Andrew Coathup

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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:

- Stabilization of the motion of a metal target to <10μm positional error such that the surface is always in the focal point of laser pulses arriving at a rate 1000 pulses per second
- Precise measurement and analysis of a micron-scale x-ray source size
- Independently developed a research plan and performed the experiments to determine the x-ray source´s suitability for application in phase-contrast imaging
- Determined parameters required to successfully capture first ever phase contrast image of a biological sample with this novel x-ray source
- Fostered inter-university collaborations
- Presented the results as an oral presentation at an international phase-contrast x-ray imaging conference

Skills: Work in laboratory environment, experimental debugging, error analysis, Python, Matlab, LabView, ImageJ, independent work and direction to work, independent research skills, independent learning, ability to begin and foster collaborations, presentation skills, writing skills, ability to organize workload and plan time efficiently, 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, machine learning, data science, data preparation, independent research skills, independent learning, presentation skills, writing skills, communication skills, Excel

BSc Honours Physics (Co-op), Magna Cum Laude — Sept 2009 – Aug 2014

University of Ottawa, Canada

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 (Linac and CT) — Oct 2016 – March 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

Undergraduate Internships

- *Ottawa Hospital, Canada (Jan 2015 – Jun 2015)*
  - *PET imaging research*
- *Semtech Corporation, Canada (May 2013 – Dec 2013)*
  - *Microchip modelling*
- *Radiation Protection Bureau, Health Canada, Canada (May 2012 – Aug 2012)*
  - *Airborne radiation monitoring*
- *SUNLAB, University of Ottawa, Canada (Jan 2012 – Apr 2012)*
  - *Photovoltaic research*

LANGUAGES

English (Native), Spanish (C1), French (high school)