Daniel Vargas

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SUMMARY

Machine Learning and AI professional with extensive experience in developing and implementing AI solutions to streamline processes and enhance operational efficiency. Proficient in leveraging machine learning, deep learning, and AI technologies to drive innovation in diverse industries such as medical devices, aerospace, and consumer products. Demonstrated expertise in end-to-end AI project management, from data collection to model deployment, with a strong focus on process automation. Experienced in leading cross-functional teams, optimizing AI models, and ensuring compliance with industry regulations.

- Programming: Python, SQL
- Frameworks: TensorFlow, PyTorch, ONNX, Hugging Face, LangChain, LangGraph
- Cloud/MLOps: AWS, GCP, Azure, MLFlow, Weights & Biases
- Generative AI: OpenAI, RAG, Graph-RAG, Prompt Engineering, Agentic AI
- Edge Deployment: TensorFlow Lite, CoreML

PROFESSIONAL EXPERIENCE

Principal Machine Learning Engineer [Freelance]   Montreal, QC (Remote)

Lateral AI   Jul 2024 – Current

- Developed an AI-powered procurement item-matching system for a car parts retailer, utilizing large language models (LLMs + LangChain). This solution reduced matching time by 91.6%, significantly improving procurement efficiency
- Delivered an AI Agent-powered system tasked with automatically extracting key data from invoices (pdf, images, etc.)
- Built a Generative AI-powered ISO13485 document compliance solution, leveraging AI agents (LangGraph) to reduce review time by 92.5%, enhancing quality standards compliance

AI Advisor   Montreal, QC (Remote)

Queva   Feb 2024 – Sep 2024

Sr. Machine Learning Engineer   Montreal, QC / Costa Mesa, CA (Remote)

FightCamp   Oct 2023 – Jun 2024

- Designed and implemented the development of the end-to-end machine learning infrastructure and pipeline for human activity recognition (tracking), from data collection to on-device inference
- Developed neural networks (CNNs) 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 for over 20k users
- Built a Variational Autoencoder (VAE) to generate motion synthetic data, reducing data collection and annotation time

Director, AI Engineering   Montreal, QC (Remote)

Innodem Neurosciences   Feb 2021 – Oct 2023

- Ensured compliance with electronic personal health information (ePHI) privacy and security regulations: HIPAA, PIPEDA, 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
- Managed priorities, ensuring that the team is working on the most critical and impactful features for the business

Sr. Machine Learning Engineer [Contract]   Montreal, QC (Remote)

Innodem Neurosciences   Feb 2019 – Jan 2021

- Trained and delivered neural network (CNN and ResNet) models for eye-tracking applications (Tensorflow, Scikit-Learn, and XGBoost)
- Created and operationalized the end-to-end deep learning pipeline (AWS) 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

Data Science Consultant [Freelance]   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
- Crafted an NLP model to support requirements management, decreasing elicited requirements redundancy by 8%

Machine Learning Engineer [Freelance]   Remote

Aura Heath (Crowdbotics)   Nov 2017 – Apr 2018

- Developed a recommendation system for an audio streaming service for wellness content, accomplishing over 97% accuracy in recommendations

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

Bombardier Aerospace   Jul 2017 – Mar 2018

- Supported the team through the initiation, planning, execution, monitoring and control, and closure of the different aircraft development phases, handled under the change management process, to ensure completion within the scope, schedule, and budget established in the Statements of Work (SOW) and Product Change Requests (PCR)
- 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, kaizen, decision-based-schedules, knowledge diagrams, etc.)
    - Software interface definition documents (IDD) for aircraft builds: lead time reduction from 40 to 30 days, rework rate reduced from 33% to 7%
    - Structures dataset release process: first time right rate from 13% to 71%, lead time reduced from 26days to 19 days
    - Aircraft serialization process: discrepancies from 50% to 0%, ASL 24hr generation turnaround, total manual operations reduced from 111 to 57
    - Outsourcing engineering services lead time from 186 to 50 days
    - Developed a machine learning model to predict most critical load cases from external loads in conceptual design

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

Quality Global Business   Jul 2012 – Dec 2012

- Consulting, mentoring and coaching 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

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 focused on process improvement and corrective actions / preventive actions (CAPAs)
- Lead Major product packaging improvement (3 product lines), 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 & CERTIFICATIONS

Natural Language Processing (NLP) – DeepLearning.AI   2023

Generative Adversarial Networks (GANs) – DeepLearning.AI   2023

Machine Learning Engineering for Production (MLOPs) – DeepLearning.AI   2021

Azure Data Scientist Associate – Microsoft   2020

Machine Learning Engineer Nanodegree – Udacity (Online)   2019

Deep Learning – DeepLearning.AI   2018

Professional Program in Artificial Intelligence – Microsoft   2018

Data Science Specialization - The Johns Hopkins University (Online)   2017

MEng. Engineering Management - University of Ottawa (Ottawa, ON)   2014

BEng. Industrial Engineering - Instituto Tecnologico de Santo Domingo (INTEC) (Santo Domingo, D.R.)   2008

Certified Lean Six Sigma Black Belt (CLSSBB) - Six Sigma Development Group, LLC (Santo Domingo, D.R.)   2012