Rebecca Yu

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EDUCATION

Carnegie Mellon University *Pittsburgh, PA* *Expected Aug 2027*
Ph.D. student in Machine Learning

Johns Hopkins University *Baltimore, MD* *Aug 2021*
Dual Degree in Computer Science, B.S. and Biomedical Engineering, B.S. (Dean's List all semesters)

SKILLS

Languages: fluent in English, conversationally fluent in Chinese, and intermediate proficiency in Spanish
Programming Languages: Python, C/C++, MATLAB, Java, Unix, Git, TensorFlow, Pytorch, Scikit-learn

RESEARCH EXPERIENCE

Microsoft *Mountain View, CA* *May 2022 – Aug 2022*
Data Science Intern
- Explored natural language generative modeling methods to increase user engagement with two-click advertisements

Johns Hopkins Center for Computational Biology *Baltimore, MD* *June 2021 – June 2022*
Research Assistant – Computational Genomics
PI: Mihaela Pertea, Associate Professor of Biomedical Engineering
- Analyzed computational methods for predicting gene splice junctions and develop upon existing computational and machine learning methods to improve splice site prediction accuracy in genomic sequences
- Optimized methods developed in C/C++, decreasing splice site identification time from 300 hours to 8 minutes

Johns Hopkins Institute for Computational Medicine *Baltimore, MD* *Feb 2019 – Aug 2021*
Undergraduate Researcher – Computational Cardiology
PI: Natalia Trayanova, Professor of Biomedical Engineering and Medicine
- Designed and executed independent research agenda in Python and MATLAB
- Developed custom neural network to automatically segment ventricles and atria in clinical cardiac images using various machine learning and computer vision techniques to reduce segmentation time from 8 hours to 1 minute
- Optimized predictive heart model generation pipeline for patients with atrial fibrillation for FDA-approved clinical trial

Kubanda Cryotherapy *Baltimore, MD* *Sept 2018 – Sept 2020*
Head of Research Development and Product Optimization
- Validated cooling of a cryoablation probe for treatment of breast cancer in low-resource global health settings
- Coordinated veterinary trials across three clinics for verification of in-vitro use of cryoablation with carbon dioxide

LEADERSHIP

Women Mentoring Whiting *Baltimore, MD* *Jan 2020 – Aug 2022*
Co-founder, Director
- Co-founded peer-to-peer pilot mentorship program for female engineers in the Johns Hopkins Whiting School of Engineering, reaching over 100 students, alumni, and professors
- Collaborated with various university resources (Women & Gender Resources, Alumni Relations) and student groups to establish mentorship training workshops and host community events, raising $9000 in the first year
- Spearheaded program evaluation through implementation of various research-validated surveys and metrics

Biomedical Engineering Design Team Leader *Baltimore, MD* *Jan 2020 – May 2022*
Project Leader, Center for Bioengineering Innovation and Design
- Managed team of Biomedical Engineering students in development/design of at-home symptom monitoring device to improve long-term medication management and care for Parkinson Disease to improve quality of life
- Directed clinical and engineering interviews across both Johns Hopkins and the United Kingdom
- Directed iterative design sprints in an Agile workflow to design and prototype data pipelines and algorithms

LEADERSHIP, cont.

MedHacks *Baltimore, MD* *Jan 2019 – May 2022*
Director (previously Outreach Coordinator and Hacker Experience Team Lead)
- Guided a team of 40 organizers and 50+ volunteers to raise $65,000 and put on largest event at Johns Hopkins—a 36-hour MedTech-based hackathon for 1200+ participants from across the globe
- Organized annual outreach hackathon (Mini MedHacks) working directly with students in the Baltimore community for an 18-hour event integrating underprivileged students with a hands-on engineering experience professional mentorship

Johns Hopkins Technology Fellowship *Baltimore, MD* *Jan 2020 – May 2021*
Project Leader
- Managed team of 4 students to re-design a Biomedical Engineering core course, integrating practical engineering exercises and case studies into coursework and increasing student-instructor interactions
- Supervised project pivot to design course for virtual learning, focusing on student and course engagement

TEACHING

Head Teaching Assistant (Johns Hopkins University) *Baltimore, MD* *Jan 2020 – May 2021*
Computer System Fundamentals
- Coordinated 15 course TAs and liaison between TAs and professor
- Constructed assignment guidelines and auto-grader scripts for assignments in C, C++, and x86 assembly
- Supported students during in-class exercises and provide extra help and individualized support during office hours

Teaching Assistant (Johns Hopkins University) *Baltimore, MD* *Aug 2019 – Aug 2021*
Physics I (Fall '19), Physics II (Spring '20), Intermediate Programming (Fall '19, Summer '20),
Computational Cardiology (Fall '21), Biological Models & Simulations (Spring '21), Gateway Computing: Java (Summer '21)
- Facilitated communication between TAs, graders, and professor to ensure prompt and accurate grading
- Designed and implemented teaching material for 40 students during weekly teaching sections reviewing course material

Center for Health Education and Wellness Trainer *Baltimore, MD* *June 2019 – May 2021*
Intimate Partner Violence Prevention and Bystander Intervention Training Lead
- Led weekly training sessions educating freshmen at Johns Hopkins University about gender violence and sexual assault

AWARDS & HONORS

National Science Foundation Graduate Research Fellowships Program *(Awarded - declined)* *April 2022*
Marshall Scholarship *(Finalist)* *Nov 2021*
Design Team Summer Bridge Fund *May 2021 – Aug 2021*
Provost's Undergraduate Research Award *Oct 2020 – May 2021*
Johns Hopkins Technology Fellowship Grant *Jan 2020 – May 2021*
Leong Summer Undergraduate Research Grant *June 2019 – Aug 2019*
Malinow Summer Grant *June 2019 – Aug 2019*

SELECTED PUBLICATIONS & PRESENTATIONS

Yu, R., Ali, R.L., Pallavi, P, Bradley, R.P., Spragg, D.D., Calkins, H.G., Trayanova, N.A. (2021). *Left Atrium Right Atrium Network (LARANet): A Deep Neural Network for Bi-atrial Segmentation from MRI and CT Images.* Heart Rhythm Society Scientific Sessions. Boston, MA. (July 2021)

Popescu, D.M., Abramson, H.G., **Yu, R**., Lai, C., Shade, J.K., Wu, K.C., Maggioni, M., & Trayanova, N.A. (2021). Anatomically-informed deep learning on contrast-enhanced cardiac magnetic resonance imaging for Scar Segmentation and clinical feature extraction. *Cardiovascular Digital Health Journal*. https://doi.org/10.1016/j.cvdhj.2021.11.007

Shade, J., Prakosa, A., Popescu, D., **Yu, R.**, Okada, D., Chrispin, J. (2021). Predicting Risk of Sudden Cardiac Death in Patients with Cardiac Sarcoidosis Using Multimodality Imaging and Personalized Heart Modeling in a Multivariable Classifier. *Science Advances*, 7(31). https://doi.org/10.1126/sciadv.abi8020

Paliwal, N., Ali, R. L., Salvador, M., O'Hara, R., **Yu, R.**, Daimee, U. A., Akhtar, T., Pandey, P., Spragg, D. D., Calkins, H., Trayanova, N. A. (2021). Presence of Left Atrial Fibrosis May Contribute to Aberrant Hemodynamics and Increased Risk of Stroke in Atrial Fibrillation Patients. *Frontiers in Physiology*, *12*. https://doi.org/10.3389/fphys.2021.657452