Sanjana Singh

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Education

HARVARD UNIVERSITY- A.B./S.M Computer Science, Secondary in Studio Art Cambridge, MA
GPA: 4.0/4.0 *May 2023*
Honors: Detur Book Prize (awarded to outstanding sophomores), John Harvard Scholar (top 5% of class).
Current Coursework: Data Structures and Algorithms, Computational Complexity (graduate level), Classics of CS.
Relevant Coursework: Theoretical Computer Science (at MIT), Fairness and Privacy: Law and Probability, Introduction to Probability, Dilemmas in the World Economy, Big Data to Solve Economic & Social Problems.
Activities: Peer Advising Fellow, Women in Computer Science, Smart Women Securities, Women in Business.

MCLEAN HIGH SCHOOL McLean, VA
GPA: 4.54 W/ 4.0 UW, ACT: 36 *June 2019*
Honors: PTSA Mathematics Achievement Award, George Washington Medal for Excellence in Math and Science.

Technical Skills

Python, Java, C, R, SQL, CSS, HTML, PHP, Pytorch, Pandas, Keras, Tensorflow.

Experience

HARVARD MEDICAL SCHOOL- MASSACHUSSETTS GENERAL HOSPITAL Cambridge, MA
PRISE Fellow *January 2020 – Present*

- Predicting 30-day mortality from a chest X-ray with AI for patients undergoing cardiovascular surgery.
- Utilize machine learning methods in Python to distinguish COVID patients from Influenza patients.

HARVARD RADCLIFFE INSTITUTE FOR ADVANCED STUDY Cambridge, MA
Radcliffe Research Team Member *June 2020 – August 2020*

- Project: Structural Determinants of COVID "Hot Spots" working in teams with law students to devise short and long-term interventions using distributional legal analysis and historical research.
- Conducted numerous interviews with legislators and crafted policy proposals for stakeholders.

NATIONAL INSTITUTES OF HEALTH Bethesda, MD
Pathways Engineering Student Trainee *May 2018 – January 2020*

- Honors: **2019 National Library of Medicine Special Achievement Group Award** in recognition of landmark contributions applying deep learning for screening cervical cancer using photographic, whole slide liquid Pap smear, and cervical biopsy histopathology images.
- Published 3 papers in distinguished international conferences and peer-reviewed journals and 2 posters.

UNIVERSITY AT BUFFALO Buffalo, NY
Research Intern *August 2016 – July 2018*

- Employed machine learning and deep learning techniques to detect Parkinson's disease from audio clips with 99.0% accuracy and published the results in a leading, peer-reviewed telemedicine journal.

Leadership & Activities

HARVARD UNIVERSITY

- Teaching Fellow, Introduction to Probability (STAT 110) *September 2020 – Present*
  - Teach 20 students in weekly section, write section materials, grade papers, and host office hours.
- Technology Manager at Harvard Yearbook Publications *April 2020 – Present*
  - Maintain the organization's website, software, and hardware infrastructure- handles $250k+annually
- Executive Business Board at Harvard Yearbook Publications *April 2020 – Present*
- Executive Finance Board at Make Harvard *September 2019 – Present*
  - Work in a team of 5 to procure sponsorships to raise $50k for the annual makeathon

Publications and Presentations

- CO P Guo, **CO S Singh**, Z Xue, LR Long, S Antani, "Deep Learning for Assessing Image Focus for Automated Cervical Cancer Clinical Decision Support," 2019 IEEE Biomedical and Health Informatics Conference. https://doi.org/10.1109/BHI.2019.8834495
- Z Xue, P Guo, **S Singh**, P Ganesan, S Rajaraman, LR Long, S K. Antani, "Developing automated image quality assessment methods for cervical cancer screening in low-resource settings," 2019 SPIE Photonics West BIOS **(Invited Paper).**
- P Ganesan, Z Xue, **S Singh**, L R. Long, B Ghoraani, S Antani, "Performance Evaluation of a Generative Adversarial Network for Deblurring Mobile-phone Colposcopy Images," 2019 IEEE Engineering in Medicine and Biology Conference. https://doi.org/10.1109/EMBC.2019.8857124
- **S Singh** and W Xu, "Robust Detection of Parkinson's Disease using Harvested Voice Smartphone Data: A Telemedicine Approach," *Telemedicine and e-Health Journal*, April 2019, https://doi.org/10.1089/tmj.2018.0271
- **S Singh,** A Cheng, V Raghu, M Lu, "Deep Learning to Distinguish COVID-19 from Influenza on Chest X-rays," American Thoracic Society 2021 Conference (accepted).
- VK Raghu, P Moonsamy, TM Sundt, CS Ong, **S Singh**, A Cheng, M Hou, L Denning, T Gleason, A Aguirre, MT Lu, "Deep learning to predict post-operative mortality after cardiothoracic surgery using pre-operative chest radiographs," Circulation (submitted).
- **S Singh,** et. al, "Deep learning to predict adverse post-operative outcomes after cardiac surgery from preoperative chest radiographs," 2020 MGH Clinical Research Day.
- **S Singh**, Z Xue, C Cornwell, LR Long, S Antani, "Using Deep Learning for Cervical Histology Analysis," 2019 NIH Summer Poster Day.
- **S Singh**, Z Xue, LR Long, S Antani, "Characterization of Cervigram Image Sharpness Using Numerous Focus Measure Operators," 2018 NIH Summer Poster Day.