Avish Vijayaraghavan

Translational Machine Learning for Precision Medicine

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EDUCATION

Imperial College London
London, UK
PhD Candidate in AI for Healthcare
Oct 2021 - Present

- Working on multimodal, interpretable learning for idiopathic pulmonary fibrosis, supervised by Joram M. Posma, Philip Molyneaux, Daniel Muthas, and Tim Ebbels.
- Part of the third cohort for the AI4Health CDT programme. Funded by UKRI and AstraZeneca.
- CDT representative for '22/23 and '23/24.

University College London
London, UK
MSc in Precision Medicine (Distinction)
Sept 2020 - Sept 2021

- Final Project: 3D Graph Representation Learning for Transition State Generation, supervised by Brooks Paige.
- Finished on Dean's List as highest performing student on course.

Imperial College London
London, UK
BEng in Mathematics and Computer Science (Upper Second Class Honours)
Sept 2017 - July 2020

- Final Year Group Project: Cryptocurrency Exchange Platform for Bitcoin and Ethereum.
- Final Year Individual Project: Data Science for DLBCL Stratification, supervised by Elsa Angelini. Presentation featured on Department of Computing's YouTube channel.

WORK EXPERIENCE

Great Ormond Street Hospital
London, UK
Data Scientist
Jan 2025 - Present

- Carrying on previous internship work.

No Patient Left Behind
Remote
Fellow
Sep 2024 - Dec 2024

- Understanding how we make pharma innovation affordable, from a US perspective.
- Looking at policy, health economics, and communication to different pharma stakeholders.

NHS Transformation Directorate / Great Ormond Street Hospital
London, UK
Data Science Intern
Jul 2024 - Jan 2025

- Using LLMs to analyse histopathology reports.
- Working with NHS Transformation Directorate's data science team (Dan Schofield, Jonathan Hope, Jonny Pearson) and GOSH DRIVE (Pavi Rajendran).
- Manuscript currently in preparation.

Microsoft Research New England
Cambridge, MA
Research Intern
May 2023 - Aug 2023

- Biomarker discovery for Parkinson's disease using proteomics data.
- Worked with Kristen Severson, Ava Amini, Lorin Crawford, and Ashley Conard in the BioML team.
- Manuscript currently in preparation.

Riverfield Partners LLP
London, UK
Scientific Consultant
Apr 2023 - May 2023

- Worked on pharma investments.
- Analysed AI-based drug discovery companies and clinical trial results.

Arts & Business College of London
London, UK
Academic Tutor
Jan 2022 - Jan 2023

- Tutored machine learning, maths, and biology at A-Level/undergrad level.
- Helped set up and deliver online data analytics course to foreign students.

Imperial College London
London, UK
Undergraduate Research Intern
July 2019 - Sept 2019

- Improving Gaussian process regression using curvature.

- Worked with Samir Bhatt at Imperial branch of St Mary's Hospital.

Stealth Startup London, UK
Co-Founder, CTO Dec 2018 - Sep 2019
- Tech startup using augmented reality for gamified marketing (think "Pokémon Go for coupons").
- Built proof-of-concept iPhone app and raised pre-seed.

PREPRINTS & PUBLICATIONS

From most recent work.

1. Liu, X., Zhang, J., Zhou, S., van der Plas, T., **Vijayaraghavan, A.**, et al. Towards deployment-centric multimodal AI beyond vision and language. *Preprint*, 2025.

   - Review paper looking at how to design AI models that combine different types of data (i.e., multimodal data) and can be used in real-world settings.
   - Cover three multimodal AI use cases that each span some of the following domains: healthcare, social science, engineering, science, sustainability, and finance. I was one of the healthcare co-leads.

2. **Vijayaraghavan, A.***, Badea, C. Minimum levels of interpretability for artificial moral agents. *AI and Ethics*, 2024.

   - AI ethics review paper bridging technical aspects of interpretability with design of moral decision-making models.

3. Wang, M.*, **Vijayaraghavan, A.***, Beck, T., Posma, J.M. Vocabulary Matters: An Annotation Pipeline and Two Deep Learning Algorithms for Enzyme Named Entity Recognition. *Journal of Proteome Research*, 2024. Code here.

   - Enzyme named entity recognition (NER) paper i.e. spotting enzyme names in papers.
   - Created enzyme literature dataset and used it to evaluate different deep learning algorithms.

TEACHING SERVICE & OUTREACH

Science Communication Online!
Content Creator Jan 2024 - Present
- Creating YouTube videos and writing blog posts.

AI4Health Hackathon Imperial College London
Co-Organiser Sept 2023
- Organised London's first Generative AI x Healthcare hackathon. Raised funding for 3 day event from OpenAI, Hummingbird VC, and the AI4Health CDT.
- Took entrepreneurship focus and built prizes with Hummingbird VC and Microsoft for Startups.

Biomedical Data Science (BSc in Biomedical Sciences) Imperial College London
Graduate Teaching Assistant Summer 2022, 2023
- Helped develop Python notebook tutorials alongside other GTAs.
- Assisted main course lead in computational tutorials processing 'omics data.

Statistical Programming (MRes in Biomedical Research) Imperial College London
Graduate Teaching Assistant Autumn 2021
- Assisted main course lead in computational statistics tutorials.

SUPERVISION

Pengfei Bai (co-supervised with Joram M. Posma) Imperial College London
MRes thesis on IPF metabolomics and topological machine learning. Oct 2023 - Sep 2024

Dhylan Patel (co-supervised with Joram M. Posma) Imperial College London
BSc summer project on microbiome NER. Summer 2023

SKILLS & INTERESTS

- **Programming Languages**: familiar with Python, R; exposed to Java, SQL, C, Swift.

- **Technologies**: familiar with PyTorch, Git, Linux/Unix, Latex; exposed to CI/CD (GitLab, AWS, Azure), TensorFlow, JAX.

- **Extracurricular**: Imperial College Hip Hop Society Founder & Web Secretary '19/20, Music Journalism (published as a magazine), Music Production (my Spotify profile).

- **Languages**: English (Native), Hindi (Passive Fluency), Russian (Conversational), Spanish (Conversational).