**Daniel Vargas**

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# SUMMARY

Daniel is an engineering professional with experience in product development, process improvement, and cutting-edge technologies including machine learning, artificial intelligence and Agentic AI. Focused on leveraging artificial intelligence to drive operational efficiency and streamline processes across diverse industries, including neuroscience, medical devices, aerospace, railways, consulting, banking, fitness, and consumer products. Proven ability to lead cross-functional teams, identify opportunities for growth, and implement strategic initiatives.

Areas of Expertise:

* Machine Learning, Deep Learning, Artificial Intelligence, and Machine Learning Operations (MLOps)
* Large Language Models (LLMs), Generative AI, and Agentic AI
* Product Development and Engineering
* Process Improvement and Automation

# Main Technologies: Python, Kotlin, SQL, Tensorflow / Lite, Pytorch, Azure, GCP, AWS, OpenAI, Hugging Face, W&B, ONNX.

Skills: Effective Communication, Leadership and Team Management, Strategic Thinking, and Decision Making.

# PROFESSIONAL EXPERIENCE

**Sr. Machine Learning Engineer** Montreal, QC

FightCamp Oct 2023 – Jun 2024

* Led the development of the end-to-end machine learning infrastructure and pipeline for human activity recognition, from data collection to on-device inference
* Developed neural networks for detecting and classifying boxing punches and movements using IMU (accelerometer and gyroscope signals) data, with over 95% recognition (Tensorflow Lite)
* Deployed models on Android edge devices, optimizing performance and ensuring real-time processing capabilities
* Built a Variational Autoencoder (VAE) to generate motion synthetic data, reducing data collection and annotation time

**Director, AI Development** Montreal, QC

Innodem Neurosciences Feb 2021 – Sep 2023

* Ensured compliance with electronic personal health information (ePHI) privacy and security regulations: HIPAA, PIPEDA, and GDPR
* Lead the SCRUM process, facilitating daily stand-ups, sprint planning, retrospective meetings, and ensuring that the team is adhering to agile principles and best practices
* Conducted code reviews, ensuring that code quality, maintainability, and scalability
* Managed priorities, ensuring that the team is working on the most critical and impactful features for the business

**Deep Learning Engineer** Montreal, QC

Innodem Neurosciences Feb 2019 – Jan 2021

* Trained and delivered neural network (CNN) models for eye-tracking applications (Tensorflow, Scikit-Learn, and XGBoost)
* Created and operationalized the end-to-end deep learning pipeline that covers data engineering and processing, model building, model training and evaluation, and model deployment (Python, SQL)
* Implemented model deployment capabilities (MLOps) for both on-server (ONNX, TFLite) and on-the-edge (CoreML, iOS) scenarios, also reducing model deployment cycle time from hours to minutes
* Enhanced on-device inference latency, achieving real-time (60 FPS) eye gaze predictions on-device, without losing precision
* Engineered on-device model fine-tuning (transfer learning under 5 seconds) code to enable personalized predictions for individual users
* Shortened model training pipeline duration (~13%) using mixed precision and multi-GPU (distributed) training

**Data Science Consultant [Contract]** Remote

Master Data Analysis Sep 2020 – Mar 2023

* Designed and facilitated a comprehensive data science training program for a team of 9 data analysts, resulting in a significant increase in team members' technical proficiency and ability to deliver results
* Coached and mentored data science projects (banking industry), providing guidance and expert advice, ensuring the achievement of business objectives
* Produced all program materials, including code, presentations, assignments, and projects, resulting in a cohesive and effective training program that met the needs of the team and the organization
* Setup and managed Azure infrastructure for facilitation sessions and projects execution

**Sr. Business Systems Analyst, Operational Technology** Montreal, QC

Canadian National Mar 2018 – Dec 2018

* Elicited, analyzed, and decomposed over 118 L1 business requirements (process and tools) from internal and external partners
* Created and validated current and future-state processes and tools with business partners
* Crafted an NLP model to support requirements management, decreasing elicited requirements redundancy by 8%

**Machine Learning Engineer [Contract]** Remote

Crowdbotics Nov 2017 – Apr 2018

* Developed a recommendation system for an audio streaming service for wellness content, leveraging machine learning techniques to provide personalized recommendations to users

**Project Management Lead, Electrical Systems and Fuel Inerting** Montreal, QC

Bombardier Aerospace Jul 2017 – Mar 2018

* Coordinated the team through the initiation, planning, execution, monitoring and control, and closure of the different aircraft development phases to ensure completion within the scope, schedule, and budget
* Coordinated technical integration activities with input from internal and external (supplier) stakeholders

**Continuous Improvement Specialist (ITPLM)** Montreal, QC

Bombardier Aerospace Aug 2014 – Jul 2017

* Coached and lead continuous improvement projects and workshops (VSM, visual management systems, kaizen, decision-based-schedules, root cause analysis)
  + Software interface definition documents (IDD) for aircraft builds: review and approval cycle time reduction from 40 to 30 days, rework rate improved from 33% to 7%
  + Structures dataset release process: first time right rate from 13% to 71%, lead time improved from 26 days to 19 days
  + Aircraft serialization process: discrepancies from 50% to 0%, ASL 24hr generation turnaround, total manual operations reduced from 111 to 57
  + Engineering services outsourcing process: lead time decreased from 186 to 50 days
  + In-Service customer issues process: cycle time reduced from 290 to 170 days

**Lean Six Sigma Black Belt Consultant [Contract]** Santo Domingo, D.R.

Quality Global Business Jul 2012 – Dec 2012

* Consulted, mentored and coached 21 Lean Six Sigma Black Belt projects in two nationwide industrial parks (medical devices, electrical/electronic devices, packaging); for USD$1M+ in yearly savings across 9 companies
* Partenered directly with clients to meet expectations and achieve objectives

**Technical Assurance & Validation Engineer II** Santo Domingo, D.R.

Johnson & Johnson Nov 2010 – Jul 2012

* Establishment of Site Validation Master Plan (VMP) and implementation of new validation procedures and approaches for computerized systems, equipment / process, products, cleaning, facilities / utilities and test methods
* Designed and conducted 60+ design of experiments (DOE) to define / improve processes parameters, controls, and limits
* Planned and executed 80+ validations and revalidations focused on process improvement and corrective actions / preventive actions (CAPAs)
* Lead Major product packaging improvement project (3 product lines), allowing all 3 product lines to run in the same equipment, reducing change over time by ~66% and material usage by 21%

**CEA Medical Manufacturing** Santo Domingo, D.R.

Manufacturing Engineer Jul 2009 – Nov 2010

* Successful manufacturing system transfer for: 7 steerable guide wires families, 2 ECG leads families and 3 cryogenic devices families
* Lean Six Sigma project for USD$31K+ on yearly savings and over a 2% throughput increase in sub-assemblies manufacturing
* Sub-assemblies area re-layout for 23%+ reduction in overall production floor utilization

**Process Engineering Supervisor** Santo Domingo, D.R.

Andin International Jun 2008 – Apr 2009

* Lead project for diamonds usage increase (11%), improving precious stones life cycle and inventory management
* Modularization of the workshop-based production system while reducing 16% + of the assembly space usage

**Intermodal and Equipment Control Coordinator** Santo Domingo, D.R.

Maersk Line Jul 2007 – Jun 2008

* Lead the SAP deployment and implementation in the Caribbean cluster (Central America – Caribbean)

# EDUCATION

**MEng. Engineering Management** Ottawa, ON

University of Ottawa

**BEng. Industrial Engineering** Santo Domingo, D.R.

Instituto Tecnológico de Santo Domingo (INTEc)

# CERTIFICATIONS

* **Generative Adversarial Networks (GANs) –** DeepLearning.AI (Jul 2023)
* **Natural Language Processing (NLP) –** DeepLearning.AI (Jun 2023)
* **Machine Learning Engineering for Production (MLOPs) –** DeepLearning.AI (Nov 2021)
* **Azure Data Scientist Associate –** Microsoft (Nov 2020)
* **Microsoft Professional Program in Artificial Intelligence –** Microsoft (Jul 2018)
* **Deep Learning –** DeepLearning.AI (Mar 2018)
* **Certified Lean Six Sigma Black Belt (CLSSBB) -** Six Sigma Development Group, LLC (Jun 2012)