

# Sean M. Keenan

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## Education

### Heriot-Watt University

Edinburgh, Scotland

MPHYS PHYSICS (HONS) - First Class

Sep. 2020 - Aug. 2021

- Chosen to progress onto the integrated MPhys course due to maintaining an average of 60% over all taught courses during my undergraduate degree
- Final year project look at modelling dispersion in novel waveguide designs for selective supercontinuum generation.
- Honours year research project investigated the characterisation of losses in integrated optical waveguides.
- Research based degree, covering courses in leading edge physics as well as energy technologies and electrical and mechanical engineering principles.

### Moray College

Elgin, Scotland

HNC ELECTRONIC ENGINEERING

Sep. 2012 - Aug. 2013

- Studied the design of semi-conductor circuits and their applications.
- Analysed feedback systems in real world applications, such as PLC's and troubleshooting these systems.

## Skills

**Programming Languages** LabView, Matlab, Lumerical, LaTeX, Python, Fiji  
English (Native), Italian (Basic)

## Research Experience

### Dr. M. Mazzer: Quantum Photonics Laboratory (Heriot-Watt University)

Edinburgh, Scotland

RESEARCHER (SUMMER INTERNSHIP)

Jun. 2020 - Present

- Tasked to design and build a narrow linewidth laser cavity for operation in the 606nm and 1550nm wavelengths for use in future studies of quantum storage materials.
- Modelled cavity using Python to provide cavity characteristics and produce plots of resonance peaks.
- Developed script to extract beam shape and parameters from real experimental images.

### Dr. M. Ferrera: Advanced Structures Nanophotonics Group (Heriot-Watt University)

Edinburgh, Scotland

HONOURS YEAR RESEARCH PROJECT

Sep. 2019 - Mar. 2020

- Continuation of leading edge research into the characterisation of losses in integrated photonic waveguides.
- Successfully characterised low loss waveguides to within several dB/cm, laying the foundations for the first such test centre in the UK.
- Developed an automated system to calculate the intrinsic losses of SiN waveguides through measurements of their output Fabry-Pérot fringe contrast.
- Wrote programmes in LabVIEW and Matlab to automate the scanning of a CW laser source and to analyse the corresponding data.

### Dr. L. Paterson: Biophotonics-Group (Heriot-Watt University)

Edinburgh, Scotland

RESEARCHER (SUMMER INTERNSHIP)

June. 2019 - Aug. 2019

- Successfully constructed and tested an inverted optical trap for future investigations into the microrheological properties of micro-algae.
- Adapted current Matlab script in order to handle larger image files.
- Developed analytical thinking and problem solving capabilities.

## Work Experience

### Teledyne CD Ltd.

Aberdeen, Scotland

CUSTOMER SERVICE ENGINEER

Jan. 2015 - Mar. 2015

- Part of a small team responsible for all customer warranty and repair items, including ITAR sensitive equipment.
- Streamlined customer warranty and returns process, decreasing waiting time by up to two weeks.
- Developed a keen-eye for detail and understanding of equipment to correctly identify malfunction from misuse.

### Oceaneering Int. Ltd.

Dyce, Scotland

SUBSEA TECHNICIAN

Oct. 2013 - Oct. 2014

- Updated the assembly procedure for sub-sea electronics pods & wrote comprehensive technical guide.
- Led a small team to redesign and manufacture a portable device capable of converting ethernet signal to fibre for use off-shore.
- Responsible for maintaining department electronics supplies and equipment.

## Royal Auxiliary Air Force, 2622 (H) Sqn

Lossiemouth, Scotland

RESERVIST REGIMENT GUNNER

Apr. 2012 - Apr. 2017

- Section second-in-command responsible for section organisation and welfare.
- Developed team leading & interpersonal skills working in remote and testing conditions as part of deployments across the world.

## Honours & Awards

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### DOMESTIC

2018 **Rank Prize Fund**, Summer Vacation Scholarship with Paterson Group - Heriot-Watt

Edinburgh,  
Scotland

2020 **IPaQs Summer Scholarship**, Summer Vacation Scholarship with Mazzera Group - Heriot-Watt

Edinburgh,  
Scotland

## Extracurricular Activity

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### Royal Air Force(VR) (East of Scotland University Air Squadron)

Leuchars, Edinburgh

ACTING PILOT OFFICER

Apr. 2017 - PRESENT

- Responsible for the leadership & management for over 30 Officer Cadets.
- Responsible for the co-ordination & organisation of annual field training for the squadron.
- Organised the ESAUS team entry into the annual RAF climbing championships including arranging accommodation and transport.

### Heriot-Watt University (Physics Dept.)

Edinburgh

STUDENT GUIDE

Sept. 2019 - Sept. 2020

- Responsible for mentoring new students and providing guidance on University life.
- Organised presentations and classes to cover topics affecting students.

### Heriot-Watt University (Physics Dept.)

Edinburgh

CLASS REPRESENTATIVE

Sept. 2016 - Aug. 2017

- Responsible for handling student issues / problems relating the course and passing them up the chain.
- Attended faculty meetings to guide the direction of future policy related to 1st year courses.

## Writing

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### Physics Departmental Newsletter

Heriot-Watt

EDITOR

Aug. 2020 - PRESENT

- Started up a newsletter to share notices and information amongst the entire physics department.
- Gathered interest by form of online poll before co-ordinating contributions and designing layout / formatting.
- Recruited and managed a small team to maintain the newsletter.