Jakub Dranczewski

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Education

2017-2021 **MSci Physics student**, *Imperial College London.*

- First-Class Honours for year one, second highest grade among the year (84.8%).
- Awarded the Ken Allen Prize for Academic Excellence.

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

6.08 - 28.09.2017 **Undergraduate Research Opportunities Programme internship with the Plasma Physics Group**, *Imperial Colege 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 how the device works and the principles of designing, building, and maintaining scientific equipment.

18.09 - 26.09.2017 **Research Internship 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.
- Required use and setting up of varying experimental equipment, including laser optics set-ups and electronics for precise time measurement.
- Python analysis of Time Tagged Time-Resolved (TTTR) photon arrival time measurement data undertook as a side project during the internship.

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.

29.06 - 7.07.2016 **Research Workshop in the Department of Low Temperature of the Institute of Molecular Physics of the Polish Academy of Sciences**.

- Worked with a Scanning Tunnelling Microscope - imaging highly ordered pyrolytic graphite layers.
- Achieved a better understanding of how scientific research is conducted and of basic quantum mechanics concepts.

2014-2016 **Personal research projects**.

- Synthesising carbon quantum dots in household conditions.
- jRED - an electronic device used to control home appliances with a smartphone.

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 and Raspberry Pi computers**, as well as basic electronics.

Experiments **Worked with optical table equipment, short 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

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 two-weeks-long science camp with activities including lectures on quantum mechanics and thermodynamics, experiments, a mock interview, and visits to laboratories.
- Rewards included a year-long tutoring programme, allowing for development of understanding of complex physics, problem solving skills and taking part in two editions of a science conference (*Science: Polish Perspectives 2016* and *2017* in Oxford and Cambridge).

Interests and Impact Activities

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.

2015-2016 **Partaking in the works of the student council of I Liceum Ogólnokształcące w Zielonej Górze**.

- Gained experience with working in a team, splitting jobs between people, organising big events and resolving conflicts.

Hobbies New technologies, photography, art and poetry, cycling.