Zeeshan Hooda

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Toronto, CAN (Relocating to Melbourne, AUS)

EXPERIENCE

- **OpsGuru, A Carbon60 Company** — Toronto, CAN

  Senior AI/ML Engineer — *Oct 2023 - Present*
    - **Large Language Models**: Reduced analysis times of qualitative surveys by 95% for a Customer Experience Management client using DSPy, fine-tuned LLMs on Amazon Bedrock, and classical NLP with spaCy.
    - **Deep Learning**: Assessed and optimized bespoke 1D U-Net segmentation algorithms for an Energy Sector client to enable online leak detection of 11,800 pipeline miles globally.
    - **Machine Learning**: Analyzed a machine learning system to optimize XGBoost promotion targeting models for a Toll Highway Operator, reducing training times and saving US$1M in annual engineering hours.
    - **Machine Learning Operations**: Designed and implemented 10+ MLOps solutions on Amazon SageMaker, developing process, infrastructure, and training materials for each stage in the MLOps workflow.

  Senior Data/ML Engineer — *Oct 2022 - Oct 2023*
    - **Large Language Models**: Engineered a chatbot RAG system for interacting with internal knowledge bases, outperforming Amazon Q by 90% on question-answsering tasks using Amazon Bedrock, Chainlit and Terraform.
    - **Professional Services**: Led cross-functional teams in 20+ Data, ML, and MLOps engagements from pre-sales to completion, including discovery, talent casting, report creation, implementation, and escalations ;-).
    - **Data Architecture**: Designed complex cannonical data models for public sector clients in highly regulated environments, receiving CSAT scores of 9.8+/10.0 for efforts to deeply understand customer domains.

- **Smart Access** — San Francisco, USA

  Lead Data Scientist — *Oct 2021 - Oct 2022*
    - **Clickstream Analytics**: Designed a platform analytics service to collect 20M+ events weekly, and implemented data contracts to enable high-confidence analysis of multi-event, multi-session clickstreams.
    - **Machine Learning**: Reduced seasonal employee turnover for a Fortune 500 customer by 30% using survival analysis to predict 'time-to-quit', enabling early intervention and saving US$4M in annual onboarding costs.
    - **Leadership**: Staffed and supervised a team of 5 data scientists, engineers, and analysts, balancing ad-hoc analysis requirements with long-term platform goals and maintenance.

  Data Scientist — *Apr 2021 - Oct 2021*
    - **Natural Language Processing**: Improved relevance of search results by 70% using lemmatization, synonymization, and thematic clustering techniques to enable semantic search of platform content.
    - **Data Architecture**: Architected and implemented a self-serve data platform on GCP using BigQuery, Dataproc, Debezium, Airflow, Superset, and Python, increasing data freshness by 20x.

- **SensorUp** — Calgary, CAN

  Data Scientist — *Sept 2018 - Sept 2020*
    - **Computer Vision**: Trained and deployed an edge hazard detection service for remote industrial sites reducing hazard reaction time by 75% using AWS Lambda, Python, OpenCV, YOLO, and NVIDIA Jetson devices.

PROJECTS

- **LegalCoder**: LLM-based annotator for legal texts to produce verifiable code implementations in the Catala DSL.
- **IHL**: Research language for structured programming of LLM-based applications as a type-safe alternative to DSPy.
- **InaraNet**: Involutional neural network system for detecting antimicrobial properties from peptide sequences.
- **M2K Classifier**: Machine learning system to identify child-appealing food marketing using PyTorch and scikit-learn.

SKILLS

- **Languages**: Python, Scala, Java, JavaScript, Go, C, SQL, OCaml, LaTeX
- **Technologies**: AWS, GCP, Docker, Terraform, Kafka, Debezium, Trino, Spark

EDUCATION

- **University of California, Berkeley** — Berkeley, USA

  Doctor of Philosophy (PhD) in Computer Science (In Progress) — *Machine Learning*

  Bachelor of Science (BSc) in Computer Science — *Statistics and Machine Learning*