CURRICULUM VITAE

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Biomedical Research and Development Engineer, current Graduate Entry Medical Student, recipient of Fulbright International Science and Technology Award 2011

WORK HISTORY:

October 2009-October 2010: Research and Development Engineer
Medtronic,
Galway

- Designer of distal section of a delivery system for Transapical Aortic Heart Bioprosthesis.
- Co-ordination of Design Review and Risk Mitigation Activities
- Technical expert on an early development project on a device for Ventricular Closure
- Department expert on anatomical software and conversion of clinical data files to 3-D models

October 2005-February 2008: Research and Development Engineer
Abbott Vascular Devices,
Galway, Ireland
Redwood City and Santa Clara,California
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- Worked on catheter design team for self expanding coronary stent system.
- Transfer of manufacturing, Test method development for Concept and Design Review and Preclinical study design and attendance for self expanding coronary stent
- Test method development for Intraventricular needle injection catheter for injecting stem cells into left ventricle of heart
- Handle assembly documentation, process improvement and transfer to manufacturing in Rangendingen, Germany for Intraventricular needle injection catheter
- Developmed destructive coating thickness method and completed testing and regulatory filing for Abbott Vascular Coronary Drug Eluting System, and benchmarked competitor Coronary Drug Eluting Systems
- Developed acute and chronic particulate test methods and completed testing and reporting for regulatory filing for Abbott coronary Drug Eluting Stent System and benchmarked competitor Coronary Drug Eluting Stent Systems
- Assisted in documentation and process improvement investigation for Abbott Vascular Dual Drug Stent System

- Developed Stent Retention Test Method for Trimaxx Coronary Stent and Zomaxx Coronary Stent and transferred it from Galway to California. Co-ordinated Stent Retention Testing for research and development studies of process improvements on Trimaxx, Zomaxx , X-Rail and competitor coronary stents
- Conducted Overlap Stent Fatigue Testing including validations, installation and operation qualifications of equipment
- Completed Zomaxx Coronary Drug Eluting Stent Investigational Device Exemption submissions to the Food and Drug Authority (FDA)
- Conducted Coating Thickness Testing for Zomaxx Drug Eluting Stent and Competitor Product. Transferred to California to complete this work.

October 2004-October 2005: Graduate Research and Development Engineer
Mednova Ltd. Galway

- Participated in the IBEC Export Orientation Programme, a graduate placement program involving spending six months in Mednova Ltd., Galway, Ireland and six months in Abbott Vascular Devices, Redwood City as a Graduate Research and Development Engineer
- Duties in Mednova Ltd. included
    - Working on product development for generation VI embolic filter
    - Completing patent illustrations for generation V product
    - Conducting competitive testing for the Xact Carotid Stent and Emboshield Embolic Filter devices for US product launch
- Duties in Abbott Vascular Devices, Redwood City included
    - Working on Coronary Stent Fatigue Evaluation Test Method Development for the Zomaxx Drug Eluting Coronary Stent for FDA submission.
    - Working on software method for the Coating Thickness Evaluation Test Method for the Zomaxx Coronary Stent for FDA submission.
    - Assisting in test method development for design verification testing for next generation Coronary Drug Eluting Stent

April 2003-September 2003 Student Engineer
Mednova Ltd., Galway

- Worked in research and development department on the Embolic Filter Device and the Carotid Stent projects, carried out extensive product testing
- Completed Autocad illustrations for patent application
- Spent one month gaining experience in the Quality Assurance Department
- Undertook Final Year Project in collaboration with Mednova Ltd. titled "Development of an ex-vivo carotid model" which involved building a physical model of the carotid artery that accurately simulates the human vasculature for device testing and clinical training.

EDUCATION:

Presently: Graduate Entry Medical Student, RCSI

September 2008-September 2010: MSc in Bioengineering, Trinity College, Dublin

- Awarded first place in class and first class honours for both exams and thesis
- Collaborated on MSc Project with Moximed Inc, a start up Orthopaedic device company in Hayward, California and with IDAC (Integrated Design and Analysis Consultants) Pembroke St., Dublin in order to develop an accurate kinematic model of the lower limb during gait for the healthy and osteoarthritic condition in Finite Element Analysis package ANSYS for use as a design tool for Orthopaedic Device Design

June 2009-September 2009: UC Berkeley California
Studied Anatomy and Physiology, obtained scores of 90% and 100% respectively

March 2008:

- Achieved a score in the top 2% in Ireland for the Graduate Entry Medical Exam GAMSAT, Achieved a score in the top 5% (Physical Sciences section) in the US for the MCAT Medical School Admissions test.

September 2007-December 2007: San Francisco State University

- Achieved a grade of 100% in Pre-Medical Organic Chemistry Course

September 2000 – 2004 BE, Biomedical Engineering NUIGalway

- Received a first class honours degree in Biomedical Engineering in 2004
- Achieved first class honours in first, second and third year examinations.

September 1995- June 2000 Salerno Secondary School, Galway

Leaving Certificate Results	**Junior Certificate Results**	
Maths (A1)	Maths (A)	Art (A)
English (A1)	English (A)	History (A)
Irish (A1)	Irish (A)	Geography (A)
French (A1)	French (A)	
Accounting (A1)	Business Studies (A)	
Biology (A1)	Science (A)	
Chemistry (A1)	Home Economics (A)	

AWARDS AND ACHIEVEMENTS:

- Awarded first place in examinations and thesis in MSc in Bioengineering, 2010
- Awarded Fulbright International Science and Technology Award 2010-2011
- Overall winner of Speak Out for Engineers, Engineers Ireland March 2009
- Awarded Technical Excellence Contribution 2007, Abbott Vascular, Santa Clara
- Awarded the Medtronic AVE award for best undergraduate final year project
- Awarded the Ryan Hanley Prize for best undergraduate final year project in the west region and went on to receive second prize in the national final of the Siemens Young Engineer of the year award in June 2004.
- Published 6 US patents
- Received first place in university class in first year, second year and final year
- Received first place entrance scholarship on entry to university

PUBLICATIONS:

Roche E, O'Connell M, Fanning P, Sweeney D, Clifford A; "A Kinematically Accurate Knee Model for Device Design", Bioengineering in Ireland, Jan 2010

Roche E, O'Flynn P, Pandit A, "An Ex-Vivo carotid vascular model for endovascular device evaluation", The Engineers Journal Vol. 59:1 January/February 2005

O'Flynn P, Roche E, Pandit A. "Generating an Ex vivo Vascular Model". ASAIO J. 2005: 51(4):426-433

US Patent US2007110280 Methods for Determining Coating Thickness of a Prosthesis, Published May 17, 2007

US Patent US2008006081 Method for measuring of particles generated from medical devices or instruments utilized during simulated clinical applications, Published January 10, 2008

US Patent US2008073022 Multi-Piece PVA models with non-brittle connections, Published Mar 27, 2008

US2008076101 Forming Vascular Diseases within Anatomical Models, published March 27, 2008

US Patent US2008073817 Forming Pre-Made pieces of PVA into specific models, Published March 27, 2008

US Patent US2008084959 Apparatus and System for measuring of particles generated from medical devices or instruments utilized during simulated clinical applications, Published April 10, 2008

SKILLS AND INTERESTS:

- Proficient in personal computer use and application, competent in using Autocad and 3-D modelling packages Autodesk Inventor, Solidworks, Rhinoceros, DeskArtes, medical imaging software MIMICS, Image analysis software Image Pro, Motic and Visiopharm, ANSYS finite element modelling package.
- Play hockey and tennis competitively, having represented province in both sports from 1998 to 2004. Avid snowboarder.
- Qualified lifeguard in Ireland and US
- Player on University Ladies Hockey Team First XI, Treasurer for University Hockey Club

REFEREES:

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