Yasha Ektefaie

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Education

Harvard University 2020 – Present
Ph.D. Candidate in Biomedical Informatics
Advisor: Prof. Maha Farhat and Prof. Marinka Zitnik

University of California Berkeley (Two Degrees) 2016 – 2020
B.S. BioEngineering with Departmental Honors
B.S. Electrical Engineering and Computer Science with Departmental Honors
GPA: 3.811
Departmental Honors granted to top 3% of graduating undergrads, for each major

Research Experience

Harvard Medical School, Department of Biomedical Informatics 2020 – Present
Graduate Student Researcher
Advisors: Prof. Maha Farhat, Prof. Marinka Zitnik

Harvard Medical School, Department of Biomedical Informatics 2020 – Present
Graduate Student Researcher
Advisors: Prof. Kun-Hsing Yu
Project designing CNNs to predict breast cancer phenotypes from pathology slides now accepted in NPJ Breast Cancer.

Dascena 2020
Data Science Intern
Projects using random forests to predict stroke onset and gastrointestinal bleeding from UCSF EHR data now in consideration at Frontiers in Neurology and BMJ Open Gastroenterology respectively.

Verily 2019
Software Quality Intern
Project displaying metrics for diabetic retinopathy CNN deployed in low resource settings and other projects to facilitate FDA consideration of algorithm.

Harvard Medical School, Department of Biomedical Informatics 2018
Summer Research Intern
Advisors: Prof. Maha Farhat
Project dating phylogenetic trees using BEAST to illustrate heterogeneity of Tuberculosis epidemic now published in Lancet Microbe.

University of California Berkeley, Department of BioEngineering 2017 – Present
Undergraduate Researcher
Advisors: Prof Adam Arkin, Dr. Lauren Lui

Project using a custom motif finding algorithm and RNA Chip-Seq data to challenge assumption of A-rich motif binding by Hfq-Crc protein complex now under consideration at BMC Microbiology.

Publications

Ektefaie Y, Dixit A, Freschi L, Farhat MR. *Globally diverse Mycobacterium tuberculosis resistance acquisition: a retrospective geographical and temporal analysis of whole genome sequences.* Lancet Microbe. 2021 Mar;2(3)

Ektefaie Y, Yuan W, Dillon D, Lin N, Golden J, Kohane I, Yu K. *Integrative Multiomics-Histopathology Analysis for Breast Cancer Classification.* Accepted NPJ Breast Cancer.

Ektefaie Y, Lauren Lui, Adam Arkin. *Predictivity of the ARN Motif for Crc-Hfq Complex Binding in Pseudomonas aeruginosa.* bioXov: XXX (2021). Under consideration at BMC Microbiology.

Ektefaie Y, Mataraso S, Barnes G, Lynn-Palevsky A, Pellegrini E, Green-Saxena A, Hoffman J, Calvert J, Das R. *Enriching the Study Population for Ischemic Stroke Therapeutic Trials Using a Machine Learning Algorithm*. Under consideration at Frontier in Neurology.

Allen A, **Ektefaie Y**, Garikipati A, Lam C, Green-Saxena A, Siefkas A, Barnes G, Handley M, Mataraso S, Hoffman J, Mao Q, Das R. *A Machine Learning Algorithm To Predict Gastrointestinal Bleeding Requiring Intervention*. Under consideration at BMJ Open Gastroenterology.

Poster Presentations

Ektefaie Y, Dixit A, Freschi L, Farhat M. *Tuberculosis resistance acquisition in space and time: an analysis of globally diverse M.tuberculosis whole genome sequences.* 50th Union World Conference on Lung Health, Oct 2019.

Dixit A, Kagal A, **Ektefaie Y**, Freschi L, Lokhande R, Groeschel M, Tornheim J, Gupte N, Pradhan N, Kadam D, Gupta A, Golub J, Mave V, Farhat M. *Modern lineages of Mycobacterium tuberculosis were recently introduced in western India and demonstrate increased transmissibility*, ID Week 2021.

Ektefaie Y, Mataraso S, Barnes G, Lynn-Palevsky A, Pellegrini E, Green-Saxena A, Hoffman J, Calvert J, Das R. *Enriching the Study Population for Ischemic Stroke Therapeutic Trials Using a Machine Learning Algorithm*, 50th Critical Care Congress.

Allen A, **Ektefaie Y**, Garikipati A, Lam C, Green-Saxena A, Siefkas A, Barnes G, Handley M, Mataraso S, Hoffman J, Mao Q, Das R. *A Machine Learning Algorithm To Predict Gastrointestinal Bleeding Requiring Intervention*, Digest Disease Week (DDW) 2021.

Ektefaie Y, Dixit A, Freschi L, Farhat M. *Tuberculosis resistance acquisition in space and time: an analysis of globally diverse M.tuberculosis whole genome sequences.* University of California Berkeley, Undergraduate Research Symposium Poster Session, Oct 2019.

Ektefaie Y, Lui L, Arkin A. *Characterization of the CrC Protein in Pseudomonas Fluorescens.* University of California Berkeley, Undergraduate Research Symposium Poster Session, Apr 2019.

Outreach

UC Berkeley Biomedical Engineering Society 2018 – 2019
Corporate Relations Committee Co-Chair
Lead committee of 30 undergraduates to organize industry dinner to connect members of biotech industry to underrepresented BioEngineering Students. 120 guests attended dinner, fundraised $1500 to pay for the dinner. Founded consulting program that pairs teams of student to technical industry experience. Program intended for disadvantaged students with no prior industry experience.

Startup Boston Week Conference 2021
Moderator
Panel: AI, Oh My: The Value & Limitations of Machine Learning for Your Startup
Moderated panel of 4 industry experts in ML leading question about the use of ML in startups. Panel was in front of live audience of 100. Panel was to promote machine learning to Boston startup community.

BIG GSAS Orientation Panel 2021
Panelist
Panelist to answer common questions asked about PhD at Harvard Medical School and to promote inclusive community at Harvard Medical School.

Mentoring

Dasha Bykova 2021 – Present
Current Position: Masters' student at Lomonosov Moscow State University.
Recently awarded a grant from the Zimin Foundation SMTB Alumni Summer Research Program to do research at HMS with Maha Farhat. Mentoring her through two projects (1) visualizing and interpreting protein embeddings in Tuberculosis and the corresponding BERT model (2) using graphical neural networks to infer function of unannotated genes in Tuberculosis.

Ayush Noori 2021 – Present
Current Position: Undergraduate, Harvard University
Mentoring him on writing survey paper about graphical neural networks for Nature Machine Intelligence.

Justin Du 2021
Current Position: Undergraduate Yale University
Mentored him on project using CNNs to predict Tuberculosis phenotypes from chest x-rays and CT scans.

Teaching

BMI 707: Deep Learning for Biomedical Data 2021

Teaching Fellow
Lead office hours and designed homework for class of fifty masters and medical students teaching them basics of machine learning ranging from implementing CNNs in Keras to advising novel research projects using machine learning and biomedical data.

Honors & Awards

Bill & Melinda Gates Foundation Union World Conference Travel Award 2019
Award given to fund my travel, lodging, and expenses to attend Union World Conference in Hyderabad, India. Given top 1% of applicants to travel award based on the merit of the research.

Regents and Chancellor's Scholar at UC Berkeley 2016
"The Regents' and Chancellor's Scholarship is the most prestigious scholarship offered by UC Berkeley to entering undergraduate students." – from UC Berkeley website. Given to top 1% of undergraduate applicants, out of 112,800 potential applications on the basis of potential to excel and serve as a leader at UC Berkeley and beyond.

EECS Honors Award 2020
Award given to EECS graduates who not only hold top GPA among all EECS undergraduates but also pursue interdisciplinary research and curriculum.

Dean's Honors List 2016, 2017
Honor awarded for a semester GPA in the top 10 percent of all College of Engineering undergraduates.