ENZE XU

Tel: (+1) 336-918-9611 | E-mail: exu03@wm.edu | Williamsburg, U.S.

Ph.D. in Computer Science, College of William & Mary

EDUCATION

Department of Arts and Science, College of William and Mary, Williamsburg, U.S. Aug. 2023 – Present

Ph.D. in Computer Science (GPA: 4.0/4.0 present)

Graduate School of Arts and Sciences, Wake Forest University, North Carolina, U.S. Aug. 2021 - May 2023

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

- **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

RESEARCH EXPERIENCES

College of William & Mary | Research Assistant Aug. 2023 – Present

Advisor: Huajie Shao (https://shj1987.github.io/), Assistant Professor in the Computer Science Department at the College of William & Mary

- Propose an Invariant PhysicAl Dynamics identification framework to identify invariant physical dynamics from data collected from multiple environments (manuscript).

Wake Forest University | Research Assistant Aug. 2021 – Aug. 2023

Advisor: Minghan Chen (https://chenm.sites.wfu.edu/), Assistant Professor in the Computer Science Department at Wake Forest University

- Propose Fourier-enhanced Neural Networks (FNN) to solve the performance bottleneck of complex PDE 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 (See Publications)

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

Advisor: Gang Huang (http://sei.pku.edu.cn/~huanggang), Professor and Deputy Director of the Software Research Institute at the School of EECS, Peking University

- Design and program 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

- Su, J., Ma, J., Tong, S., **Xu, E.**, Chen, M. (2023, December). Multiscale Attention Wavelet Neural Operator for Capturing Steep Trajectories in Biochemical Systems (Accepted by *AAAI 2024*).
- **Xu, E.**, Zhang, J., Li, J., Song, Q., Yang, D., Wu, G., & Chen, M. (2024). Pathology steered stratification network for subtype identification in Alzheimer's disease. *Medical Physics*.
  DOI: 10.1002/mp.16655. https://doi.org/10.1002/mp.16655
- Wang, J., **Xu, E.**, Xiao, Y., Xu, C., & Chen, M. (2023, December). Modeling of AMPK Regulatory Network in Alzheimer's Disease. In *2023 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)* (pp. 3832-3839). IEEE.
  DOI: 10.1109/bibm58861.2023.10385846. https://doi.org/10.1109/BIBM58861.2023.10385846
- Chen, C., **Xu, E.**, Yang, D., Yan, C., Wei, T., Chen, H., Wei, Y. & Chen, M. (2023). Chemical Environment Adaptive Learning for Optical Band Gap Prediction of Doped Graphitic Carbon Nitride Nanosheets. *arXiv preprint arXiv:2302.09539*.
  arXiv:2302.09539. https://doi.org/10.48550/arXiv.2302.09539
- Chu, X., Zhao, H., **Xu, E.**, Qi, H., Chen, M., & Shao, H. (2023). Neural Symbolic Regression using Control Variables. *arXiv preprint arXiv:2306.04718*.
  arXiv:2306.04718. https://doi.org/10.48550/arXiv.2306.04718
- 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://doi.org/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://doi.org/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://doi.org/10.1109/SCC49832.2020.00058
- 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://doi.org/10.1109/ICWS.2019.00061

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
- TypeScript & HTTP-Get/Post | Contact the data back-end team and propose a new in-group HTTP query specification

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

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 Student 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