

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 (*Elite program*)

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 (IWBD'A'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 Bonston University in 2024

04-10/2024

PROFESSIONAL SOCIETIES

Institute of Electrical and Electronics Engineers (IEEE, graduate student membership)

02/2024-Now

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, IWBD'A22] 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