Jiawei Shen

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Education Experience

Institution	Degree	Date	Field of Study
Washington University in St. Louis	Ph.D.	Present	Computer Science & Medical School
Wuhan University	B.E.	06/2021	Electronic Information Engineering
University of California, Berkeley	Certificate	08/2019	Computer Science

Research Experience

Exploring Somatic Variant Calling in Human Pangenomes Using Machine Learning Methods
(2024 - Present)
- Investigating novel machine learning techniques for accurate somatic variant calling in human pangenomes.
- Developing robust computational machine learning models to enhance variant detection accuracy.

Exploring the Epigenome Profiles of Repetitive Elements with the WashU Repeat Browser
(2022 - 2024)
- Developed a computational framework to analyze the epigenome of repetitive elements.
- Integrated WashU Repeat Browser with large-scale epigenomic data.

Computer Vision & Image Processing Research
(2020 - 2021)
- Developed lightweight deep learning models for image restoration, super-resolution, and optical flow estimation. .
- Optimized computational efficiency for autonomous systems and mobile applications.

Publications

Exploring the Epigenome Profiles of Repetitive Elements with the WashU Repeat Browser
J. Shen, S. Cheng, D. Purushotham, X. Zhuo, A.Y. Du, W. Zhang, D. Li, T. Wang
Genome Research, gr. 279764.124 (2025)

BAllC and BAllCools: Efficient Formatting and Operating for Single-Cell DNA Methylation Data
W. Tian, W. Ding, **J. Shen**, D. Li, T. Wang, J.R. Ecker
Bioinformatics 40 (7), btae404 (2024)

A Lightweight Network to Learn Optical Flow from Event Data
Z. Li, **J. Shen,** R. Liu.

2020 25th International Conference on Pattern Recognition (ICPR), 2021.

Implicit Euler ODE Networks for Single-Image Dehazing
J. Shen, Z. Li, L. Yu, G.S. Xia, W. Yang.
Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2020.

Super-Resolution Image Reconstruction Using Lightweight Networks
J. Du, W. Wei, C. Fan, L. Zou, **J. Shen,** Z. Zhou, Z. Chen.
IEEE Access 8, 60008-60018, 2020.

Work Experience

China EV100 Research Institute (Wuhan) Co., Ltd
Intern, Technical Research and Development Department (July 2020 - Dec 2020)
- Supervisor: Dr. Qiqi Dong
- Developed deep learning algorithms for autonomous vehicles.
- Processed and adapted point cloud data from Ouster128 LiDAR under Linux.
- Implemented RandLA-Net for object detection.
- Assisted in the creation of a dataset of ~2,000 labeled images for object recognition.

China Mobile (Wuhan) Co., Ltd
NLP Algorithm Engineer Intern (March 2020 - July 2020)
- Supervisor: Mr. Gening Zhou
- Developed and optimized speech-to-text models for intelligent response systems.
- Improved detection accuracy and efficiency through iterative experimentation.

Awards & Honors

- Mathematical Contest in Modeling (2019) – Meritorious Winner
- First-Class Scholarship (2018 & 2019) – Top 5% of undergraduates in comprehensive ranking

Technical Skills

- Programming Languages: Python, C++, JavaScript
- Machine Learning & AI: Deep Learning (PyTorch, TensorFlow), NLP, Computer Vision
- Bioinformatics: Genome analysis, DNA methylation analysis, epigenetics