MATTHEW J. LUDWIG

Arlington, Virginia
(516) 606-5446, mjwjludwig@gmail.com, linkedin.com/in/matthewjwjludwig, github.com/mludwig137

OBJECTIVE

I'm an innovative data scientist, developer, and Vipassana meditator with a talent for skill and theory acquisition. My responsibilities have mixed research and application utilizing leading edge approaches such as holographic ML in the field of natural language understanding. I'm seeking to be part of an organization that embraces a career with groups and institutions that embrace deep generalists, and offer a wide range of challenging problems where novel solutions are necessary.

SKILLS & INTERESTS

Algorithm design	Physical sciences	Public speaking / presentation
Machine & deep learning / AI	Blockchain / DApp	Linguistics
Data science / engineering	Modeling & simulation	Project Management
Systems eng. / cybernetics	Statistical data analysis	Cognitive science / neurology

EXPERIENCE

Data Scientist—General Assembly: Data Science immersive **September 2021 - December 2021**

- Completed GA Data Science Immersive as a point of professional development and career acceleration.
- Utilized Tensorflow, Keras, and Chainer to develop leading edge graph attention networks on unstructured text data using latent features.
- Created a text network of scientific papers from ArXiv scientific repository detecting anomalous research papers(fraudulent and influential) and generating research recommendations from structural holes in graph structure.

Data Scientist (Lead)—AIT **December 2020 - March 2020**

- Designed NLP/NLU/NLG models for conversational agents to automate communication between property managers, tenants, and vendors.
- Product manager/full stack developer of SaaS product from demo through beta to pilot release, introducing best practices, modularity, extensibility and moving us from pre-revenue to post-revenue.

Technical Founder—IOI **January 2017 - February 2020**

- IOI uses deep learning, generative grammar, and quantum information theory to apply NLP/NLU to narrative analysis, information manipulation, and anomaly detection.
- Created a technology to access reflexivity in natural language and design a viable B2C product based on this technology, bringing numerous models to production.
- Targeting and networking access to VC groups and investors, presenting business plans, and product development cycles.

Mathematician **May 2014 - January 2017**

- Research interfacing mathematics, physics, generative linguistics, neuroscience, and data science which became the basis for IOI.

Undergraduate/Graduate Researcher—Department of Physics, Department of Mathematics, UC San Diego **2011 - 2014**

- Conducted research under the supervision of professorial staff in Loop quantum gravity, Kaluza-Klein theory, Holographic principle, Nuclear superfluidity as applied to neutron stars modeled in Python, Topological superconductors, elliptic curves, Ramsey theory.

TECHNICAL SKILLS

- Programming in *Python, Janus, Julia, Java, C, R, SQL, SPARQL, Scala, MATLAB*, and *Mathematica*
- Machine and deep learning utilizing: Scikit-learn, SageMaker, TensorFlow, Keras, NLTK, spaCy, Pandas, NumPy, Scipy, RDF, Web scraping, Amazon WS, XML, HTML, JSON, API
- Modeling with: Times series analysis, Ensemble Methods, Random Forest (RF), KNN, Regression(Logistic, Linear, Bayesian) Regularization, Naive Bayes, Support Vector Machines (SVM), Gradient Descent, ARIMA, DBscan, Hierarchical clustering, Linear discriminant (LDA), Markov chains, A/B testing, LSTM, GRU, CNN, Temporal CNN, Q Learning, SARSA, DDPG, General Adversarial Networks (GAN), MEM

EDUCATION

Johns Hopkins University, **Baltimore, MD** **2017 - 2019**

- Masters of Science: Applied and Computational Mathematics, GPA: 4.00

University of California San Diego, **San Diego, CA** **2011 - 2014**

- Bachelor of Science: Physics (High energy), Mathematics