

# Ian Joynes

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## SUMMARY

Master of Applied Science graduate with a research background in numerical modelling. Seeking an opportunity as a fluid dynamics research engineer with Coanda.

## EDUCATION

### **Master of Applied Science, Mechanical Engineering, Carleton University** **2009 - 2013**

- Thesis: "Proof-of-Concept Inverse Micro-Scale Dispersion Modelling for Fugitive Emissions Quantification in Industrial Facilities"
- Presented extended abstracts at both the 2011 and 2012 Air & Waste Management Association Annual Exhibition and Conference
- Lead undergraduate tutorials in Fluid Mechanics, Thermodynamics and graded assignments
- Courses in Numerical Analysis, Computational Fluid Dynamics, Finite Element Analysis, Nuclear Engineering, Aerodynamics and Heat Transfer
- Awarded the 2010 and 2011 Graduate Scholarships

### **Bachelor of Engineering, Mechanical Engineering, Carleton University** **2005 - 2009**

- Graduated with high distinction
- Final project modelling gas bearings for a supercritical gas turbine with ANSYS CFX
- Courses in C++ Programming, Numerical/Mathematical Methods, Fluid Mechanics, Thermodynamics, Heat Transfer, CFD and FEA
- Achieved the academic honour of Deans' List each year.
- Awarded the following scholarships:
  - 2005 Carleton University Entrance Scholarship
  - 2006 Clarence C. Gibson Scholarship
  - 2007 J. Lorne Gray Scholarship
  - 2008 A. Davidson Dunton Scholarship

## RELEVANT WORK EXPERIENCE

### **Research Assistant, Carleton University** **2009 & 2014**

- Developed computer programs in C, Fortran and MATLAB to locate and quantify pollution sources
- Experience using CFD (ANSYS CFX & OpenFOAM), FEA (ANSYS & Abaqus), grid generation (ANSYS ICEM) and post processing software (Tecplot)
- Experience with APIs such as the Intel Math Kernel Library, OpenMP and the Tecplot IO library

### **AECL Student Employment, Chalk River** **2005 - 2008**

Completed three 4-month summer student placements and a 4-month high school co-op at AECL.

#### 2008 - NRU Reactor Operations Support

- Designed tools to open and inspect a faulty main heavy water check valve
- Designed a stand to hold a main heavy water check valve and duplicate the reactor orientation
- Assisted with main heavy water pump and motor replacements/alignments
- Created CAD drawings of tool components using SolidEdge

#### 2007 - Mechanical Equipment Development

- Assisted the Rolled Joint Qualification Group with joint rolling, leak testing and rig assembly for their proof of method for replacing calandria tubes
- Coauthored engineering reports on rolled joint qualification for reactor refurbishment
- Created Excel macros for automated data reduction of helium and water leak rates through rolled joints
- Created CAD models of test rigs using SolidEdge for reports illustrations

#### 2006 - Mechanical Equipment and Seal Development

- Performed tensile strength tests on rubber replicating material and statistical analysis of test data
- Produced inspection documentation for dimensional quality assurance of pump seal parts
- Created CAD drawings using AutoCAD and SolidEdge of pump seal parts for inspection documentation

#### 2005 - Mechanical Equipment and Seal Development

- Refurbished a rig to test inflatable door seals
- Inspected and performed leak tests on inflatable door seals
- Created CAD drawings and animations of a proposed hot cell door seal replacement using AutoCAD, SolidEdge and NasTran

### ACADEMIC EXPERIENCE

#### Teaching Assistant, Carleton University

2009 - 2011

- Completed 2 academic years as a teaching assistant for Fluid Mechanics I and Thermodynamics I, wherein assistance was provided to undergraduate students with assigned problem sets
- Led an undergraduate laboratory experiment designed to calibrate a venturi flow meter with Bernoulli's principle
- Provided supplementary midterm and exam review sessions
- Provided additional one on one assistance outside of regularly scheduled tutorials
- Created a solutions manual for the Fluid Mechanics I course for the benefit of future teaching assistants.
- Graded assignments, tests, lab reports and midterms

#### Tutor, Carleton University

2005 - 2012

- Provided tutoring services for various graduate and undergraduate engineering courses including Numerical Methods, Mathematical Methods, Fluid Mechanics, Aerodynamics, Thermodynamics, Heat Transfer, Statics, Dynamics, Solids Mechanics, and Feedback Control Systems.