORT, photography, guitar and poetry.

3*First Price	• 2016/2017/2018 'TI' Cup National Electrical Design Competition
First Price	• 2017 9th Chinese Network Originality Competition
First Price	• 2017 "Jianhang" Cup Jiangsu Innovation and Entrepreneurship Competition
First Price	• 2017 Chinese National Mathematical Modeling Competition
Meritorious Winner	• 2018 American Mathematical Contest in Modeling (MCM 2018)
Second Price	• 2015 National Aviation Model Championship in Jiangsu Province
Silver medal	• 2017 "Internet+" Cup National Innovation and Entrepreneurship Competition
Second Price	• 2018 "Challenging" Cup Chinese Innovation Competition
Third Price	• 2017 "WuYi" Cup East China Mathematical Modeling Competition
Third Price	• 2017 "Bei-Dou" Cup National Youth Innovation Competition
Innovative award	• 2016 "Hack-Nanjing" College Students Hackathon
BMI Task Winner	• 2019 'R.U.Hacking' Hackathon of UoR
2*Third Price	• 2019/2020 'HUAWEI' Cup National Graduate Mathematical Modeling Competition
...	Totally over 50 awards in field of innovation, entrepreneurship and programming.

ADDITIONAL ACTIVITIES

Volunteer	Over 1000 hours volunteer experience, including work in supporting education for poor children, academic conference volunteer and service for philanthropic organization.
Leadership	Former vice-president and minister of Association of Science & Technology in NUIST, Class committee member in NUIST and ZJU, and head of a startup.
Innovation	Achieved overall 34 patents and 3 software copyrights in P.R.China, including drone accessories design, automatic device and communication algorithm development.

REFEREES

Prof. Jian Wu <i>Ph.D Supervisor</i> College of Computer Science Zhejiang University Hangzhou, 310044, PRC Email: wujian2000@zju.edu.cn	Prof. Danny Ziyi Chen <i>Co-Supervisor and Collaborator</i> College of Computer Science & Engineering University of Notre Dame Notre Dame, IN 46556, USA Email: dchen@nd.edu	Dr. Ricardo Grau-Crespo <i>B.Sc Supervisor</i> Department of Chemistry University of Reading Reading, RG6 6AH, UK Email: r.grau-crespo@reading.ac.uk
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