

JAKE BEWICK

Principal Laser Optics Research Engineer

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SUMMARY

Principal laser optics research engineer specialising in laser directed energy weapons. Experienced in developing full-wave optics propagation simulations for atmospheric turbulence and speckle phenomena, designing and validating benchtop experiments and trials, and conducting technical literature reviews to inform novel system architectures.

EXPERIENCE

Principal Laser Optics Research Engineer

MBDA UK

February 2026 – Present Bristol, UK

- Lead developer on a novel MATLAB / Simulink wave-optics propagation simulator for coherent illumination applications, and general laser directed energy weapon modelling
- Generated synthetic image and sensor data to support image processing and algorithm development across other areas of the business
- Conceptualised, designed, funded and currently managing the development of a novel laser safety beacon system for laser directed energy weapon field trials
- Authored technical literature reviews on coherent beam combining and atmospheric tip/tilt compensation for laser directed energy weapon systems, informing novel system architectures
- Built internal tool for document processing and citation management to support technical documentation on secure and internet-restricted systems
- Engage directly with external stakeholders, including government customers, presenting technical work and findings to support programmes

EDUCATION

PhD - Medical Physics and Biomedical Engineering

University College London

- 2020 - 2026

MRes - Medical Imaging

University College London

- 2019 - 2020 • First Class

MSci - Biomaterials and Tissue Engineering

University College London

- 2018 - 2019 • First Class, Top of Class

BEng - Biomedical Engineering

Queen Mary University of London

- 2014 - 2018 • First Class

PROJECTS

Fetal Ultrasound Classification using Machine Learning

Trained convolutional neural network to classify structures in fetal ultrasound images

Structure-Function Modelling in Brain Networks

Developed computational models to explore structural-functional brain connectivity using neuroimaging data

CAD-Based Fracture Stabilisation System

Engineered a two-part fixation system for osteoporotic femoral fractures to enhance biomechanical stability and healing

AWARDS

Biomaterials Medal

Worshipful Company of Armourers & Brasiers

Dean's List

University College London

Best Project

Spring Industrial Liaison Forum

SKILLS

Basic Software

Microsoft 365, LaTeX, Git, VS Code, Jupyter

Programming

MATLAB, Python, R, Fortran, Bash

Data Science and Machine Learning

Tensorflow, Pandas, NumPy, SciPy, Matplotlib, SPSS

Simulation and Engineering Tools

Zemax, Lumerical, Abaqus, Ansys, STAR CCM+, Solidworks, Fusion 360, Simulink