

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](#). [Code here](#).
- Finished on Dean's List as highest performing student on course.

Imperial College London

London, UK

BEng in Mathematics and Computer Science (First Class Honours in final year)

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](#). [Code here](#). [Presentation featured](#) on Department of Computing's YouTube channel.

WORK EXPERIENCE

No Patient Left Behind

Remote

Fellow

Sep 2024 - Present

- Understanding how we make pharma innovation affordable, from a US perspective.

NHS Transformation Directorate / Great Ormond Street Hospital

London, UK

Data Science Intern

Jul 2024 - Dec 2024

- 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).

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.

From most recent work. (Three more preprints in preparation: microbiome literature NER (w/ Imperial), proteomics for idiopathic pulmonary fibrosis (w/ Imperial), proteomics for Parkinson's disease (w/ Microsoft).)

1. **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.
2. 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).

ACHIEVEMENTS**Dean's List for UCL Division of Medicine**

University College London - London, UK

Highest performing student on MSc in Precision Medicine '20/21.

Sep 2021

"hatch" Hack 2018 Winners

Ministry of Justice - London, UK

Business model for app targeting postpartum depression in North India.

Nov 2018

B1 Proficiency Russian

Liden & Denz School - Moscow, Russia

Referring to the TKRI levels, progressed from A2+ to B1.

June 2018

Future Problem Solving Program

UK, USA

Won national program four years running; top European team in international program in USA.

2014-2017