Yusuf H. Roohani

CONTACT

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EDUCATION

Stanford University, Stanford, CA *Jan 2020 - Present*
Ph.D., Biomedical Data Science

Carnegie Mellon University, Pittsburgh, PA *Jan 2014 - Aug 2015*
M.S., Mechanical Engineering. GPA: 4.0/4.0
Machine Learning, Computer Systems, Robot Kinematics, Computational Fluid Dynamics

Vellore Institute of Technology, Vellore, India *Jul 2009 - Jun 2013*
B.Tech., Mechanical Engineering. GPA: 8.81/10
GRE: Verbal: (98 percentile) 168/170, Quant: (94 percentile) 168/170 336/340

WORK EXPERIENCE

GlaxoSmithKline, Cambridge, MA
Manager, Machine Learning Engineer *Apr 2019 - Jan 2020*
- Industrializing an end-to-end machine learning system for phenotypic drug discovery on high performance computing clusters
- Applied to an active program for discovering new biological targets, these later progressed to validation.

Investigator *Nov 2017 - Mar 2019*
- Leading a team of 4 to develop a computer vision platform for high throughput discovery
- Relating phenotypic readouts from cellular imaging with other datatypes eg: genomics
- Designing both the models and the end to end software workflows
- Created and lead company-wide machine learning journal club, monthly attendance >30

Data Scientist *Jul 2016 - Oct 2017*
- Conducted machine learning research to uncover new drug targets and lead molecules
- Main efforts: Designing deep learning solutions for cellular imaging, histopathology
- Designed regular feedforward approaches as well as generative models, with validation
- Active contributor to team strategy, leadership engagement, academic collaborations

Theranos Inc., Palo Alto, CA
Associate Scientist, Modeler *May 2016 - Jun 2016*
- Designed statistical & mechanistic approaches to predict diabetes onset using blood testing

Merrimack Pharmaceuticals, Cambridge, MA
Computational Modeler Intern *Sep 2015 - Apr 2016*
- Developed dynamic system models to mechanistically simulate signaling networks in cancer
- Compared results against patient data to identify biomarkers for patient stratification

Carnegie Mellon University, Pittsburgh, PA
Research Assistant *May 2014 - Aug 2015*
- Led a DOE sponsored project to model impacts of shale development on ozone, $PM_{2.5}$
- Published policy recommendations based on results and current federal regulations.

Tata Industries, Mumbai, India
Technical Analyst Intern *Sep 2013 - Nov 2013*
- Studied the latest research in material science under the strategic venture capital division
- Advised board on investments in commercially viable options through market research

Honors and Awards

Full PhD funding awarded by GSK, including tuition + regular full-time pay *(2019)*
GSK Exceptional Science Award For application and embedding of deep learning to the challenge of phenotyping cellular images ($17000 in cash and shares) *(2018)*
Advisory Board Member for MS in Data Analytics program at Tufts University *(2018)*
Data Study Group Participant: Paid travel, stay at the Alan Turing Institute *(2018)*
Research Assistantship Awarded a PhD level research stipend as a Master's student *(2015)*
Undergraduate Research Assistantship Tuition covered for spending a semester at a nanotechnology research centre at Purdue University for my undergraduate thesis *(2013)*
Merit Certificates, Academic Excellence (International student) (x4) *(2010/11/12/13)*

Skills

Computer Programming: Python, R, C, C++, Fortran, Bash, OWL/SWRL
Applications: Tensorflow, PyTorch, MATLAB, LaTeX, Git, SQL, SolidWorks, Protege

Posters

Roohani Y., Sajid N., Hope T., Price C., Madhyastha P., Predicting Language Recovery after Stroke with Convolutional Networks on Stitched MRI, *NeurIPS ML4H Workshop*, 2018
Roohani, Y., Accelerating Phenotypic Drug Discovery using Deep Learning based Image Analysis *New York Academy of Science, Symp. Deep Learning in Drug Discovery*, 2018
Roohani, Y., Hoffman, A., Musso, R., Richmond, N., Deep Learning for Robust Phenotyping of High Content Cellular Images *High Content Analysis*, 2017
Curley, M., Tan, G., Yannatos, I., Camblin, A., **Roohani, Y.**, Iadevaia, S., Louis, C., Lugovskoy, A. Istiratumab (MM-141), a bispecific antibody targeting IGF-1R and ErbB3, inhibits pro-survival signaling in vitro ... *AACR*, 2016. Abstract nr 1209.

Publications

Roohani Y., Kiss E., Improving Accuracy of Nuclei Segmentation by Reducing Histological Image Variability. In: Stoyanov D. et al. (eds) Computational Pathology and Ophthalmic Medical Image Analysis. MICCAI, COMPAY 2018. *LNCS*, vol 11039. Springer, 2018
Shokoohi H., LeSaux M., **Roohani Y.**, Litepio A., Huang C., Blaivas M. Enhanced point-of-care ultrasound applications by integrating automated feature-learning systems using deep learning, *J Ultrasound Med.*, 2018
Roohani, Y., Roy, A., Heo, J., Robinson, A., & Adams, P. Impact of natural gas development in the Marcellus and Utica Shales on regional ozone and fine particulate matter levels. *Atmospheric Environment*, 2017.

Invited talks

Accelerating High Throughput Drug Discovery Using Deep Learning. ReWork, Deep Learning for Healthcare, Boston 2018
Guest Lecture: Data Analytics and Machine Learning in Drug Discovery. Foundations of Data Analytics, School of Engineering, Tufts University, 2019
Assessing biological diversity of a compound collection using high throughput cellular imaging Society for Lab Automation and Screening Conference, 2020

Reviewing

MICCAI (2019)

Coursework while working full-time	**Harvard Extension School**, Cambridge, MA *Jul 2016 - May 2017* Linear Algebra & Real Analysis (MATH-23A), Mathematical Statistics (E-156) GPA: 3.8/4 Data Structures and Algorithms (CS-124)
Extra-Curriculars	**Executive Director of the Debate Society, VIT** *Jul 2010 - May 2012* Personally trained more than 50 fellow students in effective argumentation through organizing and conducting regular sessions and debates. Independently drafted a written constitution.