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

2019-2021 **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.