JEFFREY M. LUTZ

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MACHINE LEARNING SPECIALIST / DATA SCIENTIST

HIGHLY ACCOMPLISHED PROFESSIONAL WITH A TRACK RECORD OF INNOVATION AND SUCCESS — Offer a history of contributions in Big Data and a recent focus/training in Machine Learning. Engaged in Deep Learning, Computer Vision, Sensor Fusion, Localization, Control, Path Planning, and Systems modules. Background introducing and guiding the adoption technologies to provide cost-effective means to capture, integrate, analyze, and report data.

EXPERTISE IN ALL FACETS OF THE SOFTWARE DEVELOPMENT LIFECYCLE — Proven success in leveraging Agile and RUP development methodologies to enhance the capture and alignment of technology investments with business goals.

EXPERIENCED IN ARCHITECTING CLOUD PLATFORMS — Strength in designing robust and highly available AWS Cloud platforms ingesting, cataloging, and processing large volume of traffic from disparate data sources.

TARGET OPPORTUNITIES & EXPERTISE ALIGNMENT

Actively pursuing senior-level AI/ML engineering roles that leverage my deep expertise in production ML systems, with particular focus on:

- **AI Platform Architecture:** Building centralized AI infrastructure and acceleration solutions for LLMs, computer vision, and multi-modal perception systems. Experience with edge inference optimization, model serving at scale, and MLOps best practices.

- **Autonomous Systems & Robotics:** Developing perception pipelines for real-time sensor fusion, object detection/tracking, and acoustic sensing in compute-constrained environments. Proven ability to deploy models on embedded platforms (NVIDIA Jetson, Coral).

- **Production ML Engineering:** 8+ years designing, scaling, and maintaining ML services with expertise in LLMs, GNNs, deep learning, and computer vision. Proficient in Python,

C++, TensorFlow, PyTorch, and cloud-native technologies.

- **Generative AI & Diffusion Models:** Experience with transformer-based architectures, diffusion models for image generation, and building production-ready AI features integrated with major LLM providers (OpenAI, Anthropic, Google).

Key Technical Competencies: MLOps · Kubernetes · Docker · AWS/GCP · TensorRT · Apache Airflow · Spark · Kafka · Snowflake · Databricks · Model interpretability · AI security & compliance

CONSULTING EXPERIENCE

ECS TECHNOLOGIES INC · Arlington, VA – 6/2021 – PRESENT

Generative AI Architect, 6/2021-PRESENT

AGILE ANSWERS, LLC · Columbus, OH

Data Science Solutions Architect, 3/2016-6/2021

APEX SYSTEMS - Washington DC - 9/2015 – 2/2016

Solutions Architect, 9/2015 – 2/2016

AGILE ANSWERS, LLC · Columbus, OH

Solutions Architect, 11/2004-9/2015

Consult with leadership, technical, and business teams to identify needs, isolate issues, define strategy, and fuel architectural design of value-driven solutions to enhance decision-making, reduce costs, and meet regulatory requirements. Completed extensive training and professional development in machine learning, C/iOS, Data Science, and R programming. Amassed deep experience with Kafka/KSQL, Confluent, Python / Jython, and Virtualenv (Python 3), in addition to Anaconda for machine learning with Scikit and TensorFlow. **KEY ENGAGEMENTS INCLUDE—**

State of Ohio Department of Transportation, 2018-present

Retained as Cloud Architect for strategic program to build 2 AWS Cloud platforms capable of ingesting, cataloging, and processing large public datasets for the City of Columbus, and transportation data for the Department of Transportation.

- **Enabled real-time accessibility of critical transportation services data for the City of Columbus and the general public.** Architected the AWS Cloud platform to capture

and process data from multiple data sources. Designed performance requirements, and leveraged Kafka/KSQL, Confluent Connect, Confluent Schema Registry, and Kubernetes to ensure high availability of all applications and support high volume of traffic.

- **Built a comprehensive DevOps/GitOps environment to accelerate architecture delivery**; automated testing, continuous integration, code stream branching and merging, and build generation and deployment.

- **Advanced the City of Columbus' mission to build a smart and friendly city by developing cutting-edge technology leveraging computer vision and deep learning techniques.** Created solutions to address problems in object detection, localization, recognition, tracking, and biometrics. Developed software utilizing Tensorflow and Keras libraries to optimize bus schedules and parking availability.

- **Improved ODOT's decision-making on traffic management.** Architected the AWS Cloud platform to centralize and improve visibility of critical data for dangerous slowdown detection and queue formation detection.

- **Developed limited CPU resource solutions for edge machine learning video processing** to enable the Ohio Department of Transportation to gather traffic data from sensors.

Department of Homeland Security, 2014-2018

Engaged as a software Architect porting 17 mission-critical JEE and C++ applications to AIX OS and Weblogic 12C, executing project 60 days ahead of schedule and under budget. Triaged, diagnosed, and resolved problems with concurrency of processing messages within J2EE and C++ applications. Designed an automated testable application allowing SME the freedom to proceed without technical support. Leveraged docker containers for releases.

- **Addressed headcount challenges by introducing automation**—CI, functional testing, and DevOps—to maximize productivity with minimal resources, bringing project to a close 2 months ahead of schedule and under budget.

- **Introduced agile principles and unit tests across all code (87% code coverage per Sonar);** set-up Jenkins Continuous Integration for automated build, using Maven for build scripts and Nexus for artifact repository.

- **Formulated an environment with two production environments**—active and inactive —to allow for update deployment during business hours and instantaneous change to a network switch (BigIP/F5).

Citigroup, 2012-2015

Recruited as the Subject Matter Expert (SME) to assist in establishing the Big Data & Analytics Department. Following success, retained to analyze and develop proof of concept (POC) utilizing Big Data technologies to reduce costs. Created a scalable Flume NG design that enhanced the administration of file- and socket-based content.

- **Played a pivotal role in building the Hadoop ecosystem** to centralize and enhance visibility of 1.3+ petabytes of transactional data. Trained staff on Big Data, and offsite developers on Datameer and Shark BI platforms.

- **Recommended the migration of mail activity data** from proprietary technology to Hadoop / Hive environment to realize $1.34+ million in savings in 3 years.

- **Delivered $21+ million in technology upgrade costs** on architecting and presenting an Impala-based proof-of-concept design for stock trading activity data.

- **Championed the integration of network router activity log data** into Impala / Hive, reducing costs of auditing network activity and meeting new regulatory requirements.

Ohio Department of Mental Health, 2011 to 2012

Led development of a web-based, automated billing system, leveraging Cassandra for high availability multi-master data store and Hadoop for batch processing. Architected initial proof-of-concept design, captured requirements, and led team of 7 in delivering the open-source billing system that replaced costly mainframe application with a commodity-based platform. Introduced domain-driven design and test-driven development methodologies across the enterprise.

- **Drove the adoption of Agile development methodology and Jquery and Knockout technology** that enabled the rapid prototyping of solutions and the capture of more detailed business requirements.

- **Advocated value-proposition of Hadoop and Cassandra technologies**; developed proof-of-concept, demonstrating effectiveness to reduce processing timeframe from 6+ hours to less than 30 minutes.

- **Introduced Clojure-based Pallet configuration management and provisioning tool** that greatly reduced costs of provisioning SuSe Linux platforms. Educated infrastructure

team on new technology.

Honda of America, 2005-2011

Retained to enhance and scale newly developed ERP system to enable the successful rollout to 12 additional manufacturing sites. Based on success, led the full lifecycle design and development of new systems to automate manual processes, eliminate legacy systems, and reduce downtime of manufacturing operations.

- **Gained approval from leadership to utilize Big Data technologies** to solve large-scale manufacturing problems. Developed proof of concepts to address failure of commercial software using relational database. *yielded a 23% reduction to maintenance-related downtime; provided the means to assess productivity across the enterprise.*

- **Recommended and built a configuration management platform and source code repository** that provided a standardized means to track and control changes across portfolio of 52 applications. Solution provided a reliable means to rebuild an environment while reducing human errors and achieving Sarbanes-Oxley compliance.

- **Led the redesign and development of J2EE-based ERP system** that allowed 14 manufacturing sites to access key data. Introduced Hadoop framework to enable parallel processing and reporting across 2,000 data nodes.

- **Redesigned persistence layer for ERP system** and developed SQLJ bound data packages to abstract data residing on DB2 database; reduced CPU processing on the Mainframe and eliminated $774K Mainframe upgrade.

- **Architected manufacturing control system for new plant** in Indiana leveraging Java, Spring, and WebSphere 6.1 technologies. Led team of 15 in developing new distributed application to effectively control production lines.

- **Designed and contributed to developing a Java-based VIN stamping assembly line application** to replace legacy system. Application integrated with PLC and RFID devices to automatically create VIN tags for vehicles.

- **Played a pivotal role in building a new Java stamp conveyor storage system** to eliminate potential production downtime. Developed physical and logical models, created rules, and designed control application.

- **Member of Incident Response Team** charged with analyzing and resolving critical application issues. Identify root causes and collaborate with application, networking,

database, and infrastructure teams to implement solutions.

Motorist Insurance, 2004-2005

Guided the full lifecycle design of a web-based eQuote system aligned with newly developed Risk Assessment Model utilizing Service-Oriented Architecture (SOA). Conducted a comprehensive assessment of existing applications to determine robustness for rapid user growth. Identified issues and redesigned persistence layer leveraging a Spring framework to improve overall scalability. Architected, designed, and delivered a robust eQuote system.

- **Developed a liability exposure rules engine to automatically capture** data from DB2 z/OS system in adherence to response time goals. Implemented an object-caching approach to share Java objects in a large memory pool.

- **Advocated for the migration of Java applications** from WebSphere under z/DB2 to Tomcat under Linux, eliminating performance issues. Demonstrated the effectiveness of Open Source technologies to infrastructure team.

EDUCATION

THE OHIO STATE UNIVERSITY

Bachelor of Science (BS), Electrical Engineering

PROFESSIONAL DEVELOPMENT

Udacity's Self-Driving Car Nanodegree Program, 2017

Completed year-long, hands-on program that applied computer vision and deep learning to solve complex problems and program Udacity's real self-driving car leveraging C++, Keras ML library, and Python.

- Developed software pipeline to identify the land boundaries in a video from a front-facing camera on a car, build and train deep neural networks to classify traffic signs, create an Extended Kalman Filter to handle data from multiple sources, program a particle filter to determine the precise location of a vehicle, build candidate trajectories for the vehicle to follow, and implement a PID controller to maneuver the vehicle around the track.

- Collaborated with team to integrate developed solutions into a vision-based navigation system to drive Udacity's autonomous vehicle around the track.

TECHNICAL KNOWLEDGE

Cloud & DevOps: Kubernetes · KubeFlow · Kafka/SQL · Docker & GPU · GitOps/Flux CD · AWS/Terraform/EKS

Machine Learning Tools: TensorFlow, Keras, Jupyter Notebooks, Pandas, scikit-learn, Flask, OpenCV & NumPy Python Machine Learning Tools