# Zak Watts

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## EDUCATION

**University of Bristol – Physics MSci**                                                              *Sep 2018 – July 2022*

- Studied units in: Bio and Environmental physics, General relativity, Quantum Mechanics, Materials, Semiconductors and open units in Politics and Economics
- 1$^{st}$ in MSci research project exploring acoustic deformation of cells as a cancer diagnosis technique. By exciting piezoelectric crystals ultrasonic waves are generated incident to cells. Measuring the extent of deformation of cells gives insights into the type and health of the cell. This experiment covers a vast range of electronics, coding languages and biological substances leading the work to be cross disciplinary.
- International mentor tutoring physics students in Pakistan.
- Proficient in: Python, Arduino, HTML, Origin, Latex, LTSplice, Matlab, CAD

**John Hampden Grammar School**                                                                      *Sept 2011 – June 2018*

- GCSEs; 6A*s and 6As (incl. Maths, Further Maths, English Literature and English Language).
- A Levels; A*AAA in Maths, Further Maths, Economics and Physics respectively.
- British Physics Olympiad Gold – Top 100 in the UK.

## WORK EXPERIENCE

**Research Analysts and Developer at *The New Bioeconomy***                              *June 2022 – present*

- Researching matters in venture capital and the bioeconomy sector such as recent deals, news, and market analysis.
- Currently in the process of developing an index to better track the bioeconomy working with Eugen Kaprov. This will track a selection of stocks in the area with the aim to get a broad exposure to the sector.
- Also creating a data visualisation dashboard for the data using Looker Data Studio (formally Google Data Studio).

**From Data to Biology and Back at *CENTURI – Turing Centre for Living Systems***      *June 2022 – July 2022*

- Exposed to major open questions in epidemiology, machine learning, genetics, neuroscience and neurobiology, then addressed those questions through the use of state-of-the-art techniques for analysing and modelling data sets.
- Using techniques such as: Image analysis (segmentation), time series processing (autocorrelation, classification, etc.), dimension reduction (linear PCA, nonlinear UMAP), classical statistical tests for data comparison and cluster methods (k-means, hierarchical clustering, classification from neural networks).
- Conducted a research project to clean, organise, represent, and perform advanced statistical analysis on thousands of optical tweezers force curves to validate a proposed theoretical model.  This was to help establish a better model for how membrane proteins interact with the cytoskeleton in the frame of the immune synapse.  This work was then presented to 30 people.

**Summer Analyst at a Deep Tech Venture Capital Fund *Science Creates Ventures***      *June 2021 – Aug 2021*

- Analyst at Science Creates Ventures, a deep tech venture capital (VC) fund located in Bristol. This gave me exposure to the inner workings of VC funds as well as the VC process in evaluating deals. Being a scientifically focused fund, I was able to use my physics background to analyse deals and assist in validating the technical and potential of new scientific start-ups.
- I partook in numerous company pitches, created press articles for the companies the fund invested in, did pitchbook analyses of notable deals, progressed deal sourcing methods, developed an investor newsletter, attended Bristol SetSquared Tech-Xpo and more.
- One of my favourite projects was analysing a space tech start-up and its technology. Harnessing my physics background, I extensively researched the technology in question, the strength of the IP, and the market size potential, as well as lifetime capital requirements, exit possibilities, competition, team, and the risk of failure before inflection point. I then presented my findings to the team and was able to join their discussions, both with founders and senior partners in the board meeting.

**Intern/Consultant at a Deep Tech Start Up Incubator** *Unit DX.*  *Aug 2020 – March 2021*
- Worked with the COO where I researched and presented developments that would increase management efficiency using automation. From this I incorporated an automated pipeline system and have continued to work as a freelance consultant alongside my university studies.
- Gained insights into the fundamentals of accelerator programs and the business of scientific start-ups.

**Co-founder of a Phone Repair Franchise** *Brisfix/Fixmycrack*  *Aug 2018 – present*
- Set-up a phone repair company at university. Created advertising campaigns, negotiated with suppliers and coded an advanced chatbot, using Google Data Studio to keep track of key performance indicators.
- Received additional funding after entering the Bristol New Enterprise Start Up Competition. This involved creating a business plan, pitching to investors and financial modeling.
- With the aim of expanding to other universities, I have interviewed and recruited several additional employees. I had to priorities and delegate tasks depending on individuals' skills and experiences, outsourcing work where feasible in order to be operational by the start of the new academic year.
- Attended numerous start up networking events meeting with entrepreneurs and VC fund ambassadors.

**Sound Engineer and COO** *Tech X Audio*  *Jan 2018 – present*
- Responsible for overseeing finances, marketing, and sales. I also qualified as a audio engineer.
- Generated leads via the website by introducing SEO strategies, topping Google for target keywords.
- I assisted in creating competitive closed bid quotations for prospective projects and grant applications.
- Work as a sound engineer, commissioning and installing specialist audio equipment. Travelled across the UK to meet clients, suppliers and to work on projects such as the Covid Nightingale Hospital in Scotland.

**Content Developer for an Early Stage Tech Start Up** *AITutor*  *Feb 2019 – Sept 2019*
- Responsible for A-Level Further Maths content structure and development. I created over 50 educational videos explaining mathematical concepts in a clear and coherent way, keeping to exam board specification.

**VOLUNTARY EXPERIENCE**

**Volunteering with Berkshire Vision**  *Aug 2018 – present*
- I ride a tandem bicycle along with visually impaired persons allowing them to enjoy cycling. For this, communication is essential to maintain a level of trust between them and myself.

**University Accommodation Committee Member**  *Sept 2018 – June 2019*
- Presented and evaluated ideas for how a fund of £17,000 was spent, to optimise the residences experience.

**Volunteering with an Amazonian Community**  *Sept 2018 – June 2019*
- Planned and developed infrastructure to improve the access to facilities; also responsible for negotiations and financial accounts of the team.

**New Scientist Exhibition Physics Presenter**  *Summer 2017*
- Taught attendees about spectroscopy in physics via a workshop I planned and set up.

**ADDITIONAL INFORMATION**

*Computer:* Proficient in Python, Matlab, Origin, ECDL (Excel, Word and PowerPoint), AWS (S3/EC2/Route53), WordPress, Blockchain (Web3, Remix, Solidity), Google Analytics/Console (More listed in education)

*Interests:* Algorithmic trading, running, amateur astronomy, guitar and piano jazz.