Vedh Kannan

Contact

Email
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Github
https://github.com/VedhRKannan

LinkedIn
Vedh's LinkedIn

Personal Website
Vedh's Website

Education

2012 - 2020
Centre for Talented Youth in Ireland

- Studied Rocket Science, Medicine, Neuroscience.
- Presented a TEDx talk on AI and Ethics (2020)

2018-2024
Sutton Park School

- Attended with a scholarship in Mathematics
- 3 Awards for citizenship and leadership
- 601/625 points in Irish Leaving certificate
  - Top grade in Maths, Biology, Computer Science, and English
- Undersecretary of Model United Nations club
- Award for Outstanding Contribution to Sports

2024-2028
University College London

- Bachelor of Science in Biomedical Sciences + Mathematics + Statistics
  - Dynamical Systems
  - Data Science for Biology
  - Physiology
  - Probability and Statistics
  - Programming for Scientists
  - Neuroscience
- XC and Distance Runner

Experience

January 2026 - April 2026
Bioinformatics Intern | Meta-Flux

- Working with RNA-seq datasets of Brain cortex tissue and Glioblastoma, to quantify and mitigate batch effects
- Using differential expression to build a network model and identify drug targets of glioblastoma
- Developed this into a general pipeline that has since been applied to other conditions including prostate cancer

July 2023 - Jan 2024
Research Science Institute | Harvard Medical School

- 2 months of course work in scientific theory at MIT
- Interned at the Biomedical Cybernetics Lab at Harvard Medical School
- Built LLM-integrated workflows that accurately collected, cleaned and analysed clinical data and genome sequences to identify associations between point mutations and skin conditions
- Delivered an oral presentation and wrote a paper
- Continued after the program to integrate my work with a larger project in the lab

June 2022 - August 2022
Patch | Dogpatch Labs, Dublin, Ireland

- Selected for a competitive 7 week talent accelerator
- Recieved mentoring in Medical technology development and
- Pitched the project to startup founders and VCs securing over €20,000 in initial funding

2019-2025 (on and off)
Tutoring | Everywhere

Tutored students from ages 6-18 in areas of maths, from basic operations up to algebra, and english (teaching english as a foreign language).

Awards and Grants

- Patch SF Fellow 2025
  - Awarded a fellowship to visit San Francisco and meet founders and scientists (YC, Patrick Collison, Arc Institute, Nvidia, etc.)
- Bright SCIdea Poster Finalist 2025
  - For developing ML models to predict ADMET properties in drugs
  - Matched the results of Google DeepMind's TxGemma model in lipophilicity prediction with lightweight models trained locally on my laptop
- Catherine Tattersall Award for Science 2023+2024
  - Highest award for outstanding extracurricular work in STEM
  - First student to ever be awarded it twice, and one of the youngest
- Emergent Ventures Grant
  - Funding for the development and testing of a diagnostic tool for malaria
- Best Project Award @ SciFest Regionals 2023
  - Developed cell signalling models to simulate the effect of drugs on adenocarcinoma
- Community Choice Award @ NASA Space Apps Hackathon 2023
  - Fine tuned a Vision Transformer to detect floods and fires
- Gold Medal and IGEES Award @ Young Economist of the Year 2023
  - Explored congestion pricing in Irish cities
  - Attracted the attention of the President of the Eurogroup. Discussed my work and potential execution in Ireland
- Self Help Science for Development Award @ BT Young Scientist 2023
  - Travel grant to visit Zambia and present BloodBox at universities

Papers/Patents

- **A diagnostic tool for blood related diseases, illnesses and conditions (S20230014)**
- **Paper on BloodBox, Applying ML to malaria diagnosis**
- **Python Tool for Protein structure analysis**
- **Comfort Crutches**
- **Economics Paper on Congestion Pricing**

Noteworthy Projects

1. **PharmaSee: ADMET prediction for drug candidates (Oct 2024 - Oct 2025)**
   a. **Built ML models (XGB/SVR)** to predict lipophilicity and solubility from vector encodings of **SMILES** sequences
   b. Trained on drugs from **TDC** database
   c. Worked on implementing **biochemically informed** workflows to predict affinity for the **hERG ion channel**
2. **Forgetting Curve Debate (June 2026-Present)**
   a. **Read literature** on previous theories about the shape of forgetting curves and distributions they follow including a debate between Wixted and Ebbesen, and Anderson and Tweney
   b. Conceptualised methods to investigate this topic
   c. Applied data science methods to large scale spaced repitition data
3. **Metastasis *in Silico*: Computational models and Targeted Approaches (Feb 2023-Jan 2024)**
   a. This project was mainly exploratory in nature for **my own learning** rather than creating anything useful
   b. Explored the phenomenons of oncogene addiction and Epidermal Growth Factor Receptor (EGFR) signalling as well as **the use of Extracellular Contractile Injection Systems (eCIS)** as a method of drug delivery.
   c. I used **AlphaFold** to generate models of eCIS based delivery systems and wrote code to validate the outputs through **stereochemical assessment** and used **ML to assess secondary structures**.
   d. I used **enzyme kinetics models** to test the efficacy of enzyme based drugs as a potential therapeutic based on data from in vitro experiments
   e. I built simple models of cell signalling
   f. I wrote code to **validate AlphaFold outputs** through stereochemical assessment.
4. **BloodBox (July 2022-Oct 2025)**
   a. **A low-cost and reusable device** that employs Machine Learning (ML) algorithms and an imaging system to **diagnose diseases** based on blood smear images
   b. **Constructed and trained** a variety of ML algorithms to diagnose diseases such as Malaria (*P. Falciparum*) and Acute Lymphoblastic Leukemia.
   c. Used **ML techniques** to create algorithms that can perform complete blood counts to a **high accuracy (94%)**
   d. Awarded a **€15,000** grant from the **Mercatus Center** at George Mason University and a €700 grant from **Patch**
   e. Placed highly at national science competitions and Awarded a **€7,000 grant** to learn about potential applications in Zambia and present work at the **University of Zambia**
5. **Comfort Crutches (2022)**
   a. **Redesign the walking aid** to **reduce pain and pressure** on the user
   b. **Designed experiments** to test the crutch
   c. Group **Leader**
   d. Designed, Iterated and built a **Force Sensitive Resistor** using carbon black, tinfoil and card paper, **to test the crutch**
   e. Proved a **20% reduction in pressure** when using our crutch over the common crutch across **70 users**
   f. Made me want to bring the **engineering mindset** to biomedical research
6. **Driving Change: The Potential for Congestion Pricing in Irish Cities (2023)**
   a. An **Economics Project** on congestion pricing based on a case study of an intersection near my school
   b. Collected data on inflow and outflow of cars during peak hours
   c. **Studied effects of congestion pricing** in London and Singapore
   d. Awarded the **Irish Government Economic Evaluation Services Award**
   e. Invited for a meeting with Minister for Public Expenditure and **President of the Eurogroup** to discuss the research