

Jakub Dranczewski

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Education

- 2017-2021 **MSci Physics student, Imperial College London.**
- First-Class Honours for years one and two, second highest grade amongst the cohort in both years (84.8% and 85.2%).
 - Awarded the Ken Allen Prize for Academic Excellence and the Richard Learner Prize for Excellence in Second Year Laboratory.
- 2016-2017 **A Levels course, Dulwich College London.**
- Physics, Mathematics, Further Mathematics, Computer Science; A*A*A*A*.
 - Course accelerated, completed in a year as part of a scholarship organised by the Polish Children's Fund.
- 2014-2016 **I Liceum Ogólnokształcące w Zielonej Górze, Polish high school.**

Work Experience

- 5.08 - 27.09.2019 **Undergraduate Research Opportunities Programme internship with the Experimental Solid State group, Imperial College London.**
- Participated in multiple stages of research, from designing and preparing equipment and procedures, through taking measurements, to analysing data and applying existing theoretical models.
 - Gained basic understanding of multiple concepts in nonlinear optics and applied it to various experiments.
- 6.08 - 28.09.2018 **Undergraduate Research Opportunities Programme internship with the Plasma Physics Group, Imperial College London.**
- Developed *Magic2*, a fully functional GUI programme used in the research group for interferometry data processing, as well as other scripts used for data analysis.
 - Maintenance work on the Mega Ampere Generator for Plasma Implosion Experiments (MAGPIE); gained insight into designing and building scientific equipment.
- 2017 - 2019 **Tutoring A Level students, in Physics and Computer Science, including Python.**
- 2016, 2017 **Research Internships in the Institute of Physics of the Polish Academy of Sciences.**
- Involved shadowing and independent experimental work related to measuring photoluminescence decays and spectra of quantum dots, as well as using a scanning tunneling microscope to image graphite.
 - Required use and setting up of varying experimental equipment, including laser optics set-ups and electronics for precise time measurement, as well as theoretical understanding of basic quantum mechanics concepts.
- 2016-2017 **Research on the behaviour of ferrofluids in inhomogeneous magnetic fields, and on the balloon air horn, as part of preparations for the International Young Physicists' Tournament 2017 finals in Singapore.**
- Created multiple experimental set-ups for measurements involving sound, surface tension, surface instability inspection, object tracking in video, magnetic permeability and fluid density.
 - Organised the work of the whole group as the Captain of the United Kingdom team; developed public speaking and debating skills through the 'Physics Fight' format of the competition.

Skills

Programming	Fluent in Python (numpy/scipy, matplotlib, Jupyter Notebooks, data analysis, graphical interfaces) , web development (JavaScript, PHP, MySQL), LaTeX, basic experience with C, C++, and Matlab.
Software	Experience with the Microsoft Office suite, Origin Pro for data analysis and graphing , basic experience with LabView.
Electronics	Experience working with the Arduino platform, Raspberry Pi computers, low-level microprocessor programming , as well as basic electronics.
Experiments	Worked with optical table equipment, short and high-energy laser pulses, oscilloscopes and signal generators, computer measurement systems, and advanced imaging equipment (STM, SEM).
Languages	English , advanced (IELTS mark 8.5/9); Polish , native speaker; German , basic.

Achievements

- 2018, 2019 **Finalist (2018) and Runner-up (2019) in the Royal College of Science Union *Science Challenge*.**
 - Produced two science communication videos explaining quantum algorithmics and strong artificial intelligence in a way accessible to the public.
- 2017 **Finalist of the *BAFTA Young Game Designers Game Making Award*, for Dimension Surfer, a game based on dimensional geometry concepts.**
 - Applied mathematical concepts to a practical problems.
 - Developed project and time management skills and practised writing up detailed accounts of the work done.
- 2016-2017 **Gold and a Top 50 mark in the second stage of the *British Physics Olympiad*, team captain of team UK in the *International Young Physicists' Tournament 2017* in Singapore, Finalist of the *UK Bebras Computational Thinking Challenge*.**
 - Demonstrated a good understanding of complex Physics and Computing (algorithmic thinking) problems, teamwork ability and problem solving skills in the outlined competitions.
- 2016 **Laureate of the second edition of the Adamed SmartUP scientific and educational programme.**
 - Participated in a lecture programme on quantum mechanics and thermodynamics, research experiences, a tailored tutoring programme, and two editions of a science conference (*Science: Polish Perspectives 2016* and *2017* in Oxford and Cambridge).

Interests and Impact Activities

- 2019-2020 **Committee Member of the Imperial College Dramatic Society.**
 - Taken on roles ranging from production manager to lighting designer, which all required detailed planning, team management, budgeting, creativity, and ability to work with a large variety of equipment (often at short notice).
- 2014-2017 **Member of the *Młodzi Lokalni (Young Locals)* voluntary association.**
 - Responsibilities included managing the web presence of the association, developing websites, creating graphic designs and taking part in organisation of some city-wide events.
- Hobbies New technologies, photography, science-fiction and fantasy, art and poetry, cycling.