

Andrew Coathup

Home: Santiago de Compostela, Spain

Email: acoat00@gmail.com

Website: acoathup.github.io

EDUCATION

PhD Experimental Physics

Sept 2020 – Dec 2023 (expected)

Galician Institute for High Energy Physics / University of Santiago de Compostela, Spain

Thesis Topic: *Commissioning of a vacuum-free laser-plasma x-ray source for application in propagation-based phase-contrast x-ray imaging*

Principal tasks:

- Programming of a motorized stages to reduce the movement error of a metal target to $<10\mu\text{m}$ such that the surface is always in the focal point of laser pulses arriving at a rate 1000 pulses per second
- Determined parameters required to successfully capture first ever phase contrast image of a biological sample with this novel x-ray source
- Presented the results as an oral presentation at an international conference and made contacts resulting in a $>100\text{k€}$ piece of equipment being brought to the laboratory and the first inter-university experiment to take place at the laboratory
- Precise measurement and analysis of a micron-scale x-ray source size and x-ray spectrum

Skills: Python, Matlab, LabView, ImageJ, work in laboratory environment, experimental debugging, error analysis, independent direction to work, independent research skills, independent learning, ability to begin and foster collaborations, presentation skills, writing skills, time and workload management skills, creative problem solving, resourcefulness under budget constraints, experience in Spanish and European work environments

MSc Medical Physics

Sept 2015 – Aug 2017

University of Victoria, Canada

Thesis Topic: *Towards Personalized PTV Margins for External Beam Radiation Therapy of the Prostate*

Principal tasks:

- Organization / preparation of patient training data for use in predictive models
- Selection of appropriate data science / machine learning predictive tools
- Application of predictive models to estimate patient motion during radiation therapy

Skills: Error analysis, Python, scikit-learn, pandas, scipy, numpy, machine learning, data science, data preparation, independent research skills, independent learning, presentation skills, writing skills, communication skills, Excel, databases

BSc Honours Physics (Co-op), Magna Cum Laude

Sept 2009 – Aug 2014

University of Ottawa, Canada

Thesis Topic: *Modelling of brain neurons with Markov chains in Python*

Principal Taks:

- Develop Python code to model the open probability voltage-gated of potassium channels

Skills: Python

WORK EXPERIENCE

Secondary School Science Teacher

Jan 2020 – Jun 2020

O Castro British School, Vigo, Spain

- Gave classes in many subjects to 500+ students, then adapted to online teaching due to the coronavirus pandemic for the remainder of the year
- Adapted to two schedule changes in the first two months
- Communicated with various stakeholders (students, teachers, parents, heads of department)
- Organized grades, performance metrics, behavioural metrics for 500+ students

Skills: Communication skills, organizational skills, time management, creativity, resourcefulness

University Teaching Assistant Positions

Jan 2016 – Apr 2018

University of Victoria, Canada

- Tutorial Instructor: Computational Modelling and Analysis (Sept 2017 – Dec 2017)
- Lab Instructor: Introductory Physics II (Jan 2016 – Apr 2016; Jan 2018 – Apr 2018)
- Lab Instructor: Introduction to Laboratory Electronics (Sept 2016 – Dec 2016)
- ESL (English Second Language) Lab Instructor: Introductory Physics II (May 2016 – Aug 2016)
- ESL Tutorial Instructor: Introductory Physics II (May 2016 – Aug 2016)

Skills: Communication skills, organizational skills, problem solving skills, resourcefulness

Monthly Cancer Centre Quality Assurance

Oct 2016 – Mar 2017

BC Cancer Agency, Victoria, Canada

- Performed monthly quality assurance (dosimetric, image, mechanical testing) on two clinical linear accelerators (Varian Truebeam) and one CT simulator (GE Optima 580)
- Tests performed required hands-on use of common medical physics instrumentation such as ion chambers, electrometers, electronic radiation detectors, and phantoms

Skills: Experimental measurements, clinical experience, scientific documentation

VOLUNTEER EXPERIENCE

Junta directiva Compostela Swing

Mar 2021 – Current

Santiago de Compostela, Spain

- Took active role in promoting swing dance throughout the city
- Made contacts with local businesses in the city to discover new dancing opportunities
- Created poster ads to market swing dance events
- Managed social media accounts in the last year
- Number of participants in weekly events has grown 5x since joining the organizing team

LANGUAGES

- English (Native)
- Spanish (Advanced – DELE C1)
- French (Basic – High School French Immersion)