

ENZE XU

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M.S. in Computer Science, Wake Forest University

EDUCATION

College of Arts and Sciences, Wake Forest University, North Carolina, U.S. Aug. 2021 - Present

M.S. in Computer Science (GPA: 4.0/4.0 present)

- **Core Courses in CS:** Theory of Computation, Theory of Algorithms, Operating Systems, Database Management Systems, Computer Security, Nonlinear Optimization, Parallel Programming, etc.

School of Electronics Engineering and Computer Science, Peking University, Beijing, China Sep. 2016 - Jul. 2020

B.S. in Data Science and Big Data Technology

No.2 High School Of East China Normal University, Shanghai, China Sep. 2013 - Sep. 2016

RESEARCH EXPERIENCES

Wake Forest University | Research Assistant Aug. 2021 - Present

Advisor: Minghan Chen (<https://chenm.sites.wfu.edu/>), assistant professor in the Computer Science Department at Wake Forest University

- Improve Physics-informed neural networks (PINN) to solve the performance bottleneck of complex PDE models
 - Design a PyTorch ML framework to implement the PINN structure of Prey-predator (PP), Epidemiology (SIR), and Turing-diffusion pattern models.
- Design a Graph Encoder (AutoEncoder, CNN, etc.) for stage stratification in the protein adsorption process (See Publications)
- Propose Multimodal Spatiotemporal Stratification Network, a DNN-based neural network for Subtype Identification in Alzheimer's Disease (Abstract, See Publications)
- Develop some PyTorch framework toolkits and hands-on practice for undergraduate lab students

System Software Research Laboratory | School of EECS | Peking University | Research Assistant Apr. 2019 - Jul. 2020

Advisor: Gang Huang (<http://sei.pku.edu.cn/~huanggang>), professor and deputy director of Software Research Institute at School of EECS, Peking University

- Design and programme blockchain-based smart contracts to control the use of smart home devices
- Propose an adaptive strategy for cloud platforms to schedule resource requests in real-time and efficiently (See Publications)
- Lead a team with five laboratory members to design a Sunshine Interview system based on the blockchain smart contract
- Develop an implementation of the resource search engine based on blockchain smart contracts

Key Lab of High-Confidence Software Technology | Peking University | Research Assistant Aug. 2018 - Apr. 2019

Advisor: Xuanzhe Liu (<http://www.liuxuanzhe.com/>), associate professor at the School of Electronics Engineering and Computer Science, Peking University

- Design a batch algorithm to extract page features from APK files based on the Android debug bridge (ADB) tool
- Propose a machine-learning-based approach to helping developers construct a Quick App from an existing native app (See Publications)
- Learn and develop code-controlled application programming interfaces (APIs) based on known APK files

PUBLICATIONS

- **Xu, E., Zhao, J., Sun, Z., Zhao, H., Zhang, J., & Chen, M.** Fourier-enhanced Neural Networks for Predicting Dynamics of Systems Biology Models. (**Manuscript**)
- **Xu, E., Zhang, J., Li, J., Li, Yang, D., Wu, G., & Chen, M.** (2022). Pathology Steered Stratification Network for Subtype Identification in Alzheimer's Disease. (**Under review**, arXiv preprint, Oct. 2022)
arXiv:2210.05880. <https://doi.org/10.48550/arXiv.2210.05880>
- **Chen, J., Xu, E., Wei, Y., Chen, M., Wei, T., & Zheng, S.** (2022). Graph Clustering Analyses of Discontinuous Molecular Dynamics Simulations: Study of Lysozyme Adsorption on a Graphene Surface. *Langmuir*, 38(35), 10817-10825.
DOI: 10.1021/acs.langmuir.2c01331. <https://pubs.acs.org/doi/10.1021/acs.langmuir.2c01331>

- Zhang, J., **Xu, E.**, & Chen, M. (2022, August). AT [N]-net: multimodal spatiotemporal network for subtype identification in Alzheimer's disease. In *Proceedings of the 13th ACM International Conference on Bioinformatics, Computational Biology and Health Informatics* (pp. 1-1).
DOI: 10.1145/3535508.3545103. <https://dl.acm.org/doi/abs/10.1145/3535508.3545103>
- Dong, H., **Xu, E.**, Jing, X., Cai, H., & Huang, G. (2020, November). Adaptive Request Scheduling for Device Cloud. In *2020 IEEE International Conference on Services Computing (SCC)* (pp. 394-403). IEEE.
DOI: 10.1109/SCC49832.2020.00058. <https://ieeexplore.ieee.org/document/9284487/>
- Liu, Y., **Xu, E.**, Ma, Y., & Liu, X. (2019, July). A first look at instant service consumption with quick apps on mobile devices. In *2019 IEEE International Conference on Web Services (ICWS)* (pp. 328-335). IEEE.
DOI: 10.1109/ICWS.2019.00061. <https://ieeexplore.ieee.org/document/8818418/>

WORK EXPERIENCES

Microsoft Asia-Pacific Research & Development Group | Big Data Team | Developer Intern | Beijing. Jul. 2019 - Oct. 2019

- TypeScript & JavaScript | Design some functions of user visual state management interface of A365 software products
- JavaScript | Implement the design requirements of UI controls from designers
- JavaScript | Solve the problem of software function compatibility between different browsers
- TypeScript & HTTP-Get/Post | Contact the data back-end team and propose a new in-group HTTP query specification to improve the efficiency

Shanghai Jujun Technology Co., Ltd | Big Data Group | Developer | Shanghai Oct. 2020 – Jun. 2021

- Python, YOLOv5 | Adopt open-source functions to recognize faces in videos
 - Taught colleagues to learn related technologies under the leadership of my supervisor
 - GitHub Link: https://github.com/AaronLegenson/Yolov5_Guide
- Python, OpenCV | Identify complex captcha on certain websites through Python scripts Hive SQL, MySQL & Python | Based on the data interface of user enterprises' database, develop big data indicators to evaluate the companies' business status and credit ranking
- Hive SQL, MySQL & Python | Based on the data interface of user enterprises' database, develop big data indicators to evaluate the companies' business status and credit ranking

PATENTS

- Chinese Patent: CN 112702390 A - Networking method and device for blockchain-based smart contract resources
- Chinese Patent: CN 112541019 A - Search method and device for blockchain resources

AWARDS & SCHOLARSHIPS

- Research Assistantship Scholarship, Wake Forest University Aug. 2022
- Research Assistantship Scholarship, Wake Forest University Aug. 2021
- Award of Excellence, The Third China Blockchain Development Competition (Top 5%) Jul. 2019
- First Prize, 2018 China Undergraduate Mathematical Contest in Modeling, Beijing Group (Top 1%) Sep. 2018

ACTIVITIES

Peking University Students' Union | Publicity Department | Secretary Sep. 2016 - Sep. 2017

- Participate in a one-year interview and compilation of the quarterly magazine Inside PKU, the most influential student magazine of Peking University
- Responsible for originality and maintenance of mini-games on the WeChat subscription of the students' union

SKILLS & INTERESTS

- Programming Languages (experienced): Python, C/C++, SQL, MATLAB, JavaScript, TypeScript, Verilog, etc.
- Applications: PyCharm, VS Code, MySQL, Visual Studio, Hive SQL, Hadoop, etc.
- Proficient in software development in Linux, macOS, and Windows
- Homepage: <http://xuenze.com/>
- GitHub: <https://github.com/EnzeXu/>
- Interests: Go, Tennis, Table Tennis, Badminton, Snooker