

Overview

- Engineer with 17 years of combined experience in research, teaching, and industry
- Post-doctoral work in the application of deep learning to solve medical imaging problems
- Ph.D. in the application of machine learning to study epileptic seizures from brain MRI
- Senior software architect with experience in education, finance, government, technology and medical research industries
- Efficient project manager with experience on resource planning, team building, project execution, quality control, risk and change management and supporting management tools
- Excellent communicator, able to translate complex technical matters into easy to understand terms for non-technical audiences
- Solid business skills including marketing, business strategy, capital raising, technology planning and team management
- Fluent in Spanish and conversational French

Achievements

- Co-organizer of the first Toronto Machine Learning Summit (TMLS) 2017 and on-going TMLS collaborator and consultant.
- Created the talk *The Four Chairs of Deep Learning* addressing the challenges of deep learning in medical imaging
- Invited lecturer at the high-performance computer symposium (HPCS2017) at Queen's University in Kingston, ON. Title of my lecture: "*Application of deep learning to medical imaging problems*" (June 2017)
- Designed and implemented a real-time, mobile AI platform for the analysis of physiological signals (heart rate, body temperature, level of activity, transpiration) for Awake Labs (March 2017)
- Presented my results on deep learning applied to ultrasound feature recognition at IBM Research Almaden using IBM's Neuromorphic chip (June 2016)
- My Ph.D. work was featured on the cover of the prestigious *Computerized Medical Imaging and Graphics* journal, in the special edition on machine learning (April 2015)
- Author of the book *Beginner's Guide to WebGL*. WebGL is a technology to implement real-time graphics rendering in JavaScript with GPU support
- Co-authored *WebGL insights*, a WebGL book launched at SIGGRAPH'2015
- Received the "*Gonzalo Esguerra*" national research award by the Colombian Radiology Society for my master's project in 2007

Education

Ph.D. in Biomedical Engineering Western University, Canada Thesis: <i>Multivariate Analysis of MRI in Temporal Lobe Epilepsy</i>	2015
Master's Degree in Computer and Systems Engineering Universidad de Los Andes, Colombia Thesis: <i>MRI-based Generation of 3D Vascular Models of Human Carotid Arteries with Pathological Changes</i>	2007
Undergraduate Degree in Electronic Design and Automation Engineering Universidad de La Salle, Colombia Project: <i>Gaze-tracking Robot as a Human-Computer Interaction Mechanism</i>	2001

Work Experience

Independent Consultant Responsibilities: <ul style="list-style-type: none"> Co-organizer of the Toronto Machine Learning Summit events Working on scientific research/technology projects in the healthcare industry 	2017-present
Chief Technology Officer Awake Labs, Canada Responsibilities: <ul style="list-style-type: none"> Developing the company's technology strategy plan to support the business model Procuring and scaling the technological infrastructure Developing the technical team Identifying and developing IP opportunities Designing and implementing a deep learning architecture for the mental healthcare market: brain disorders and other mental conditions. 	2016-2017
Post-doctoral fellowship VASST: Virtual Augmentation and Simulation for Surgery and Therapy Lab Robarts Research Institute, Canada Projects: <ul style="list-style-type: none"> <i>PERSEUS (Perceptive Ultrasound): Identification of Anatomy in Ultrasound using Convolutional Neural Networks. Collaboration with IBM Research.</i> <i>DeepHisto: Predicting Brain Tissue Properties with Fully Convolutional Neural Networks.</i> 	2015-2016
Teaching Assistant Engineering Department Western University, Canada <ul style="list-style-type: none"> Courses: <i>Object Oriented Programming, Medical Imaging</i> 	2009-2010
Industrial Trainee (Intern) CSIRO Australian e-Health Research Centre Brisbane, Australia Project: <i>Voxel-based Morphometry for the Statistical Analysis of Alzheimer's disease Imaging</i>	2008
Stagiaire (Intern) CREATIS Imaging Research Laboratory Lyon, France Project: <i>Development of an OSGi platform for Medical Imaging Software</i>	2007
Lecturer and Research Assistant Universidad de Los Andes, Computer and Systems Engineering Department Bogota, Colombia Courses: <i>Software Architecture, Digital Image Processing</i>	2006-2007

Information Associate (Software Engineer) Electronic Data Systems (now Hewlett-Packard Enterprise) Bogota, Colombia Project: <i>Java-based Multi-Tier System for the Colombian General Comptroller's Office</i>	2005-2006
Project Manager Informatica Siglo 21 Bogota, Colombia Projects: <ul style="list-style-type: none"> • <i>Multi-tier systems for Superintendencia de Notariado y Registro (government)</i> • <i>Data-warehouse system for Universidad del Rosario (education)</i> • <i>Trading algorithms for Banco de La Republica (finance/government).</i> 	2003-2005
Software Engineer IT Consultores Bogota, Colombia Project: <i>Developing and maintaining business applications (Xerox's IT outsourcing)</i>	2000-2002

Recent Speaking Engagements and Invited Lectures

Toronto Machine Learning Summit, <i>The Four Chairs of Deep Learning</i> , Toronto, Canada	2017
Workshop on Deep Learning in Medicine, Western University, <i>The Four Chairs of Deep Learning</i> , Canada	2017
HPCS 2017, <i>Applications of Deep Learning in Medical Imaging</i> , Kingston, Canada	2017
Machine Learning Research Group Seminar (Dr. Graham Taylor), University of Guelph, <i>The Future of Deep Learning in Medical Imaging</i> , Guelph, Canada	2017
Robarts Research Retreat 2016, <i>PERSEUS: Enhancing Ultrasound Imaging with Pattern Recognition Capabilities</i> , London, Canada	2016
IBM Research, Almaden. TrueNorth Bootcamp, <i>PERSEUS: Perceptive Ultrasound</i> , San Jose, CA, USA	2016

Recent Publications

<i>DeepHisto: Dense prediction of tissue properties from ex-vivo MRI of the brain using fully convolutional neural networks.</i> D Cantor-Rivera , JSH Baxter, AR Khan, and TM Peters. <i>In press.</i>	2018
<i>PERSEUS: Automatic identification of anatomical features with Deep Learning in the context of image-guided spinal injection procedures.</i> D Cantor-Rivera , JSH Baxter, G. Ameri, and IBM Research. <i>In press.</i>	2018
<i>Individual feature maps: a patient-specific analysis tool with applications in temporal lobe epilepsy</i> D Cantor-Rivera , JSH Baxter, S de Ribaupierre, JC Lau, SM Mirsattari, et. al. IJ-CARS International Journal of Computer Assisted Radiology and Surgery 11 (1), 53-71	2016
<i>Detection of temporal lobe epilepsy using support vector machines in multi-parametric quantitative MR imaging</i> D Cantor-Rivera , AR Khan, M Goubran, SM Mirsattari, and TM Peters. CMIG Computerized Medical Imaging and Graphics 41, 14-28	2015