Natalie Olivo

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US Citizen

Professional Summary

AI/ML Engineer with 8+ years of experience designing and deploying scalable machine learning systems, data pipelines, and AI-powered solutions across government, insurance, and supply chain sectors. Proven track record of architecting enterprise-scale ML frameworks, building agentic AI systems, and leading cross-functional technical initiatives.

Core Technical Skills

Machine Learning & AI: PyTorch, Huggingface, Reinforcement Learning from Human Feedback (RLHF), MCP, Agent development and patterns, Supervised Fine Tuning, Random Forest, Feature Engineering, Exploratory Data Analysis (EDA)

Cloud & Infrastructure: AWS (Textract, GroundTruth, Batch, S3, Athena), Azure (AI Foundry, Functions, DevOps), Docker, Terraform, Microservices, Event-Driven Architecture, Kubernetes

Data Engineering: PySpark, SQL, Relational Databases, Data Pipelines, ETL/ELT

Development & MLOps: CI/CD, FastAPI, API Development, pytest, Prefect, Git, Version Control, Visual Studio Code IDE and extensions

Specialized Tools: ONNX, Edge Deployment, Tableau, Diffbot, Tweepy

Languages: Python, SQL, .NET, Visual Basic

Professional Experience

Artificial Intelligence Engineer

Omada | Full-time | Nov 2024 - Present (1 yr 1 mo)
 Alicante, Valencian Community, Spain · Hybrid

- Scaled an event-driven service from experimental collaborative filtering prototype, exposing anomaly detection capabilities as RESTful tools for LLM chatbot agent
- Collaborated with SMEs to generalize anomaly scoring for diverse organizational models and implemented configurable hierarchical scoring separating data-driven clustering from customer-defined groupings, maintaining mathematical validity through proper vector normalization

Skills: Mathematical Programming · Agentic Architecture · AI Product Development · sklearn

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Data Engineer Lead

Progressive Insurance | Full-time | Jan 2024 - Jul 2024 (7 mos)
Cleveland, Ohio, United States · Remote

- Architected service orchestration platform implementing patterns that later formalized as MCP and LangGraph: built standardized interface layer coordinating legacy and novel services (LLM APIs, template systems, feedback collection, data storage) through plugin architecture, composition workflows, and interchangeable components
- Served 22K users with production reliability while enabling researchers to swap LLM providers and prompts via configuration, reducing iteration cycles from months to days

skills: Microservices · AI Software Development · API Development

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Data Science Consultant - Top Secret Clearance

Various | Full-time | Apr 2023 - Jan 2024 (10 mos)
Cleveland, Ohio, United States · Remote

- Supplemented existing image segmentation pipeline with jurisdiction classification by first extracting plate features scraped from public sources (scrapy), indexing those features, and performing nearest neighbor search - similar to RAG but for images
- Leveraged existing tools to create drift detection tool, which established benchmarks and alternative processing for non-ideal image-capture conditions
- Delivered rapid prototyping and repeatable patterns with customized CI/CD pipelines
- Developed iterative roadmaps for solutions leveraging key industry tools, techniques, and methodologies

Philosophy: Technology should serve business outcomes, not the reverse

Skills: PyTorch · Edge Deployment · ONNX · Supervised Fine Tuning · Strategy · Software Deployment · Technology Adoption · FAISS

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Machine Learning Engineer II

Interos Inc | Full-time | Jan 2022 - Oct 2022 (10 mos)
Arlington, Virginia, United States

- Architected and scaled an orchestrator coordinating ML models, human validation, and knowledge graph ingestion
- Built information parsing framework for multi-modal document processing (PDFs, images, tables), implementing entity matching, data normalization, and deduplication across diverse document formats and sources
- Crafted features which supported re-training of models, research tooling, and governance using version control, CI/CD pipelines, and thoughtful database schema and API design

Clients: NASA, DOD, Mastercard, MassMutual, Delta, CONFIDENTIAL

Skills: Reinforcement Learning from Human Feedback · Event-Driven Architecture · Huggingface · AWS Textract · AWS GroundTruth · PySpark · CI/CD · Relational Databases · Kubernetes

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Machine Learning Engineer

Interos Inc | Full-time | Oct 2019 - Jan 2022 (2 yrs 4 mos)
Arlington, Virginia

- Shipped DAGs that automate key information discovery: scraping company websites, routing proposals to Human-in-the-Loop validation, and storing verified relationships as structured data.
- Created a rigorous unit-testing framework enabling reliable simulation of external dependencies and catching issues previously only observed in production
- Led a monthly ML research reading group focused on emerging methods and foundational papers

Skills: FastAPI · Exploratory Data Analysis · Creative Problem Solving · Database Tools · Docker · pytest · Prefect Dataflow Automation

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Machine Learning Engineer

SoKat.co | Nov 2018 - Sep 2019 (11 mos)
Washington D.C. Metro Area

Contractor to Dovel Technologies, contracted by Grant Solutions of The Department of Health and Human Services to create and support 2-time Government Innovation Award winning product **Recipient Insight**. Recipient Insight is an artificial intelligence / machine-learning (AI/ML) -powered intelligent risk analysis tool that helps safeguard Federal grant investments by bringing together critical data and analysis from more than seven publicly available sources.

- Engineered a distributed PySpark pipeline on EMR with AWS Batch orchestration, an internally managed precursor to what AWS Glue later standardized for serverless Spark workloads
- Created a TF-IDF-powered entity-resolution tool used to match DUNS and EIN identifiers to organization name and address

Skills: SQL · Feature Engineering · Random Forest · Machine Learning Algorithms · AWS Batch · PySpark · Tableau · System Architecture · Terraform

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Projects

CuyaCourts

Jan 2023 - Dec 2023

A database of Cuyahoga County's Criminal Court Case docket, available for download. Inspired by Harvard's Caselaw Access Project and many others. A community asset to support educational content on data literacy and technology.

Technologies: Selenium · boto3 · SQLAlchemy ORM · PostgreSQL · AWS Lambda · AWS ECR · AWS RDS · AWS IAM · GitHub Actions

Site: https://nmolivo.github.io/cuyacourts/ | GitHub: https://github.com/nmolivo/case_scrape

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Certifications

- **Data Integration and API Development for AI Applications**
- **AWS Certified Cloud Practitioner**
- **Advanced SQL for Application Development**
- **Developing CI/CD Solutions with Azure DevOps**
- **Introducing Semantic Kernel: Building AI-Based Apps**

Education & Training

Immersive Data Science Bootcamp

General Assembly | Sep 2017 - Dec 2017 (4 mos)
 Washington DC-Baltimore Area

Participated in a 12-week, full-time, project-based training program that focuses on statistics, data analysis, visualization, and machine learning.

- Curriculum included labs, five projects, a personal website, a personal blog, and a final Capstone Project. Projects were conducted as business cases where communication skills were strongly emphasized
- Completed project with Industry Partner which prescribed ways to drive tweet engagement [Tweepy, AWS Rekognition, Random Forest]
- Made a web scraper then applied supervised and unsupervised learning, predictive and classification algorithms to identify what characteristics of a post make it likely to go viral
- Won a blogging competition by conducting research on the Effectiveness of Humanitarian Aid. Used a boosted tree-based model with feature importance plots and partial dependency plots for interpretation
- Portfolio: https://nmolivo.github.io/website/

Skills: Experimental Design · SQL · Creative Problem Solving · Data Cleaning · Mathematics · Statistical Analysis · Feature Engineering · EDA · Hypothesis Testing · Exploratory Data Analysis · Mathematical Programming · Data Analytics · Relational Databases

Bachelors of Science in Actuarial Science

Ball State University | Sep 2009 - May 2013
 Muncie, Indiana

- Passed Society of Actuaries exams, financial mathematics in Aug 2011, probability and statistics in May 2012
- Served as president of Gamma Iota Sigma, Risk Management and Insurance Professional Fraternity
- VP Finance for social sorority Alpha Chi Omega

Awards & Recognition

- Supported **2-time Government Innovation Award winning product** (Recipient Insight)
- Won blogging competition at General Assembly for research on Effectiveness of Humanitarian Aid
- Interos Virtual Talent Show Winner - Live piano and vocal performance

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Early Career Experience

Senior Vendor/Industrial Base Analyst

Pantheon Integrated Solutions, Inc. | Apr 2018 - Oct 2018 (7 mos)
Washington DC-Baltimore Area

Applied data science solutions and strategies to the Department of Navy's VIRGINIA Class Program Office.

- Established and incorporated machine learning capabilities to enhance program management support, including cost estimating, earned value management, supplier base management, financial management, and logistics
- Created data pipelines for ever-growing data sets, including labor hour and material cost data from prime shipbuilders and sub-tier vendors, capacity constraints, supplier-customer relationships, and other public source information

Skills: Experimental Design · Creative Problem Solving · Data Cleaning · Mathematics · Statistical Analysis · EDA · Exploratory Data Analysis · Mathematical Programming · Data Analytics · Relational Databases

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Actuarial Contractor

Lynchval Systems Worldwide Inc | Mar 2017 - Mar 2018 (1 yr 1 mo)
The Pension Benefits Guarantee Corporation (PBGC)

- Worked on client site with a team to deliver an annual data scraping, collecting, and validation process for Pension Insurance performance projections
- Over a span of 15 weeks, utilized the Department of Labor Form 5500 website, Visual Basic Macros, MS Excel, and proprietary software to create a database for 450 Single-employer plans and 250 Multi-employer plans for the 2015 plan year

- Automated a number of checking and reasonability processes by writing Visual Basic macros and teaching team members how to use and modify them, shaving a day's work off of each week of the project
- Consistently reached personal deadlines early to assist with managerial tasks and conduct bigger-picture reasonability checking
- Advanced to manager of a pricing trial for a historical Multi- and Single Employer plan data correction initiative

Skills: SQL · Employee Benefits · Data Cleaning · Mathematics · Statistical Analysis · EDA · Hypothesis Testing · Exploratory Data Analysis · Mathematical Programming · Data Analytics · Relational Databases

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Actuarial Analyst

Willis Towers Watson | Jul 2013 - Jun 2016 (3 yrs)
Greater Boston

- Assisted in bulk lump sum offerings and accrued benefit computation projects by engineering plan specific spreadsheets and macros to produce bulk benefit calculations
- Completed pension valuation work per PPA, PBGC and ASC guidelines using client data and proprietary valuation systems
- Served as internal office resource and mentor in preparing government forms and using new submission software
- Simplified reporting processes by automating and maintaining client specific spreadsheets
- Manipulated and analyzed large data sets using company-specific tools to develop annual plan liability projections

Skills: Employee Benefits · Data Cleaning · Mathematics · Statistical Analysis · EDA · Exploratory Data Analysis · Mathematical Programming · Data Analytics · Relational Databases

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Actuarial Intern

Mercer | Jun 2012 - Aug 2012 (3 mos)
Louisville, Kentucky

- Specialized in the completion of annual IRS government forms for qualified retirement plans
- Assisted in producing actuarial valuation reports for defined contribution pension and post-retiree medical plans

- Generated and reviewed employee-specific pension calculations with proprietary software and plan documents

Skills: Employee Benefits · Data Cleaning · Mathematics · Statistical Analysis · EDA · Exploratory Data Analysis · Mathematical Programming · Data Analytics · Relational Databases

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Actuarial Intern

CNA Insurance | Jun 2011 - Aug 2011 (3 mos)
Chicago, Illinois

- Contributed to an ongoing Reserve Review for Professional Liability automotive, worker's compensation, property and general liability lines of insurance
- Analyzed past claims data to develop and justify loss development factors used to project future losses
- Collaborated with internal business divisions to compare different loss reserve development methods

Skills: SQL · Employee Benefits · Data Cleaning · Mathematics · Statistical Analysis · EDA · Data Analytics · Relational Databases

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Actuarial Intern

Swiss Re | May 2010 - Aug 2010 (4 mos)
Fort Wayne, Indiana

- Evaluated Life and Health reinsurance pricing with industry specific software
- Attended seminars and completed assignments over different aspects of actuarial work in Life and Health Reinsurance

Skills: Employee Benefits · Data Cleaning · Mathematics · Statistical Analysis · EDA · Data Analytics · Relational Databases