ANDREW J. LERCH

ajlerch@gmail.com | 857-829-2472 | Decatur, GA 30033 | http://www.linkedin.com/in/andrew-j-lerch

Computer Science

Master of Science **| Georgia Institute of Technology |** GPA 4.0/4.0 **2023 (expected)**

Computer Science | Specialization: Machine Learning

Classes: Algorithms, Natural Language Processing, Machine Learning, Deep Learning, Data and Visual Analytics, Knowledge Based AI, AI Ethics & Society, Machine Learning for Trading, Video Game Design, Network Science

U.S. Federal Energy Regulatory Commission (FERC)

Energy Industry Analyst (Data Scientist) (2023 – Present) **Washington, D.C. (Remote)**

- Conducts analysis of electric power grid reliability to make recommendations for electric grid standards, specifically conducts analysis of weather effects on electric grid reliability.
- Developed matching algorithm for electric power substations and transmission outage data (TADS) based on substation and line attributes. Trained a neural network to evaluate the quality of the match and provide a recommendation if that match should be used in further analysis.
- Develops dashboards to quickly analyze electric grid reliability data for FERC internal staff.
- Performs data maintenance tasks on the Office of Electric Reliability's internal data warehouse (updates, enhancements, new data ingestion).

U.S. Nuclear Regulatory Commission (NRC)

Data Scientist/Product Owner (2020 – 2023) **Washington, D.C. (Remote)**

- Product Owner for NRC's Mission Analytics Portal (MAP), an internal data analytics portal used to develop business intelligence solutions for all NRC business areas – Reactors, Materials, Investigation, Enforcement, Inspection, and Public Outreach. The MAP program has saved the NRC $1.5 million over the first 3 years and is projected to save $3.5 million by the end of FY 2024.
- Manage team of 7 business analysts, developers, and data governance officials to develop data solutions and perform data analysis for NRC business areas using the Agile Methodology. Manage team's development of visualizations in PowerBI and Tableau, using Python and SQL, and coordinate with various NRC offices to develop requirements.
- Member of the NRC's Artificial Intelligence working group. Analyze AI and machine learning use cases by nuclear power plants and corresponding risks and benefits. Advise NRC on potential regulatory approaches.
- Developed over 20 dashboards analyzing NRC inspection, licensing, and budgeting data for use in everyday NRC business processes, analytics, and decision-making.
- Developed staffing algorithm for NRC resident inspectors that aims to fully staff all resident sites while optimizing for staffing requirements, inspector preference, and minimizing moves (similar to National Resident Matching Program).
- Collected, cleaned, and analyzed historical inspection and assessment data to evaluate the NRC inspection program's effectiveness.
- Mentor junior staff on data science techniques, practical analytics skills, and NRC business needs.

Construction Inspection Software Product Owner (collateral duty - 2010-2020) **Atlanta, GA**

- Led the development and requirement-gathering for new software program (CIPIMS) that records and tracks all NRC construction inspections at four new reactor sites.
- NRC's principal user and administrator for CIPIMS for troubleshooting, error-checking, and administration.
- Gathered software requirements and prioritized software changes based on construction inspection business rules and procedures as well as user needs.
- Developed reports and visualizations from construction inspection data to present information to staff, management, and executives.

Nuclear Engineering

U.S. Nuclear Regulatory Commission (NRC)

Reactor Inspector / Project Manager (2010 – 2020) **Atlanta, GA**

- Co-developed the NRC construction inspection program for new reactors.
- Led risk-informed planning and inspection for all inspections of new nuclear power plant construction. Inspection disciplines included mechanical, civil, electrical construction inspection, emergency planning, security, radiation protection, environmental qualification, maintenance rule, inservice inspection and testing, quality assurance.
- Managed all NRC construction inspection scheduling (onsite, offsite, and vendor inspections) using Primavera scheduling software for Vogtle Units 3 and 4.
- Conducted regular meetings with stakeholders to communicate project status, in-depth resource needs, inspection purpose and objectives, and inspection management process and mitigating strategies. Stakeholders included NRC management, NRC senior executives, including NRC Commissioners, Southern Company representatives, and the public.
- Acted in leadership roles for the construction program. Led all staff level interactions with utility for planning and executing construction inspections and coordinated resolution of policy and programmatic issues.

Master of Science **| Massachusetts Institute of Technology |** GPA 4.9/5.0 **2010**

Bachelor of Science **| Massachusetts Institute of Technology |** GPA 4.5/5.0 **2008**

Nuclear Science and Engineering | Focus: Nuclear Fuel Design, Thermodynamics, Core Physics, PRA

Center for Advanced Nuclear Energy Systems (CANES) – Research Assistant **2008 – 2010**

MIT Department of Nuclear Science and Engineering

- Developed and coded new sections of the fuel analysis code FRAPCON (called FRAPCON-EP) in FORTRAN to more accurately model current fuel designs and accurately analyze the mechanical, fluid, and thermodynamic properties of advanced fuel types at higher burnup – PWR Annular Fuel, BWR reduced moderator fuel.

MIT Nuclear Reactor Lab – Reactor Operator **2005 – 2010**

- Licensed reactor operator at a 5 MW tank type research reactor (Docket 70511, License 55-70774).
- Sat regular console watches, assisted in startups (monthly), shutdowns (monthly), refueling (quarterly), and reactor evolutions for experiments (weekly).

Publications

Thermomechanical analysis of innovative nuclear fuel pin designs, A. Lerch, Graduate Thesis, MIT, 2010.

Development of FRAPCON-EP for High Burnup and High Temperature Fuel Pellet Behavior Modeling, A. Karahan, A. Lerch, M.S. Kazimi, Proceedings of 2010 LWR Fuel Performance Meeting, Paper 109.

Evaluation of High Power Density Annular Fuel for Korean OPR-1000 Reactor: Final Report, L. Zhang, A. Lerch, B. Feng, P. Hejzlar, E. Pilat, M. Kazimi, MIT CANES, March 2010

Measurement of near-surface void fraction and macrolayer thickness in boiling water and silica-based nanofluid. A. Lerch, Undergraduate Thesis, MIT, 2008

Honors, Activities, and Professional Organizations

MIT Educational Counselor	2022-Present
Great Minds in Stem – Hispanic Engineer National Achievement Awards Corporation Luminary	2018
First Lego League Robotics Coach (Briar Vista Elementary)	2014-2016
Soccer Coach (Inter Atlanta FC)	2013-2015
American Nuclear Society (ANS)	2008-Present

Skills

Python	Sklearn	SQL	FORTRAN	Jira	FRAPCON	Primavera	Mathematica
NumPy	Pytorch	Tableau	MATLAB	Confluence	VIPRE	Github	SAPHIRE
Pandas	Databricks	PowerBI	C++	R	RELAP		