

Yangruirui ZHOU

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Tel: (+1) 857-763-9402

Boston, MA

EDUCATION

Boston University, Boston, MA	09/2020-Now
Doctor of Philosophy (Ph.D.) candidate in Computer Engineering	
GPA: 3.91/4.00	
Advisor: Douglas Densmore	
Research Focus: Microfluidic CAD tools and algorithms in synthetic biology applications.	
University of Electronic Science and Technology of China (UESTC), Chengdu, China	09/2016-06/2020
Bachelor of Engineering in Software Engineering (<i>Elite program</i>)	
GPA: 3.94/4.00 (Rank: 6/740)	
Thesis: Analysis of Postoperative Applications of Pose Tracking Algorithms.	

RESEARCH EXPERIENCE

Boston University, Boston, MA	07/2020-Now
Research Assistant, CIDAR lab (Supervisor: Prof. Douglas Densmore)	
Massachusetts Institute of Technology, Boston, MA	11/2022-Now
Collaborative Research Assistant, Voigt lab (Supervisor: Prof. Christopher Voigt)	
The Chinese University of Hong Kong, Hong Kong, China	03/2023-Now
Collaborative Research Assistant, Ho lab (Supervisor: Prof. Tsung-Yi Ho)	
University of California, Santa Barbara, CA	06-08/2019
Student Research Internship, Four eye's lab (Supervisor: Prof. Matthew Turk and Prof. Tobias Höllerer)	

AWARDS & HONORS

iGEM "Gold medal" (Student Mentor, wiki: https://2024.igem.wiki/bostonu/)	11/2024
China Youth Science and Technology Innovation Award (Nominated by UESTC)	05/2020
Most Outstanding Students of UESTC 2019 (成电杰出学生, 10/5000 in UESTC, 1/740 in department)	12/2019
iGEM "Gold medal" and "Best Software Project"	11/2019
Outstanding Graduates Award of UESTC	10/2019
"Wu Liang Ye" Enterprise Scholarship (2/740 in Software Engineering department)	09/2019

PROFESSIONAL SERVICES

Patent of Agricultural Heavy Metal Biosensor-Integrated Device	05/2024-Now
Student Mentor of iGEM team: BostonU	04-10/2024
Teaching Assistant of EC504 (Advanced data structure and algorithms)	01-05/2022, 01-05/2023
ICCAD'22 Paper Reviewer	06/2022

PROFESSIONAL ACTIVITIES

International Genetically Engineered Machine competition (iGEM'19, iGEM'24)	11/2019, 11/2024
Chicago BioEngineering Conference (CBEC'24)	09/2024
Engineering Biology Research Consortium (EBRC'23)	06/2023
International Workshop on Bio-Design Automation (IWBDA'22, poster presentation)	10/2022

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SKILLS

Programming language: Python, Java, C/C++, Typescript, HTML, Linux Shell.

Tools: NetworkX, Tensorflow, Pytorch, Latex, Fusion 360.

Manufacturing (microfluidics): CNC Milling, Laser Cutting.

RESEARCH INTERESTS

- [1] Development of graph-based algorithms for synthetic biology applications
- [2] Design and optimization of computer-aided design (CAD) tools for microfluidic laboratory automation
- [3] Application of AI models to enable a fully automated and integrated ecosystem for microfluidic laboratory operations

MENTORSHIP

EBRC Mentorship for Undergraduate and Masters Students Program (EMUMS)	04/2025-Now
Eric Xie, Undergraduate research assistant in CIDAR lab	06/2023-Now
Student mentor (software) for iGEM team of Boston University in 2024	04-10/2024

PROFESSIONAL SOCIETIES

Institute of Electrical and Electronics Engineers (IEEE, graduate student membership)	02/2024-Now
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JOURNAL REVIEWER

IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (IEEE-TCAD), eLife

PUBLICATIONS

Google Scholar (<https://scholar.google.com/citations?user=Zel-iSQAAAAJ&hl=en>)

- [1, IWBDA'22] A Conceptual Interactive Microfluidic Design and Control Workflow 07-08/2022
- [2, IEEE-TCAD] **Zhou, Y.**, Oliveira, S. M., Sanka, R., McIntyre, D., & Densmore, D. (2024). Vespa: Logic-Level Constraint-Based Validation for Continuous-Flow Microfluidic Devices. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*. (doi: 10.1109/TCAD.2024.3435706) 09/2021-02/2024
- [3, Nature Chemical Biology] Padmakumar, J. P., Sun, J. J., Cho, W., **Zhou, Y.**, Krenz, C., Han, W. Z., ... & Voigt, C. A. (2024). Partitioning of a 2-bit hash function across 66 communicating cells. *Nature Chemical Biology*, 1-12. (doi: 10.1038/s41589-024-01730-1) 04/2022-12/2023
- [4, IEEE-TCBB] [under review] Constraint-based Sub-graph Partitioning for Multi-cellular Biological Networks 02/2023-08/2024