

ANDRÉS CARVAJAL

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EXPERIENCE

DeepMake

Machine Learning Engineer

Apr. 2023 – Present

Remote, USA

At DeepMake AI (seed-backed by Open Core Ventures and the CEO of GitLab), I spearheaded the creation of a suite of AI-powered tools for visual artists and producers, enhancing video editing workflows across platforms, including cloud services and local software like Adobe After Effects, and operating systems such as Windows, Linux, and macOS. We developed four VFX plugins (Bisenet, GroundingDINO-SAM, Stable Diffusion, Super Resolution), a standalone multiplatform upscaler, and a cloud-based AI segmentation tool using state-of-the-art models for segmentation and object tracking. Our products reached over 10,000 customers and achieved post-revenue status, attracting users that include creative professionals from Netflix, CNN, Apple, and the BBC. My focus was on developing generative AI tools using PyTorch, TensorFlow, FastAPI, microservices, and Python, and implementing advanced segmentation algorithms and upscaling methods to build a comprehensive visual effects suite and video processing algorithms. I also worked with deepfakes, autoencoders, and diffusion models, including training LoRAs and fine-tuning models for specific tasks. The models were deployed with a focus on high-performance computing using CUDA, delivering efficient and scalable solutions for visual effects and creative media production.

SharpestMinds

Data Science Fellowship with Mailchimp's Manager Data Scientist

Sep. 2022 – May. 2023

Remote, USA

During a fellowship with Mailchimp's Senior Data Scientist at SharpestMinds, I mastered end-to-end data science workflows. Developed NLP models for email content classification and customer sentiment analysis, enhancing targeted marketing strategies.

Peaku.ai

Full Stack Developer

Sep. 2022 – Mar. 2023

Remote, USA

As a Full Stack Developer at Peaku.ai, I worked on developing backend models and endpoints related to candidate matching using Django REST framework. Focused on backend development, implemented a machine learning model using Random Forest for candidate classification based on predictors, enhancing the matching process between employers and candidates. Utilized Docker for deployment and collaborated on UI/UX design strategies.

CAREL USA

Software Developer, Automation Engineer

Jun. 2022 – Apr. 2023

Hybrid / Roswell, GA

At CAREL USA, as a Software Developer and Automation Engineer, I engineered innovative HVAC/R control systems incorporating advanced protocols and IoT for energy efficiency. Developed software using Structured Text programming language, similar to Pascal, for programmable logic controllers (PLCs). Leveraged data science for system analysis and revenue forecasting, and enhanced user interaction through JavaScript interfaces.

Data Science - ML Projects

- Electronic Health Records AI assistant - React - FastAPI - Vertex AI - GCP - Gemini.
- Interior Design Generator - Vue.js - FastAPI.
- Fuzzy Wuzzy Matching Project.

- Summarization and translation from YouTube videos using mT5 transformers.
- MasterCard stock price time series forecasting using LSTM and GRU.
- Simple-Movie-Recommender and Content-Based Recommender from IMDB movies dataset.
- Multiclass prediction and clustering for music genre.

EDUCATION

Universidad de Los Andes UNIANDES

Master of Science in Civil Engineering (STEM),

Emphasis in Geotechnical Engineering

Advisor: PhD. Nicolas Estrada Mejia;

[Thesis: “Why the landslide size is a characteristic of fractal behavior?”](#)

Bogotá D.C, Colombia

Jun. 2021

Universidad Pontificia Bolivariana UPB

Bachelor of Civil Engineering

Advisor: PhD. Sandra Rocío Villamizar;

[Thesis: “Waste utilization scheme common solid points for the UPB under the concept of circular economy.”](#)

Bucaramanga, Colombia

Dec. 2017

SKILLS

- **Programming Languages:** Python, MATLAB, R, Swift, Bash scripting.
- **Frameworks and Libraries:** NumPy, Pandas, Scikit-learn, TensorFlow, PyTorch, Keras, OpenCV, ONNX, CUDA.
- **DevOps and Tools:** Git, Docker, Kubernetes, Linux/Unix Shell Scripting, CI/CD pipelines, Parallel and Distributed Computing.
- **Front-end Development:** HTML, CSS, JavaScript, Vue.js, Streamlit, Gradio.
- **Back-end Development:** Flask, Django, FastAPI.
- **Mobile and AR/VR Development:** Swift, SwiftUI, ARKit, RealityKit, SceneKit for iOS, PoseNet for 3D models and pose estimation in AR.
- **Visualization and Design Tools:** Excel, R Studio, Matplotlib, Seaborn, GeoPandas, Figma, Adobe Photoshop, ArcGIS, D3.js.
- **AI Artist Tools:** MidJourney, Stable Diffusion, Adobe Firefly, ComfyUI, Magnific/Krea, LUMA, Eleven Labs, DALL-E, Runway.
- **Machine Learning and AI:**
 - **Supervised Learning:** Linear and Logistic Regression, Random Forest, XGBoost, Perceptrons, Multilayer Perceptrons (MLP), Support Vector Machines (SVM), Decision Trees, Gradient Boosting Machines, K-Nearest Neighbors (KNN), Naive Bayes, Ensemble Methods.
 - **Unsupervised Learning:** Clustering (K-means, DBSCAN, Hierarchical), PCA, t-SNE, Autoencoders, Self-Organizing Maps (SOMs), LDA, ICA.
 - **Deep Learning:** CNNs, RNNs, LSTMs, GANs, VAEs, Transformer Networks, Attention Mechanisms, Reinforcement Learning.
 - **Computer Vision:** OpenCV, Generative Diffusion Models, Gaussian Splattings, 3D Point Cloud AI, Video Generation, OpenPose, Segment Anything Model (SAM).
 - **Natural Language Processing:** SpaCy, NLTK, Transformers, GPT models, T5, BERT, TF-IDF, Lemmatization, Named Entity Recognition (NER).
 - **Large Language/Multimodal Models and Frameworks:** LLaMA, GPT-3.5, GPT-4, Gemini, LangChain, LoRA, Chain-of-Thought, ReACT, RAG, DSPy.
- **Cloud Platforms:** Google Cloud Platform (Vertex AI, Compute Engine, Cloud Storage, BigQuery, Firebase), AWS (S3), Runpod, Replicate.
- **Database Management:** SQL (MySQL, PostgreSQL, SQLite), NoSQL (Redis).