ZIYUAN SHEN

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Technical Portfolio: https://ziyuan-shen.github.io/

EDUCATION

Duke University *August 2018 - May 2020*
Master of Science, Electrical and Computer Engineering
Overall GPA: 3.97/4.00
EE coursework: Software Design; CMOS VLSI Design; Computer Systems and Engineering;
Data&ML coursework: Statistical Programming (R); Deep Learning; Machine Learning; Vector Space Methods, etc;

Southeast University *September 2014 - June 2018*
Bachelor of Engineering, Information Science and Engineering
Overall GPA: 3.72/4.00
Programming coursework: Fundamentals of Computer Science (C++ Programming); Data Structures;
EE coursework: Computer Arch.&Logic Design; Digital Circuits; Analog Circuits; Signal Processing; Automatic Control

TECHNICAL STRENGTHS

Computer Languages	Python, Java, C++, Javascript, SQL, R, Shell Scripting, HTML/CSS, AWK
Other Tools	AWS, Linux, PostgreSQL, MongoDB, Git, Scikit-Learn, TensorFlow, Keras, Vim, Make

EXPERIENCE

Duke Institute for Health Innovation May 2019 - May 2020
Data Scientist Intern *Durham, NC, United States*

- Development Language: Python, SQL, Shell Scripting
- Manipulate large-scale (1 TB) hospital data (text processing, analytics, predictive model building). (Github)
- Build model achieving average precision 7 times better than the baseline model that is in use in Duke Hospital.
- Develop full-stack applications to monitor patients heart rate for clinical use. (Github)

National Mobile Communications Research Laboratory March 2015 - June 2018
Research Assistant *Nanjing, Jiangsu, China*

- Achievements: 7 publications (4 **first-author** publications) and 3 patents. (Development tool: Mathematica)
- Conduct DNA programming research for computing Deep Neural Network, Markov chains and digital logic.

PROJECTS & PUBLICATIONS

Recent Research & Projects Software Design, Machine Learning

Web Development, App & Software Design:
- Develop a complicated Yelp-like web application with deployment on AWS.
- Implement Kanban roadmap tool including user authentication based on the MVC design pattern.
- Design web applications that serves as Central News Hub (Github) and NBA Statistic Hub (Github).
- Utilized: Python, Java(Spring), Javascript(React, Node.js), MongoDB, HTML/CSS, AWS, R(R Shiny)

Machine Learning and Open Source Projects:
- Predict time-series medication administration (Github) and hospital readmission (Github) using MIMICIII Dataset.
- Open Source Contribution: add SPIE-AAPM-NCI breast cancer whole slide image dataset to TensorFlow datasets (Github).
- Implement Squeeze and Excitation network to classify Oxford Pet and Cifar10 datasets (Github).
- Utilized: Python, PostgreSQL, SQlite, Keras, Scikit-Learn, TensorFlow, CNN

Recent Publications Machine Learning, Molecular Programming

- S. Skove, H. Shi, **Z. Shen**, M. Gao, M. Cui, and M. Nichols, S. Balu, A. Bedoya, "Development of Machine Learning Model to Predict Risk of Inpatient Deterioration," in *2020 Machine Learning for Healthcare (MLHC)*, Apr 2020.
- C. Zhang, **Z. Shen**, W. Wei, J. Zhao, Z. Zhang, and X. You, "Molecular computing for markov chains," *Natural Computing*, Apr 2019. (**Equal contribution with first author**) https://doi.org/10.1007/s11047-019-09736-8
- **Z. Shen**, L. Ge, W. Wei, J. Zhao, Z. Zhang, X. You, and C. Zhang, "Molecular synthesis for probability theory and stochastic process," *Journal of Signal Processing Systems*, vol. 90, no. 10, pp. 1479-1494, Oct 2018. https://doi.org/10.1007/s11265-017-1318-7