# Avish Vijayaraghavan

Translatable Machine Learning for Precision Medicine

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## Education

**Imperial College London** — London, England
*PhD Candidate in AI for Healthcare, supervised by Joram M. Posma and Philip Molyneaux* — Oct 2021 - Oct 2025

- Working on multimodal, interpretable learning for idiopathic pulmonary fibrosis.
- Part of the third cohort for the AI4Health CDT programme. Funded by UKRI and AstraZeneca.

**University College London** — London, England
*MSc in Precision Medicine (Distinction, ranked 1st)* — Sept 2020 - Sept 2021

- Main courses: Bioinformatics & Structural Biology, Genetics & Epigenetics of Disease, Multiomics & Ethics, Precision Diagnosis for Precision Medicine, Computational Biology, Nanomedicines.

**Imperial College London** — London, England
*BEng in Mathematics and Computer Science (First Class Honours in final year)* — Sept 2017 - July 2020

- Main courses: Mathematical Biology, Applied Probability, Statistical Learning, Machine Learning, Computer Vision, Graphics, Robotics, Graphs and Algorithms.

## Work Experience

**Part-Time Research Intern** — Imperial Branch of Hammersmith Hospital
*Biomedical Data Science, supervised by Elsa Angelini* — July - Aug 2020

- Continued work on my BEng thesis, tweaking the previously-obtained gene expression-based stratification and integrating mutation data with the gene expression data.

**Undergraduate Research Intern** — Imperial Branch of St Mary's Hospital
*Spatial Statistics, supervised by Samir Bhatt* — July - Sept 2019

- Contributed to short project that aimed to improve the predictive accuracy of a machine learning method using a technique from differential geometry.

## Projects

**3D Graph Representation Learning for Transition State Generation** — Jan - Sept 2021
*MSc Thesis, supervised by Brooks Paige* — Code

- Created encoder-decoder model to generate transition states for unimolecular reactions in order to better characterise molecular synthesis routes.
- Performed similarly to state-of-the-art model in literature on performance and uncertainty calibration.

**Data Science for DLBCL Stratification** — Nov 2019 - Aug 2020
*BEng Thesis, supervised by Elsa Angelini* — Code

- Worked with biologists to split DLBCL cancer patients into more precise subgroups using machine learning.
- Presentation featured on Department of Computing's YouTube channel.

**XCLAIM, Cryptocurrency Interoperability Platform** — Oct 2019 - Jan 2020
*BEng Software Engineering Group Project*

- Following a novel proof-of-concept, implemented a cryptocurrency exchange platform from Ether to Bitcoin.

## Skills & Interests

- **Programming Languages**: familiar with Python, Java, R; exposed to SQL, C, Haskell, Solidity.
- **Technologies**: familiar with PyTorch, Git, Linux/Unix, LaTeX; exposed to CI/CD (GitLab, AWS), TensorFlow.
- **Extracurricular**: Imperial College Computing Football Team Captain '19/20, Imperial College Hip Hop Society Founder & Web Secretary '19/20, Music Journalism (originally published in Imperial's Newspaper).
- **Languages**: English (Native), Russian (Basic), Spanish (Basic).

## Achievements

**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

**Arabic Level 1 Course** — Imperial Horizons - London, UK
*Extra module taken in my BEng first year.* — Nov 2017 - May 2018

**Future Problem Solving Program** — UK, USA
*Won national program four years running; highest placed European team in international program.* — 2014-2017