

RUBEN WEITZMAN

Date of birth 30 January 1999 **Home Address** 3 rue d'Issy, 92170 Vanves, FRANCE
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EDUCATION

2021-expected 2025 **Oxford University, Oxford, UK**
Department of Computer science
Dphil in Health Data Science CDT, fully funded by EPSRC and Kellogg scholarship

2020-2021 **Cambridge University, Cambridge, UK**
Department of Applied Mathematics
MPhil in Computational Biology
Thesis supervised by Dr Bianca Dumitrascu titled "Multi-modal single cell prediction using DPCCA"

2017-2020 **Imperial College London, London, UK**
Department of Bioengineering
Bachelor's degree in Biomedical Engineering
Completed all three years with First Class honors (highest mark)
Lectured as a UTA for first-year labs
Programming III, Control Engineering, Digital Biosignal Processing, Synthetic Biology, Mathematics, Biomolecular Electrical, Mechanical Engineering

2016-2017 **Université Paris-Dauphine, Paris, France**
Paris Sciences & Lettres (PSL*)
Department of Mathematics of Decision Sciences
Foundation year in the Bachelor's degree course in Mathematics, Computing and Economics
Top 5% of Students ('*Mention Très Bien*')

PROFESSIONAL EXPERIENCE

July-Sep 2020 **The Rockefeller University Summer Undergraduate Research Fellowship (SURF) program**
Replaced by online learning due to COVID-19 outbreak
Cancer Research UK Cambridge Institute. Shortlisted to participate in the Undergraduate Summer Research Programme (cancelled due to COVID-19 outbreak)

July-Sep 2019 **Cambridge University, Cambridge, UK. Amgen scholar program**
Supervisors: Professor Andrea Brand and Dr Diana Arman
Highly selective program (3% application success), conducting independent research project
Worked on identifying role of the BMP pathway in neural stem cell reactivation in *Drosophila*

- Analysed single-cell RNA sequencing data, applied cluster algorithm and techniques using Seurat R library and isolated potential target genes
- Conducted RNAi experiments on specific glial cell type using the GAL4 system. Analysed phenotypes using confocal microscope, using Fiji and Qbrain software for image analysis
- Learned and applied the targeted Dam ID technique developed by the lab on larvae with fat body driver
- Presented research poster at a three-day international symposium to 74 other scholars

July-Sep 2018 **Melbourne University, Melbourne, VIC, Australia**
Supervisors: Professor Steven Prawer and Mathias Mataruna
Research internship in a materials lab developing a diamond based bionic eye (iBionics company), and other bioengineering devices

- Worked on the programming of a chip for recording electrical signals originating from electrodes in epileptic patients using Arduino ecosystem
- Coding for prototype of retinal implant device able to record degree of light exposition and send response via radio frequency transmission and Manchester encoding (Atmel Studio 7, MATLAB)

- Introduced to making process of devices and new equipment (laser cutting of diamond, evaporator, acid boil, furnace, placing of carbon nanotubes as electrodes)

July-Sep 2017

Massachusetts Institute of Technology, Cambridge, MA, USA

Supervisors: Professor Ernest Fraenkel, Divya Ramamoorthy and Karen Sachs

Research internship in a lab developing computational and systems biology approaches to search for new therapeutic strategies for disease.

- Worked on a database of patients treated for ALS in 8 clinical sites across the US
- Analysed NeuroLink database using Python (panda, numpy libraries) and R scripts
- Created new database structure in MySQL, and populated new database from reusable Python script for updates
- Developed ways to visualize the data in a rapid and accessible manner

February 2013

Hospital Pitié-Salpêtrière, Paris, France

Supervisor: Professor David Grabli (clinician)

Service of Neurology, Specialist in Parkinson's disease (two-week internship)

- Participated in medical consultations and research team meetings
- Visited the Clinical Research Center and the Brain & Spine Institute

ACADEMIC PROJECTS at Imperial College

Engineering design project (2nd year)

Worked in a team of 10 to create a medical device implementing image processing detection algorithms (Python) and using AWS Rekognition API for bus number image detection to help vision-impaired people at busy intersections.

Programming project (3rd year)

Built Java application aiming to substitute physical diabetic logbook by replacing it with a digital one, built with Heroku server and Postgress database and implementing OOP design while using tools such as GitHub and Notion.

Senior Research project (3rd year)

Linking codon bias to tRNA pools in different human tissues by looking at both transcriptomics and proteomics data to decipher different translation programmes between different tissues.

BEng Research Project (3rd year)

Supervisor: Dr Claire Higgins

Analysed ATAC-Seq data to investigate the role of epigenetics in the differentiation of Derma Papillia cells into osteoblasts. This involved constructing hypothesis for the pathway of action of this abnormal differentiation by differential analysis leading to pathway and motif analysis.

POSTER PRESENTATIONS

1. R Weitzman, D Arman, A Brand. Systemic and local signalling in reactivation of Neural Stem Cell in Drosophila.

Presented at: Amgen Scholars Symposiums; September 2019; Cambridge University, UK

2. R Weitzman, et al. ICBus: A medical device for visually impaired users implementing bus recognition at a busy intersection. Presented at: 2nd Year Poster Presentation; March 2018; Imperial College London, UK

SOCIETIES

Synthetic biology seminar officer of SynBIC at Imperial College

Organised seminars throughout the year with distinguished professors (from Imperial College London, Cambridge University, MIT) as well as successful entrepreneurs in the synthetic biology field (e.g. Dr James Field, CEO LabGenius) to introduce students to the field. Organised the biggest event so far in the society's existence with a 200-person seminar for Professor Ron Weiss (MIT). Helped the society to organise participation in iGEM competition.