ZHANG Rushan

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Github: rzhangbq

Education

- *2024.08 - Present* **The Georgia Institute of Technology (Georgia Tech)**
    - PhD in Computational Science and Engineering, working with Prof. Qi Tang
    - Research focus: High performance computing, scientific computing, and AI for scientific applications

- *2020.09 - 2024.06* **The Hong Kong University of Science and Technology (HKUST)**
    - BEng in Aerospace Engineering and BSc in Computer Science
    - Awardee of the Academic Achievement Medal (about top 1% of the class)

- *2022.08 - 2022.12* **The Georgia Institute of Technology (Georgia Tech)**
    - Exchange Student

Publication

- **DoNet: Deep De-overlapping Network for Microscopy Instance Segmentation**
    - Hao Jiang*, **ZHANG Rushan***, Yanning Zhou, Yumeng Wang, Hao Chen
    - Co-first author
    - Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2023
    - Paper available here, codes available here

Experience

- *2023.09 - 2024.06* **High-performance Airfoil Design with CFD and ML** (Prof. Fu Lin@HKUST)
    - Designed and implemented ML-based methods for airfoil shape optimization using MPI parallel computing
    - Combined ML methods for global optima identification with numerical adjoint methods for local refinement

- *2023.06 - 2023.08* **Iterative Surrogate Model Optimization for FSI** (Prof. Dr. Robert Katzschmann@ETH Zurich)
    - Developed surrogate models for fluid-structure interaction using PyTorch and MPI-based parallel computing
    - Implemented active learning techniques to optimize sample efficiency

- *2022.02 - 2023.08* **Deep Learning for Medical Image Analysis** (Prof. Chen Hao@HKUST)
    - Developed a novel de-overlapping strategy for cell segmentation, published at CVPR 2023
    - Paper: DoNet: Deep De-overlapping Network for Microscopy Instance Segmentation

Skills

- **High-Performance Computing**: OpenMPI, CUDA
- **Programming**: C/C++(master), Python(master)
- **Data Analysis and Deep Learning**: PyTorch(master), NumPy(master), Pandas(intermediate), Dask(intermediate), MySQL(intermediate)

Extracurricular Activities

- **Hackathon**, hackUST 2022 — 2022 Spring
    - Collaborating in a team for the development of a webapp called School Application Helper, helping students to manage school application requirements and timelines
    - Github repository; Video demo

- **Research assistant**, Prof. Ki Ling CHEUNG@HKUST — 2022 Summer - 2022 Winter
    - MySQL database maintenance and data washing with Dask
    - Providing technical support for researchers from different technical backgrounds