

Jacob Rast

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Education

M.S. in Biomedical Engineering, Carnegie Mellon University GPA: 3.4	<i>Aug. 2020 – present</i>
B.S. in Electrical Engineering, New York University Shanghai	<i>Sept. 2013 – May 2017</i>

Work Experience

Altran at Cisco Systems Embedded Software Engineer Internship	SHANGHAI, CHINA <i>Jan. 2018 – Sept. 2019</i> <i>Jan. 2017 – May 2017</i>
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Research Experience

Graduate Researcher Minibio Lab (PI: Siyang Zheng) Carnegie Mellon University	PITTSBURGH, PA <i>Aug. 2020 – present</i>
Two year collaboration for research-oriented masters program thesis. Major thrusts of the lab include development of next generation diagnostic assays and medical devices. Personal contributions to lab research efforts involved investigation into the use of third generation long read sequencing for cfDNA tissue of origin localization, assistance investigating the feasibility of computational methods for the analysis of time series multiomics data for biomarker discovery, and development of printed circuit boards (PCBs) for realization of continuous blood sampling device. Additional efforts include organizing lab events and maintaining lab website.	
Undergraduate Researcher Bio-Circuits and Systems Lab (PI: Wang, Guoxing) Shanghai Jiaotong University	SHANGHAI, CHINA <i>May. 2015 – July 2015</i>
Internship in lab focused on the realization of a retinal prosthetic. Built a demonstration system of prosthetic FPGA with graduate student adviser.	

Teaching Experience

Carnegie Mellon University Teaching Assistant	PITTSBURGH, PA <i>Sept. 2021 – Dec. 2021</i>
TA for first-year graduate course, Neural Data Analysis. Roles including holding twice weekly office hours, answering questions via online learning platform Piazza, grading papers and grading exams.	
New York University Learning Assistant	SHANGHAI, CHINA <i>Sept. 2016 – Dec. 2016</i>
TA-like role. Acted to support students in sophomore-level computer engineering "Digital Logic" course. Duties involved one-on-one tutoring session held at dedicated Academic Resource Center. Additionally worked with course professor to develop embedded systems demo system for future courses.	

Honors and Awards

Department Head's Fellowship
CMU Biomedical Engineering Department

PITTSBURGH, PA
Sept., 2020

Most Interesting Presentation
Cisco Quality Summit 2019

SHANGHAI, CHINA
Aug. 29, 2019

Poster session. An internal conference held by Cisco Systems with focus on improving the quality of company products and processes. My poster, "Solution Risk Management: Telnet to Websocket Adapter" was a case study in the introduction of new technologies in failure intolerant systems. Our team was awarded "Most Interesting Presentation".

Undergraduate Research Symposium
New York University Shanghai

SHANGHAI, CN
May 15, 2017

Presentation. Symposium of undergraduate thesis projects from all university departments. Our project was developed by a five-person interdisciplinary team, consisting of three electrical engineering students, a computer science student, and a faculty adviser.

Publications

1. Kim, J., **Rast, J.**, He, H., and Zheng, S-Y. (Year Pending). Capture and Concentration of Circulating Cancer-Associated Extracellular Vesicles. In *Circulating Tumor Cells: Advances in Liquid Biopsy Technologies, Second Edition*. New York, NY: Springer (*submitted*)
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Grant Writing Experience

Funding Agency: NSF I-Corps Carnegie Mellon University Site
Role on Grant: Entrepreneurial Lead
Total Amount Awarded: \$5,000

Skills

Language: English (*native language*) Mandarin Chinese (*HSK 6, professional fluency*).