# MUHAMMAD OMAR MUHDHAR

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## EDUCATION

**UNIVERSITY OF CALIFORNIA, BERKELEY**                                          May 2025
*Master of Arts in Computational Social Sciences*
**Relevant Coursework:** Statistical Modeling, Machine Learning and Predictive Analytics, Data Visualization and Communication

**UNIVERSITY OF TEXAS AT AUSTIN**                                          September 2022
*Bachelor of Arts in Government with Honors and a Minor in Philosophy.*

## PROFESSIONAL EXPERIENCE

***Analyst,*** *Ernst & Young Business Consulting*                                          July 2022 - August 2024

- Designed and implemented streamlined operational processes, including an efficient document management system, resulting in an improvement in workflow efficiency and reduced turnaround time.
- Leveraged SQL to manage and query large datasets for performance reporting, ensuring precise data extraction, transformation, and loading (ETL) processes.
- Collected and analyzed daily client emails using Microsoft Power Automate, identifying patterns to create procedures for recurring requests and creating a ServiceNow page for remaining inquiries, streamlining operational processes to enhance client interactions.
- Leveraged analyzed email data to generate monthly KPIs, providing actionable insights that drove process improvements and enhanced performance tracking.
- Implemented Excel-based automation solutions using VBA to optimize monthly processes, enhancing efficiency and accuracy while enabling more strategic financial analysis.
- Spearheaded the formation of a new team, developed operational processes, and implemented efficient document management practices, fostering a culture of teamwork and collaboration to enhance workflow efficiency.

## MACHINE LEARNING PROJECTS

*Survey Topic Modeler*
- Built a modular pipeline for data extraction, summarization, and visualization, supported by comprehensive documentation to ensure replicability, scalability, and ease of use.
- Designed and implemented a scalable system in Python with API integrations to extract and organize survey data, automating stratification by categories to streamline trend analysis and metadata organization.
- Developed advanced NLP processing to analyze open-ended survey responses, employing embeddings and clustering methods to uncover meaningful semantic relationships and insights.
- Utilized Large Language Models (LLMs) to generate concise, context-aware summaries of clustered data, enabling stakeholders to distill key insights from survey results.
- Created interactive visualizations, integrating LLM-generated summaries with semantic groupings, allowing educational institutions to explore trends and relationships in course evaluation data.
- Prototyped the application using Streamlit, prioritizing user-friendly functionality and Material Design-inspired UI/UX principles.

## MACHINE LEARNING PROJECTS

*Economic Lessons From the FIFA World Cup on Brazil*

- Extracted economic and environmental data from IBGE (Instituto Brasileiro de Geografia e Estatística) and World Bank APIs, automating the data retrieval process for population growth, GDP (overall and by industry), unemployment rates, and carbon emissions.
- Assessed the causal effects of hosting the 2014 FIFA World Cup on host states versus non-host states through Difference-in-Differences (DiD) and Synthetic Control Method (SCM) analysis, evaluating key economic and environmental indicators to measure short- and long-term impacts.
- Presented findings in a comprehensive policy memo, highlighting the socio-economic trade-offs and environmental consequences of hosting the 2014 FIFA World Cup. Developed actionable recommendations for the United States, using lessons from the analysis to guide future strategies for planning sustainable mega-events.

## RESEARCH EXPERIENCE  UNIVERSITY OF TEXAS AT AUSTIN

***Researcher, Government Department at the University of Texas***                    August 2021 - May 2022

- Conducted a research study evaluating the societal implications of Western and Chinese foreign aid in Uganda. The investigation focused on understanding the rise of China as a global power and its emergence as a novel aid source in Uganda, exploring the self-interested nature of Chinese aid in comparison to the altruistic portrayal of Western aid.
- Utilized Qualtrics to conduct a survey experiment distributed to 1000 respondents, demonstrating proficiency in handling extensive datasets and employing quantitative methodologies.
- Leveraged R programming to implement advanced statistical methodologies, including t-tests, in the analysis of survey data. Emphasizing a causal analysis approach, the study sought to unravel the  cause-and-effect relationships within the socio-economic landscape of foreign aid in Uganda.
- Research project culminated in a comprehensive thesis paper and a presentation of survey experiment finding to peers, advisors, and stakeholders.

## LEADERSHIP EXPERIENCE

***Director of University of Texas at Austin's Black President's Leadership Council***          July 2020 - May 2021

- Led the organization through a transformative phase, implementing initiatives that contributed to the immediate and broader discourse on racial equity and justice within the university community while working to build productive and collaborative working partnerships among 30+ Black University of Texas undergrad community organizations that represent over 5,000 students.
- Analyzed university wide data visualizations and datasets to decipher the root cause of issues affecting Black University of Texas students and create solutions to advise University admin on the proper plan to better the Black student experience.
- Increased the organization's operational capacity by utilizing effective communication strategies and institutionalizing sustainable routines to increase efficiency, and performance of the organization.
- Created an effective communication line between the Black University of Texas student population and University of Texas admin to address issues affecting the Black community on campus

***Director of External Relations for African American Affairs***                    August 2019 - May 2020

- Responsible for optimizing communication strategies in the organization by identifying best methods to reach target audiences.
- Worked in a team to create engaging outreach for the Black UT population by planning and organizing informative and engaging events.

## TECHNICAL SKILLS

- **Programming Languages**: Python (Proficient), SQL (Proficient), R (Familiar), Excel (Proficient)
- **Machine Learning**: Supervised learning, unsupervised learning, NLP (spaCy, Hugging Face Transformers, scikit-learn)
- **Statistical Analysis**: Regression modeling, causal inference, Synthetic Control Methods
- **Data Engineering**: API integration, data cleaning, feature engineering, and preprocessing for large-scale datasets (pandas, NumPy)
- **Visualization**: Interactive dashboards, clustering visualizations, trend analysis (Streamlit, matplotlib, Plotly, seaborn)