

Diego Cantor, Ph.D.

Chief Technology Officer at Awake Labs

<http://diegocantor.com>

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, such as investors, customers and other stakeholders.
- Solid business skills including marketing, business strategy, capital raising, technology planning and team management
- Chief Technology Officer of one of the most promising start-ups in Toronto
- Fluent in Spanish and conversational French

Recent Achievements

- Currently implementing an emotionally intelligent AI assistant that can answer natural language questions regarding the user state of mind using behavioral and physiological data (July 2017)
- 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)
- Principal 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

Chief Technology Officer Awake Labs, Canada Responsibilities: <ul style="list-style-type: none">• Developing the company's technology strategy plan to support our business model• Procuring and scaling the technological infrastructure• Developing the technical team• Identifying and developing IP opportunities to increase the valuation of the company• Designing and implementing a deep learning architecture for the mental healthcare market: brain disorders and other mental conditions.• Creating value for our stakeholders by understanding target markets needs and then fulfilling those needs through the effective use of AI	2016 - present
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

2003-2005

Projects:

- *Multi-tier systems for Superintendencia de Notariado y Registro (government)*
- *Data-warehouse system for Universidad del Rosario (education)*
- *Trading algorithms for Banco de La Republica (finance/government).*

Software Engineer

IT Consultores
Bogota, Colombia

2000-2002

Project: *Developing and maintaining business applications (Xerox's IT outsourcing)*

Technical Skills

Multiple operating systems:	Ubuntu Linux, CentOS, OS X, Windows 8
Machine learning tools:	Scikit-Learn, Caffe, MatConvNet <i>currently learning TensorFlow</i>
Programming languages and libraries:	Python, Java, C#, C++, Boost, Ruby, PHP, HTML5, JavaScript (Angular, TypeScript, JQuery, Audio/Video, RTC).
Database and data warehouses:	MySQL, PostgreSQL, Oracle, OWB, MongoDB, Redis
Computer graphics libraries:	OpenGL, WebGL, GLSL, OpenCV
Image processing software:	VTK, ITK, OpenCV, DICOM
Quality oriented:	I have experience developing unit and integration tests. I am a fearless refactorer. Knowledgeable on software design patterns. Focused on usable and maintainable code.

Recent Speaking Engagements and Invited Lectures

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