

## EXPERIENCE

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### Proofpoint

*Staff Machine Learning Scientist*

*May 2024 - Present*

- **Suspicious Webpage Agent:** Technical architect for new AI/ML team in Cork, Ireland. Deployed a browser-use agent with finetuned vision router and novel skills, such as CAPTCHA evasion, to scan 3+ million URLs / day. Built in-house agent framework on top of claude-agents. Coordinating Claude Code best practices across the team. Result: freed up an entire FTE threat analyst from rule-writing. ML Libraries: **PyTorch**, **Huggingface**.
- **URL Defense Oracle:** Developed a high-precision, multi-call LLM workflow for detecting evolving URL-based threats. Implemented multi-GPU SFT, CPT pipelines using DeepSpeed for pretraining and knowledge distillation of multimodal QwenVL models and billions of URL-based threat tokens. Seeking reduction in analyst time to complete novel URL-based threat remediation. Langfuse for prompt management and LiteLLM for proxying. ML Libraries: **Huggingface**.

*Machine Learning Manager & Tech Lead*

*April 2022 - May 2024*

- **Training & Workflow System (ML Platform):** Tech lead for ML training and experimentation workflows using Flyte, MLflow, and Postgres. Built production-grade CLI and artifact management system for reproducible training and tracking. Reduced time-to-production for models from 3 months to 3 weeks and improved observability, cost control.
- **Real-Time Triage System (DLP):** Team of 3 engineers delivering high-throughput ML inference system for SIEM alert triage. Event-driven architecture using AWS Lambdas, Kinesis, and ECS. Saved analysts 2–4 hours per week of manual review, resulting in \$10K+ monthly cost savings. ML Libraries: **scikit-learn**.
- **Form Detection Service (DLP):** Tech Lead for the development of a distributed nearest-neighbor computer vision system for custom form detection over batched image data. Built async job runner deployed as a scalable microservice on Kubernetes. ML Libraries: **PyTorch**, **scikit-learn**.

*Senior Data Scientist & Data Scientist*

*May 2019 - April 2022*

- **NLP Classifier System:** Designed and operated load-balanced, distributed inference platform on ECS serving 54 NLP classifiers across 1000's of customers classifying 5M+ social media posts/week. Reduced time to remediate customer FPs/FNs from 1 day/week to 2 hours/week with new rule DSL. ML Libraries: **spaCy**, **scikit-learn**.
- **DL Multimodal Classifiers:** Built and productionized deep learning text, span, and image classifiers (YOLOv3, DistilBERT). Managed labeling teams for semi-annual retrainings, maintaining 0.8 precision for all classifiers while expanding recall. These features secured \$500K+ in deals with finserv clients. ML Libraries: **TensorFlow**, **PyTorch**.

### Automated Insights

*July 2017 - May 2019*

- Lead Data Scientist on two core ML features for Wordsmith product of Natural Language Generation startup. Created BI dashboard insights recommender system and contextual synonym suggester. ML Libraries: **gensim**.

### Duke University

*August 2014 - June 2017*

- PhD Student in ML Research Lab under Dr. Larry Carin. Trained object detection model on X-ray scan data for identifying weapons in TSA baggage. Integrated Rapiscan, Smiths Detection scanners. ML Libraries: **TensorFlow**.

## LEADERSHIP & RESEARCH IMPACT

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- **Organizational Leadership:** Co-founded new AI/ML team in Cork, Ireland; hired founding manager and initial team members (2025). Co-authored successful IDA grant proposal on pre-training for cybersecurity models.
- **Hiring & Talent Development:** Directed 2 full hiring processes (junior and staff-level); participated in 12+ additional interview panels across the org. Managed full performance lifecycle for direct reports, including formal improvement plans.
- **Innovation & External Impact:** Named inventor on 3 patents in applied machine learning for cybersecurity: Augmented NLG, Promissory Images, and NLP Classifier System. Placed top 3 in 3 company hackathons. Authored 1 technical blog, delivered multiple external presentations and panel discussions.

## EDUCATION

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- **M.S., Electrical Engineering** — Duke University *2014 - 2017*
- **B.S., Biomedical Engineering** — North Carolina State University *2010 - 2014*