**Alex Hendel**

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**PROFESSIONAL EXPERIENCE**

**Federal Transit Administration,** *Lead Data Scientist*,Washington, D.C. *[40 Hours / Week]* ***January 2025 – February 2025***

Helped to stand up the Office of the Chief Data Officer, a new office at FTA. Selected accomplishments include:

* Established an AI Steering Committee to govern FTA’s approach to AI, prioritize projects, and execute work.
* As lead data scientist for a new team, created the norms and processes to ensure consistent and effective data products, including regular code reviews, Jira and GitHub usage frameworks, code styling, and security considerations.
* Collaborated across ten regional offices to standardize and automate the review of lengthy required reports for common errors, saving an estimated 90% of review time for up to 10k reports annually (prototype developed).

**Deloitte Consulting,** *Data Scientist*,Washington, D.C. *[40+ Hours / Week]* ***October 2020 – January 2025***

*Center for Analytics, United States Department of State [Secret Clearance] October 2022 – January 2025*

* **StateChat Productivity Suite:** supported the implementation of the State Department’s custom-built enterprise chatbot – the first of its kind in the federal government – and led the creation of a suite of related generative AI tools
  + Led development of the Department’s policy bot and first retrieval-augmented generation implementation in the StateChat suite, spanning 25,000+ pages of policy. Implemented a variable-length semantic chunking process and custom-built hybrid-search process based on a novel evaluation framework (incorporating metrics for answer accuracy, citation accuracy, and inference speed).
  + Developed a tool to enable foreign service officers to ask questions before bidding on their next assignment –the Department’s first chain-of-thought function-calling implementation, enabling the tool to retrieve information from multiple sources and conduct variable number searches based on user queries.
  + Created a real-time dashboard of usage metrics including customer demographics, intensity of use, engagement, and retention for the entire StateChat suite, which informed decision-making on training targets, feature releases, and key product decisions.
  + Designed trainings, promotional materials, and user testing artifacts for enterprise products, and led dozens of trainings of up to 450 people for different user groups across the globe.
* **AI for Records Modernization Data Campaign:** Developed AI solutions for a six-month enterprise-wide effort focused on records modernization led by the department’s Deputy Chief Data Officer
  + Developed automated workflow for the Department’s first at-scale generative AI data extraction solution, saving five person-years of manual accounting of an $85 billion dollar portfolio and providing a template for future generative AI work using unstructured data
  + Coordinated work for a development team of five across multiple lines of effort, including digitization, translation, format detection, regular expression-based extraction, LLM-based extraction, answer evaluation & selection, and quality assurance
  + Researched and compared multiple open-source LLMs for accuracy and completeness for extraction tasks; selected a model that had not been released at the start of the campaign. Optimized hyperparameters for performance
  + Designed data ingestion process using Microsoft Azure Cognitive Services, including Document Intelligence, Vision, and Translator
  + Created a dynamic QA process evaluating quality across multiple dimensions including extraction completeness, OCR quality, and regex validation while lacking a validation data set
* **Crisis Management Data Campaign:** lead developer for CfA’s crisis response campaign
  + Developed a filtered pipeline for analysis and a topic model of training effectiveness using 300k+ cables
  + Created the Department’s first crisis real-time staffing tool, used during the Israel-Palestine crisis task force
  + Performed a gap analysis of personnel data impacting 70,000 individuals globally through conversations with two dozen data stewards, resulting in Department-wide policy changes
  + Analyzed discrepancies in personnel data across systems, optimizing a fuzzy matching algorithm for accuracy
  + Received a Certificate of Appreciation Award from the Secretary for my work addressing personnel accountability challenges
* **Global Operations Data Campaign:** Developed a real-time global post operations scorecard by creating dozens of data ingestion pipelines consisting of hundreds of data points, providing senior Department leadership immediate oversight capability. Received a Certificate of Group Appreciation Award for my work breaking down data siloes across the Department
* **Strategic Competition Funding:** Operationalized a funding prioritization model incorporating expert ratings and quantitative metrics to allocate $300 million in funding across a global portfolio of projects; developed data collection process and statistical methodology
* Supported real-time data management efforts during crises in Sudan and Nicaragua

*Family Advocacy Program, United States Department of Defense November 2021 - September 2022*

* Evaluated accessibility of the program’s services and identified improvement in outreach methods; lead focus groups with beneficiaries, wrote web scraping scripts in R and Python, and conducted phone interviews with relevant offices (Python, R)
* Lead data analysis and quality assurance for the annual report focused on child and domestic abuse; managed a team of two developing a reproducible pipeline for cleaning, data validation, creation of visuals, and analytics (Stata, Excel)

*Integrated Health Practice, United States Department of Veterans Affairs October 2020 - November 2021*

* Supported the enterprise-wide implementation of a new Electronic Health Record system for the largest public hospital network in the U.S. at 1,200+ medical facilities by developing an organizational change management strategy through stakeholder engagement, policy development, and enterprise-wide planning
* Managed a team of five and served as client liason as project manager for multi-million-dollar contract

*Business Impact*

* Led technical writer for a winning multi-million-dollar contract response
* Developed a logistic regression model to predict the probability of pedestrian-involved traffic accidents in DC, with applications of reducing traffic violence (Python)

**University of Virginia,** *Research Assistant*,Charlottesville, VA *[20 Hours / Week] May 2020 – November 2020*

* Made data cleaning decisions, including how to reshape data with hundreds of variables and hundreds of thousands of observations, how to treat variables with missing data, and how to code variables
* Wrote descriptive and replicable code to enable easy understanding of data cleaning decisions and variable coding
* Communicated descriptive statistics and regression outputs using data tables coded in Stata and LaTeX

**Civic Advisors / When We All Vote,** *Intern*,Washington, D.C. *[40 Hours / Week]* *May 2019 – August 2019*

* Provided strategic communications support to Civic Advisors’ clients and When We All Vote staff by writing and editing dozens of video scripts, memos, proposals, reports, and presentations
* Researched, prepared, and designed a strategy proposal that resulted in a new partnership for a national non-profit

**Arlington County Board,** *Intern,* Arlington, VA *[40 Hours / Week]* *May 2017 – August 2017*

* Advised on establishment of a consumer protection office; with dozens of internal and external stakeholders
* Created a 40-page manual for the County Board’s office conduct policy, including resource and ethics guidance

**ACADEMIC EXPERIENCE**

**Research and Teaching**

* Graduate Teaching Assistant, Research Methods & Data Analysis, Econ of Public Policy *August 2019 – May 2020*
* Undergraduate Teaching Fellow, Introductory Microeconomics & Macroeconomics *August 2018 – May 2019*
* Research Assistant, Nudge4Solutions Lab and Wilson Social Psychology Lab *January 2017 – May 2018*
* Vice Chair for Civic Engagement, Legislative Affairs Committee *May 2018 – May 2020*

**EDUCATION**

**University of Virginia**, Charlottesville, VA *August 2016 - May 2020*

Master of Public Policy (MPP)*;* Bachelor of Arts (BA), Economics, Echols Scholar (Honors College) 3.9 GPA

**SKILLS**

* Languages: Spanish (full professional proficiency)
* Tools: Python, R, Stata, Elastic, Azure, Databricks, Palantir Foundry, SQL, GIS, Powerpoint, Word, Excel, Dash/Flask, Streamlit, Canva, Agile
* Technical Experience: data engineering, data visualization, natural language processing, topic modeling, large language models, retrieval augmented generation, survey design and collection, cloud computing
* AI/ML Frameworks: Transformers, Pytorch, SpaCy, Pyspark, scikit-learn