

HOWARD PRIOLEAU

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EDUCATION

Ph.D. in Computer Science, Howard University, Washington, D.C. GPA: 4.0

Jan 2024 – Dec 2026

Specialization: Artificial Intelligence and Machine Learning with an emphasis on NLP

Awards:

- **Google PhD Fellowship in Natural Language Processing**
- AIM-AHEAD Research Fellowship
- NSF Graduate Research Fellowship Program (GRFP) Honorable Mention
- ACM Student Research Competition – 1st Place (Graduate Division)

B.S. in Computer Science, Howard University, Washington, D.C. GPA: 3.88

Aug 2020 – Dec 2023

EXPERIENCE

Machine Learning Engineer Intern

May 2025 – Aug 2025

Reddit New York, NY

- Designed and implemented a novel **time-aware Transformer architecture** that introduced long-horizon engagement forecasting capabilities at Reddit, achieving **85% prediction accuracy** across billions of interactions and establishing the platform's first production-scale engagement forecast model
- Built a **distributed training and inference pipeline** (PyTorch Lightning + Ray) to optimize large-scale transformer deployment, reducing training latency by **40%** and delivering a **600× faster inference pipeline** for near real-time forecasts.
- Conducted **LLM interpretability and data analyses** using attention and embedding probing, deploying learned embeddings as user representation features in production to power **recommendation models**, enhancing personalization quality and informing future model architectures.

Machine Learning Researcher

Jan 2024 – Present

Artificial Intelligence for Positive Change Lab @ Howard University

Washington, D.C.

- Advanced research on **large language model adaptation, supervised fine-tuning, and instruction tuning**, achieving **state-of-the-art ADE detection** across biomedical corpora using various LLM architectures.
- Improved **LLM alignment and robustness** via **reinforcement learning from human feedback (RLHF)** and **direct preference optimization (DPO)**, reducing factual inconsistency and overprediction by **30%** in clinical NLP.
- Led **cross-lab collaborations of 5 researchers** developing **evaluation frameworks, multimodal fusion models, and agentic reasoning systems** integrating speech, text, and knowledge-grounded inference; results published in **ACL, IEEE, AAAI, and PSB**.
- Directed the **National Geospatial-Intelligence Agency research team** on multimodal and **geospatial data analysis**, developing applied **AI/ML solutions for GIS and signal-based datasets** to address real-world intelligence and mapping challenges.

Machine Learning Engineer Intern

May 2024 – Aug 2024

Reddit New York, NY

- Developed an **LLM-driven onboarding recommender system** using **retrieval-augmented generation (RAG)** and structured prompting, reducing new-user cold-start friction by **25%** in internal A/B testing.
- Designed a **prompt orchestration layer** (Go + gRPC + GraphQL) for multi-agent content recommendation workflows, enabling scalable real-time personalization adopted across two production teams.
- Built **LLM-as-a-Judge evaluation pipelines** integrating human preference scoring and reward modeling, improving recommendation variety and accuracy by **14%**.

Software Engineer Intern

May 2023 – Aug 2023

Reddit New York, NY

- Designed and implemented **React/TypeScript SDKs and REST APIs** for Reddit's Developer Platform, enabling third-party integrations and accelerating adoption by **300+ internal and external developers**.
- Developed **frontend components and developer tools** improving platform usability, documentation clarity, and integration workflows for partner engineering teams.

- Collaborated with backend and infrastructure teams to **optimize API performance and scalability**, improving response latency and supporting seamless integration across Reddit's developer ecosystem.

Undergraduate Machine Learning Researcher

Human Centered Artificial Intelligence Institute @ Howard University

Jun 2021 – Jan 2024

Washington, D.C.

- Led **multilingual NLP, computer vision, and acoustic analysis** projects achieving **state-of-the-art performance** in **code-switched sentiment analysis, language identification, and dementia MMSE prediction**.
- Designed **language-specific transformer fusion systems** that improved multilingual classification accuracy by **21%**, resulting in publications at **ACL (SemEval), ICLR, and PSB**.
- Organized and taught an undergraduate **NLP Bootcamp**, introducing model interpretability, evaluation design, and reproducible ML workflows.

Machine Learning Research Intern

Excella

Jan 2021 – Jun 2021

Washington, D.C.

- Built and deployed **cloud-native ML experimentation frameworks** (AWS/GCP) supporting large-scale data curation, model evaluation, and distributed training for applied AI clients.
- Designed **synthetic data augmentation pipelines** leveraging GPT and BERT embeddings to address data scarcity, improving classification robustness by **18%** across evaluation benchmarks.
- Automated **dataset normalization and benchmarking workflows**, enhancing data quality and reproducibility for applied ML model deployments.

KEY PUBLICATIONS

PSB 2022 *Acoustic-Linguistic Features for Modeling Neurological Task Score in Alzheimer's.*

Saurav Aryal, **Howard Prioleau**, and Legand Burge

NATL 2022 *Sentiment Classification of Code-Switched Text using Pre-Trained Multilingual Embeddings and Segmentation.*

Saurav Aryal, **Howard Prioleau**, and Gloria Washington

SIAIA @ AAAI 2023 *Sentiment Analysis for Multiple African Languages: A Current Benchmark.*

Saurav Aryal*, **Howard Prioleau***, and Surakshya Aryal

SemEval @ ACL 2023 *A 2-Step System Design for Multilingual Sentiment Classification with Language Identification.*

Saurav Aryal and **Howard Prioleau**

ICLR 2023 *Feature Importance Analysis for Mini Mental Status Score Prediction in Alzheimer Disease.*

Howard Prioleau and Saurav Aryal

CCSCE 2023 *Term Frequency Features vs Transformers: A Comparison for Sentiment Classification of African Languages.*

Saurav Aryal, **Howard Prioleau**, Ujjawal Shah, and Sameer Acharya

CSCI 2023 *Benchmarking Current SOTA Transformer Models on Token-Level Language and Language Pair Identification.*

Howard Prioleau and Saurav Aryal

CSCI 2023 *Ensembling and Modeling Approaches for Enhancing Alzheimer's Disease Scoring and Severity Assessment.*

Saurav Aryal, Ujjawal Shah, **Howard Prioleau**, and Legand Burge

AAAI 2025 *Entity Only vs. Inline Approaches: Evaluating LLMs for ADE Detection in Clinical Text (Student Abstract).*

Howard Prioleau and Saurav Aryal

ACR 2025 *Evaluating Llama-3.1 for Adverse Drug Event Entity and Relationship Extraction Across Prompting Techniques.*

Howard Prioleau and Saurav Aryal

IEEE AFRICON 2025 *How State Space Machines can help African Speech Language Identification.*

Howard Prioleau, Saurav Aryal, and Jeremy Blackstone

PSB 2026 *Leveraging LLMs for Adverse Drug Event Detection: A Comparative Study of Token and Span-Based NER.*

Howard Prioleau, Saurav Aryal, and Jeremy Blackstone

SKILLS

Programming Languages: Python, C++, Java, Go, JavaScript, SQL

Machine Learning Frameworks & Libraries: PyTorch, TensorFlow, JAX, Ray, Hugging Face Transformers, LangChain, scikit-learn, spaCy, NLTK, Keras, NumPy, Pandas

Tools & Infrastructure: Docker, Kubernetes, MLflow, Weights & Biases, TensorBoard, BigQuery, AWS (SageMaker), GCP (Vertex AI), Git, CUDA, cuDNN, Linux