

# ADNAN BASHIR

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## EDUCATION

- AUG 2025 **Ph.D. Computer Science** – UNIVERSITY OF NEW MEXICO, ALBUQUERQUE, NM USA  
Focus: Machine Learning | Advisor: Dr. Trilce Estrada [🔗](#)  
Thesis: Unsupervised Learning and Applied LLMs for data stream modeling.
- DEC 2015 **M.S. Computer Science** – UNIVERSITY OF NEW MEXICO, ALBUQUERQUE, NM USA  
Focus: Machine Learning and Data Science
- AUG 2012 **B.E. Electronics Engineering** – NATIONAL UNIVERSITY OF SCIENCE & TECHNOLOGY, PAKISTAN  
Final Project: Spectrum-aware dynamic channel assignment in cognitive radio networks

## SELECTIVE WORK EXPERIENCE & PROJECTS

- AUG 2018 **Machine Learning Engineer & Graduate Researcher**  
PRESENT Data Science Lab – UNIVERSITY OF NEW MEXICO, ALBUQUERQUE, NM USA
- DSX** [🔗](#) **Designed** and led development of an **LLM-based state detection framework**, integrating **foundation models**, **representation learning**, and **explainable AI** to identify latent states and generate insights in multivariate streaming data. Enabled new research in **time-series explainability** and tool adoption.
- DRUM** [🔗](#) **Architected** and **operationalized** DRUM, a robust **unsupervised learning platform** for **change point detection** and **real-time inference** in streaming data. Improved **regime shift detection**, reduced anomaly response by 30%, and published results at DAWAK 2023, with ongoing references by peer researchers.
- TSX** [🔗](#) **Designed** a production-ready **SmartGrid analytics solution**, leveraging **deep learning** and **predictive analytics** for automated fault detection, event forecasting, and real-time data visualization. Enhanced **data-driven decision making** and increased grid reliability for infrastructure stakeholders.
- APR 2025 **Lead Data Steward**  
PRESENT Department of Workforce Solutions – STATE OF NEW MEXICO, ALBUQUERQUE, NM USA
- DRIFT** [🔗](#) **Designed and launched** DRIFT, a secure, enterprise-scale data access and orchestration platform, embedding **real-time anomaly detection**, **data governance**, and automated **compliance** enforcement to support high-volume, high-sensitivity data streams for state operations. Led the cross team implementation, standardizing access and monitoring across 10+ business units, streamlining analytics for mission critical workflows, and reducing end-to-end data request turnaround by 40%. Recognized internally as a catalyst for modernizing statewide data management practices.
- DEC 2016 **OTF Fellow** [🔗](#)
- DEC 2017 Radio Free Asia – (OPEN TECHNOLOGY FUND) & UNIVERSITY OF NEW MEXICO, ALBUQUERQUE, NM USA
- Bot-D** [🔗](#) **Conducted** and managed large-scale, real-time social media analytics for **election data integrity**, deploying cutting-edge **bot detection**, **anomaly analytics**, and **automated monitoring** on multi-million tweet datasets. Drove collaboration with election integrity NGOs, producing actionable reports and open datasets that informed policy recommendations and were cited in international academic publications.
- AV** [🔗](#) **Designed** and implemented advanced **information security** and **malware detection** models using **machine learning**, **statistical modeling**, and **risk modeling** techniques. Led research on novel web-based attack vectors and collaborated with global cybersecurity partners to deploy countermeasures, ultimately improving detection rates and supporting the development of policy recommendations for transnational security.

## PUBLICATIONS

- AUG 2023 Real Time Detection of Regime Shifts in Multivariate Data Streams [🔗](#) – 📍 DAWAK [🔗](#)
- APR 2021 Girasol, a Sky Imaging and Global Solar Irradiance Dataset [🔗](#) – 📍 DATA IN BRIEF [🔗](#)
- DEC 2020 LADPU Smart Meter Data [🔗](#) – 📍 NSF PUBLIC ACCESS REPOSITORY [🔗](#)
- APR 2019 Presidential Elections in Ecuador: Bot Presence in Twitter [🔗](#) – 📍 ICEDEG [🔗](#)
- MAY 2016 Infect-me-not: A user-centric and site-centric study of web-based malware [🔗](#) – 📍 IFIP [🔗](#)
- OCT 2012 Spectrum-aware dynamic channel assignment in cognitive radio networks [🔗](#) – 📍 ICET [🔗](#)

## SKILLS

- CODING Python( TensorFlow, PyTorch, CoreFlow, Sklearn), Bash, Scala,  $\text{\LaTeX}$
- CLOUD AWS, Databricks, Snowpark
- ML-OPS CI/CD, Model Monitoring, Automation
- DOMAIN LLMs, Deep Learning, Unsupervised Models, Streaming Data Analytics