Naif A. Ganadily

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Work Authorization: Unrestricted in USA and KSA

RESEARCH INTERESTS

- AI in Oncology
- (Generative AI, LLMs, LVMs)
- Explainable AI and Causal ML
- Computer Vision

EDUCATION

Arizona State University (ASU) – Tempe, AZ
Ph.D. in Biomedical Informatics and Data Science *(08/2024 – 08/2028)*

- **Advisor**: Prof. Irbaz Riaz (ASU/ Mayo Clinic)
- **Co-Advisor**: Prof. Li Liu
- **GPA**: 4.00
- **Focus Areas**: AI in Oncology, Generative AI, LLMs

University of Washington (UW) – Seattle, WA
M.S. in Electrical Engineering (Machine Learning & Data Science) *(09/2022 – 03/2024)*

- **Mentors**: Prof. Stan Birchfield, Prof. Tamara Bonaci
- **GPA**: 3.79

University of Business and Technology (UBT) – Jeddah, Saudi Arabia
B.S. in Electrical Engineering *(09/2016 – 08/2021)*, Minor in Electronics & Communications

- **Advisor**: Prof. Mohammed Al-Qarni
- **GPA**: 3.43

HONORS AND SCHOLARSHIPS

- **Saudi Arabia Cultural Mission (SACM) Fellowship (2022–2024)**
  Awarded for excellence in graduate studies and research.

RESEARCH EXPERIENCE

AI Research Intern
Mayo Clinic, Scottsdale Campus *(Jul 2025 – Present)*

- Leading transition to a Graduate Research Associate role under Prof. Riaz at ASU
- Developing LLM + rule based Based systems for Hematology Oncology
- LLM pipleine to identify MACE events in oncology patien notes (RCC notes)

AI Research Affiliate
Mayo Clinic, Scottsdale Campus *(Apr 2025 – Jul 2025)*

- IRB onboarding, Mayo Clinic training for the transition and prototype pipeline for the BEACON LAB

Graduate Research Associate – Machine Learning in Multi-omics Data Analysis
Arizona State University, College of Health Solutions *(Dec 2024 – Apr 2025)*

- Conducted advanced research at the Biodesign Center for Fundamental and Applied Microbiomics under Prof. Qiyun Zhu.
- Directed the Phycollar Research Project, focusing on MLOps, automation testing, and agile ML methodologies to streamline workflows.
- Implement automated pipelines for model development and explainable AI (e.g., SHAP, LIME) in microbiomics.

Graduate Research Associate – Machine Learning in Microbiomics
Arizona State University, Biodesign Institute *(Aug 2024 – Dec 2024)*

- Guided a Computer Science student on leveraging phylogenetic trees for microbiome data analysis.
- Developed MLOps pipelines using AutoKeras (for automated model development) and SHAP/LIME (for explainability).
- Optimized phylogenetic methods to improve model interpretability and performance in multi-omics research.

Literature Review on Privacy-Preserving Machine Learning for EHR
University of Washington *(Jan 2024 – Mar 2024)*

- Conducted an extensive review of privacy challenges in EHR systems, focusing on ML and patient data protection.
- Analyzed current strategies and identified gaps that could hinder privacy in machine learning for healthcare.

Dataset Synthesis for Computer Vision with NVIDIA *(Jul 2023 – Mar 2024)*

- Mentors: Prof. Stan Birchfield, Dr. Jonathan Tremblay
- Developed a GitHub repository for synthesizing the YCB dataset using Blender/nvisii to support LoFTR model research.
- Increased model accuracy by 12% via careful 3D object processing and generated 1,200+ synthetic images.
- Improved robustness by 10% using additional synthetic data, extracting vertex details for better 3D analysis.

Literature Review on Federated Learning in Adversarial Settings
University of Washington *(Jun 2023 – Mar 2024)*

- Explored privacy-preserving ML within federated learning frameworks.
- Assessed current methodologies and future directions to strengthen FL in adversarial contexts.

PROFESSIONAL EXPERIENCE

Graduate Research Scholar Intern
Scottsdale, AZ *(Jan 2025 – Apr 2025)*

- Serve as a subject matter expert and "concierge" for participant companies, supporting MedTech ventures in a fast-paced environment.
- Collaborate with entrepreneurs, investors, and healthcare providers, facilitating productive sessions and business development meetings.
- Rapidly adapt to changing priorities, leveraging AI/ML knowledge to guide innovation strategies.

AI Consultant – Topic Modeling for Branch.vote
Rosenblatt.AI *(Mar 2024 – Aug 2024)*

- Developed Large Language Models (LLMs) for unbiased topic modeling in political candidate analysis.
- Employed Python, BERTopic, LLaMA 3, AWS SageMaker, and Nvidia RAPIDS for scalable real-time insights.

AI Research Collaborator
Principal Research Manager Stan Birchfield's Research Group, NVIDIA *(Jun 2023 – Mar 2024)*

- Optimized the LoFTR model, achieving a 12% boost in accuracy through synthetic datasets.
- Employed Blender to import, texture, and render 3D objects, enhancing model robustness by 10%.
- Analyzed vertex information from 150+ renders, elevating performance metrics by 15%.

PROJECTS

LLMs for MACE Detection in Clinical Notes (Pending Publication)

- An end-to-end Generative AI system pipeline to detect MACE outcomes in Clinical Notes

AI Assisted Triage for Clinical Decision Making in Hematology Oncology (Pending Publication)

- Orchestrating a end-to-end Generative AI and Rule Based system pipeline to replicate the full triage system of Classical Hematology Oncology

Differential Privacy/Pseudonymization in Federated Learning for Medical Data

- Implemented differential privacy and pseudonymization in TensorFlow Federated to protect patient data.
- Significantly reduced mean absolute error (MAE) while preserving data privacy in a federated environment.
- Balanced model performance with high-level patient information security.

Development and Implementation of a Fact-Checking Model using NLP

- Created an open-source NLP application (FactCheckNLP) for automated fact verification.
- Trained claim classification models with the PUBHEALTH dataset, reaching ~80% accuracy using DistilBERT.
- Utilized T5 and PEGASUS for explanation generation, improving ROUGE scores in text summarization.

GPT-3 API with Zero-Shot and Few-Shot Prompting

- Performed NLP analysis using OpenAI's GPT-3 on five SuperGLUE datasets.
- Employed zero/few-shot prompting strategies, achieving 76.8% accuracy in the Relevant Strategy approach.

Deep Learning for ECG Arrhythmia Heartbeat Classification

- Achieved up to 97.47% validation accuracy using a CNN model on ECG data.
- Addressed class imbalance via random under-sampling and SMOTE.
- Optimized baseline models (logistic regression, random forest) for comparative performance.

Stress Level Prediction using Heart Rate Variability and ML

- Engineered and normalized HRV-based features for stress classification.
- Compared Decision Trees, Adaboost, Random Forests on F1-score & accuracy metrics.
- Conducted feature importance analysis with cross-validation.

Friend or Foe – Multi-Modal Military Target Identification *(Jan 2024 – May 2024)*
University of Washington

- Designed an advanced AI system using YOLOv8 and Segment Anything Model (SAM), achieving 75.7% mAP.
- Curated a custom dataset of U.S. and Russian military uniforms with data augmentation.
- Provided a proof-of-concept web application and simulation for real-world demonstration.

Privacy-Preserving Machine Learning for Electronic Health Records

- Implemented federated learning and differential privacy to protect patient EHR data, adhering to HIPAA/GDPR.
- Boosted charge prediction accuracy by 20% using improved regression models on synthetic EHR data.

TEACHING EXPERIENCE

Online Tutor, Varsity Tutors – PYTH 101: Python & Machine Learning *(Fall 2020)*

- Taught Python and ML concepts to nine students three times a week, achieving a 99% satisfaction rate.
- Significantly increased student proficiency in coding and foundational machine learning principles.

SKILLS

Programming & ML Frameworks

- **Proficient**: Python (NumPy, Pandas, Matplotlib, Seaborn, scikit-learn, TensorFlow, PyTorch, Hugging Face, OpenAI APIs, GCP), MATLAB, SQL
- **Familiar**: C, C++, R, Blender Python API, SAS, NVISII

DevOps & Cloud

- Git, GitHub Actions, Jenkins, Docker, Kubernetes, CI/CD pipelines
- AWS (Cloud Practitioner Certified), Azure (AI Fundamentals Certified), Google Cloud Platform
- Hadoop, PySpark, Linux, Parallel Computing

Other Tools & Abilities

- Data Science Tools (Jupyter, VSCode, Anaconda), Microsoft Office 365, Google Workspace
- Cross-functional communication, Team collaboration, Project management, Research synthesis