# Andrew Coathup

**Home**: Santiago de Compostela, Spain
**Citizenship**: Canadian (I have a NIE in Spain and am able to work without limitation)
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## EDUCATION

### MSc Medical Physics — Sept 2015 – Aug 2017
*University of Victoria, Canada*

- Master's thesis: "Towards Personalized PTV Margins for External Beam Radiation Therapy of the Prostate"
- Research resulted in 2 conference poster presentations
- Link to thesis: https://acoathup.github.io/Ressources/Coathup_Andrew_MSc_2017.pdf

### BSc Honours Physics, Magna Cum Laude — Sept 2009 – Aug 2014
*University of Ottawa, Canada*

- Honour's project topic: Mathematical modelling of brain neurons in Python
- Research contributed to a conference proceeding

## EXPERIENCE

### Research Associate: Laser Generated X-Ray Source Imaging — Sept 2020 – Current
*Instituto Galego de Física de Altas Enerxías, Universidade de Santiago de Compostela, Spain*

- Helped to assemble and characterize a unique laser-generated x-ray source in a laser facility in the northwest of Spain
- Programmed the motion of a motorized stage target in LabVIEW to micrometer precision (<10um motion error) using a methodical and logical approach to debugging
- Worked as a team to perform a variety of radiation measurements and characterize the x-ray source (spectrum, source size measurement, dose, x-ray images). Analysis in Python.
- Developed program to extract the phase from an x-ray image. Program in Python.
- Used problem-solving skills in the lab on a daily basis to reduce the motion error to as small a quantity as possible
- Often had to meet very tight deadlines in work subject to lab scheduling / laser availability
- Research contributed to a conference presentation

### Secondary School Science Teacher — Jan 2020 – Aug 2020
*O Castro British School, Vigo, Spain*

- Taught physics, math, chemistry and general science to 500+ students involving two schedule changes in two months, then adapted to online teaching due to the coronavirus pandemic for the remainder of the year

- Managed a heavy workload and adapted to sudden schedule changes (replacing two different teachers)
- Communicated effectively (written and verbal communication skills) with students, parents, other teachers, heads of department
- Regular use of Excel to organize student datasets (grades, discipline, performance incentives, behavioral notes, etc) and track their progress throughout the year
- Repeatedly had to make tight deadlines

### ESL English Teacher
Sept 2019 – Dec 2019

*London Eye Language Academy, Vigo, Spain*

- Improved conversational skills giving classes to students aged 6 to adult, often having to adapt from one class to the next

### University Laboratory Teaching Assistant Positions
Jan 2016 – Apr 2018

*University of Victoria, Victoria, Canada*

- Developed strong presentation and communication skills by teaching over 150 undergraduate students throughout my graduate studies
- Invited by professor to help teach a 3rd year physics class on "Data analysis techniques for physicists"

### Data Analyst: Personalized Radiation Therapy
Sept 2015 – Aug 2017

*University of Victoria, Victoria, Canada*

- Analyzed patient motion datasets in order to personalize prostate radiation therapy treatments
- Organized patient datasets using Excel and Pandas (a database / data analysis library in Python)
- Independently learned and applied data analysis and machine learning techniques to predict patient prostate movement during radiation therapy sessions (Python, pandas, scikit-learn)
- This work resulted in 2 conference presentations and a master's thesis

### Quality Assurance Testing (Linear Accelerator and CT)
Oct 2016 – March 2017

*BC Cancer Agency, Victoria, Canada*

- Performed monthly quality assurance on two clinical linear accelerators (Varian Truebeam) and one computed tomography simulator (GE Optima 580) in a cancer centre
- Tests performed required accuracy and attention to detail as the measurements require precision alignment

### Research Associate: Positron Emission Tomography (PET)
Jan 2015 – Jun 2015

*Ottawa Hospital, Ottawa, Canada*

- Developed strong computational and programming skills by performing PET imaging monte carlo simulations and writing scripts in Matlab.

Health Canada Summer Student May 2012 – Aug 2012
*Ottawa Hospital, Ottawa, Canada*

- Processed and mapped airborne levels of radiation as a part of the Comprehensive Nuclear Test Ban Treaty. SQL database was used to organize the data. Mapping done in Python.

## LANGUAGES

- English (Native)
- Spanish (Functionally fluent, around C1. Regularly use Spanish with coworkers.)
- French (Working understanding, around B1. Fourth-year quantum mechanics course was completed in French at the University of Ottawa for example.)

## SKILLS

- Python (pandas, scikit-learn, numpy, matplotlib, scipy)
- LabVIEW
- Linux
- Windows
- Github
- Data Analysis
- Data Organization
- SQL
- Microsoft Office (Excel, Word, Powerpoint, Outlook)
- Analytical Skills
- Problem Solving Skills
- Mathematical Skills
- Ability to learn quickly
- Teamwork

## APPLICABLE COURSES

### ONLINE COURSES – CODECADEMY (COMPLETED SUMMER/AUTUMN 2019)

- Java
- JavaScript
- C++
- HTML
- Git
- PHP
- Bash
- Analyze Data with SQL
- Analyze Data with Python
- Data Science Career Path

### GRADUATE SCHOOL COURSES

- CSC 578D – Special Topics in Computer Science: Data Mining – Grade: 91%
  - ❖ Project: Data Mining Music Lyrics for Genre Prediction
- PHYS 515 – Data Analysis Techniques for Physics – Grade: 89%
  - ❖ Invited by Professor to help teach undergraduate version of course