

# Mirza Nayeem Ahmed

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## SUMMARY

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Bridging data and social science to understand how technology influences governance, policy, and inequality. Passionate about uncovering insights that drive informed decision-making and societal progress.

## RESEARCH

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### Microsoft Research

Jun 2024 – Present

Pre-Doctoral Researcher | *Computational Social Science Lab*

*Supervised by Dr. David Rothschild, Dr. Jake Hofman, Dr. Dan Goldstein*

### Human-AI Interaction for Complex Reading Comprehension

- Designed and executed a study assessing how large language models (LLMs) enhance decision-making and complex text comprehension, leveraging A/B testing to evaluate user performance under varied conditions.
- Developed TypeScript-based front-end and CosmosDB back-end code for an interactive online platform, adhering to IRB protocols and optimizing data security.
- Launched and managed the study on Prolific, conducting trend analysis to derive actionable insights and improve participant engagement through UX enhancements.

### Political Issues and Public Perception

- Contributed to the third paper in a series exploring the interplay of demographics, identity, and public opinion, leading discussions and advancing manuscript preparation.
- Designed Python-based pipelines and visualizations to analyze large-scale survey datasets, identifying key public opinion trends.
- Applied clustering algorithms and developed exploratory models to uncover patterns in demographic data.

### Understanding the Effect of Narratives in the Media

- Led participant recruitment and live study execution on Prolific, designing sophisticated JavaScript-based Qualtrics surveys to ensure robust data collection.

### Prediction Markets in Election Forecasting

- Evaluated predictive modeling techniques and employed post-stratification methods to enhance demographic segmentation and vote forecasting.

### University of South Florida

Nov 2023 – Jun 2024

Research Associate | *Computational Social Science and AI Lab*

*Supervised by Dr. Raiyan Abdul Baten*

### Modeling Creativity in Socio-Cognitive Systems

- Reviewed literature in psychology and cognitive science to uncover gaps in research on creativity, idea generation, and information processing, shaping hypotheses and guiding model development.
- Developed agent-based simulation models to analyze social, semantic, and temporal networks, exploring the influence of social interactions on belief rigidity and creativity within socio-cognitive systems.
- Engineered Python-based computational frameworks to simulate creative processes in social networks, integrating real-world data for enhanced accuracy and relevance.

## Research Interests

Public Opinion and Political Behavior, Global Inequality and Development, Metascience and Scientific Transparency, Human-Computer Interaction and Digital Cognition, Persuasion and Decision-Making.

## EDUCATION

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**Northeastern University**, Boston, MA

Sep 2019 – May 2023

*Bachelor of Science in Data Science*

*Minor: Entrepreneurship & Design Engineering*

**GPA: 3.66/4.0**

**Honors: Dean's List, Distinction**

**Relevant Courses:** Natural Language Processing, Web Development, Object-Oriented Design, Discrete Structures, Network Science, Biostatistics, Database Design, Machine Learning, Human-Computer Interaction

## TEACHING EXPERIENCE

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**Microsoft Data Science Summer School 2025**

*Primary Instructor*

- Lead instruction in data science, providing a hands-on introduction using R, with an emphasis on real-world data acquisition, cleaning, and exploratory analysis of complex datasets.
- Develop and teach modules on supervised and unsupervised learning, focusing on model optimization, evaluation, and practical applications such as recommendation systems and predictive analytics.
- Mentor students in research design and statistical analysis, connecting core principles in applied statistics and machine learning to real-world challenges and solutions.

**Northeastern University**

*Teaching Assistant*

- **Courses Assisted:** CS3200 Database Design, GE1110 Engineering Design, GE2500 Design Analysis, DS2000 Programming with Data, DS4300 Large-Scale Information Storage and Retrieval.
- Delivered over 400 hours of office hours, supporting 700+ students with assignments, projects, and technical concepts across diverse courses.
- Created grading rubrics and evaluated 1,000+ quizzes and assignments, ensuring consistency and transparency in assessments.
- Mentored students on research and design projects, fostering critical thinking, creativity, and academic growth.
- Prepared students for internships by conducting resume reviews, refining technical skills, and providing mock interview sessions.

## WORK EXPERIENCE

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### ANIQUE (Remote)

Oct 2023 - Apr 2024

#### *Data Consultant*

- Led R&D initiatives to develop and implement an advanced, scalable data architecture for a dynamic e-commerce product catalog, ensuring secure and reliable cloud-based database operations
- Established strategic partnerships with external companies to acquire valuable data sources, facilitating data enrichment for informed business decisions
- Implemented AI algorithms for product attribution, search, and filtering to enhance UX and increase customer engagement

### Condé Nast (New York, NY)

Jun 2022 - Aug 2022

#### *Data Analyst*

- Built scalable ETL pipelines that support consumer events of the 16+ brands such as Vogue, GQ, WIRED, and The New Yorker for 2M+ customers using Apache Spark, Airflow, S3, and Databricks Delta Tables; enabling real-time data processing, providing visibility into critical metrics, and reducing data latency by 15%
- Applied scripting expertise to securely transfer sensitive information (database credentials, tokens, passwords, certificates, and API keys) to support vendor migration, enhancing data security and mitigating unauthorized access risks
- Leveraged Terraform to automate the provisioning and management of Condé Nast's global data platform, reducing infrastructure deployment time by 20% and providing a robust foundation for data processing and analytics
- Researched and developed a proof of concept for an in-house analytics tool to monitor social media engagement, securing buy-in from senior management (CTO, VP of Marketing, and SVP of Audience Development)

### McKinsey & Company (Boston, MA)

Jul 2021 - Dec 2021

#### *Data Engineer*

- Developed and implemented an automated recovery processing system in Domo to validate data, analyze usage, and calculate monthly chargeback for 15+ services, reducing manual steps and saving over 50% in ETL time
- Created and deployed a consolidated report visualizer for the finance and operation teams, centralizing critical data, providing real-time updates and ensuring data security and privacy compliance for over 200 employees
- Implemented AI-driven capabilities and leveraged external data sources to optimize a knowledge-aggregation tool for the Client Capabilities Hub, resulting in a 35% reduction in business analysts' information access time while ensuring data synchronization, CI/CD, and facilitating swift diagnosis and resolution

## RELEVANT PROJECT

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### Prison Book Program Data Visualization

*Python (seaborn, altair, bokeh), Tableau, Javascript (d3), MongoDB*

- Designed and implemented complex data visualizations to provide insights into various aspects of the non-profit organization, including prison restrictions, donation patterns, and volunteer activities
- Collaborated with the board of directors to identify operational inefficiencies within the program and streamline the book collection and delivery process
- Automated data cleaning and validation processes for diverse and unstructured data sets, ensuring sustainable project performance with minimal need for future intervention

## SKILLS

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Data Science & Analytics	Python, R, Scala, Domo, Altair, Tableau
Experimentation & Surveys	Qualtrics, Prolific
Network Science	NetworkX, NetLogo
Technical Writing	L <sup>A</sup> T <sub>E</sub> X
Project Management	JIRA, Confluence
Web Development	Figma, HTML, CSS, Java, Javascript, Typescript
Databases	MySQL, Oracle SQL, MongoDB, Redis, Neo4j
Data Engineering	Apache Spark, Airflow, dbt, Databricks, Snowflake, Alteryx
Embedded Systems	Arduino, MATLAB
Engineering Design	AutoCAD, Solidworks

## LANGUAGES

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English	fluent
Bengali	bilingual proficiency
Hindi	limited working proficiency

## REFERENCES

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### **Dr. David Rothschild**

Senior Principal Researcher, Computational  
Social Science Lab  
Microsoft Research  
davidmr@microsoft.com

### **Dr. John Rachlin**

Associate Teaching Professor, Khoury College  
of Computer Sciences  
Northeastern University  
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### **Dr. Raiyan Abdul Baten**

Assistant Professor, College of Engineering  
University of South Florida  
rbaten@usf.edu

### **Archan Bhatt**

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