Rashad Eletreby

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US Permanent Resident

Education

Carnegie Mellon University — Pittsburgh, PA
PhD and MS in Electrical and Computer Engineering — *Aug. 2015 – Sep. 2019*

Technical Skills

Coding: Python, Hive, SQL
Developer Tools: Git, Jupyter, Google Cloud Platform, Amazon AWS, VS Code, PyCharm, IntelliJ
Libraries: fastapi, transformers, sagemaker, openai, cohere, farm-haystack, langchain, llama-index, xgboost, pyspark, pandas, tensorflow, numpy, scikit-learn, igraph, networkx, scipy

Experience

Principal Data Scientist — August 2022 – Present
Rocket Travel by Agoda — *New York City, NY*

- Initiating and driving the development of an AI-based travel assistant using OpenAI's ChatGPT for potential integration across all B2B partner websites.
- Leading the design of advanced hotel ranking models, resulting in a 3% conversion lift across B2B partners.
- Led a team in developing a neural translation model for room titles, reducing customer complaints by 23% and increasing revenue by 2%.

Senior Manager I, Data Science — January 2022 – August 2022
Walmart, Inc. — *Hoboken, NJ*

- Led a team in building a Learning to Rank (LETOR) pipeline, catering to half of Walmart.com's web and app traffic.

Staff Data Scientist — December 2020 – January 2022
Walmart, Inc. — *Hoboken, NJ*

- Implemented algorithms (based on image understanding) to diversify search results and minimize duplicate listings on Walmart.com.
- Built a LETOR framework for Walmart.com online browse shelves, increasing Gross Merchandise Value (GMV) by 1.2%, enhancing product discoverability by 2%, and increasing ad revenue by 6.3%. The project drove an additional $XxM in revenue.
- Designed the first multi-objective LETOR framework to empower a unified search experience in support of Walmart OneApp launch. The Designed model achieved relevance improvements of 15%.
- Developed a suite of critical offline tools for feature performance measurement and ran customer-facing experiments via interleaving and A/B testing.

Senior Data Scientist — October 2019 – December 2020
Walmart, Inc. — *Hoboken, NJ*

- Improved the ML features used within Walmart search LETOR framework, leading to a 12% boost in item discoverability.
- Implemented algorithmic changes to Walmart search LETOR framework, resulting in a 0.60% GMV lift and a 5% latency improvement.

Research Assistant — Aug. 2015 – Sep. 2019
Carnegie Mellon University — *Pittsburgh, PA*

- Proposed and analyzed mathematical and simulation models to understand the spread of information and diseases in real-world complex networks (**PNAS).**
- Proposed and analyzed novel random graph models that capture the secure connectivity of large-scale, heterogeneous wireless sensor networks (**IEEE Trans. on Info. Theory).**

- Developed techniques for decoding collisions and extending transmission range in LP-WAN transmissions (**ACM SIGCOMM).**
- Devised methods for community detection on social network subgraphs, incorporating both structural and content information.

Honors and Awards

Received multiple awards of excellence including the *Making the Difference Award*, Walmart (2021), *Philip and Marsha Dowd Fellowship*, Carnegie Mellon University (2017-2018), and *CMU Presidential Fellowship*, Carnegie Mellon University (2017-2018).

Patents

(P3) **R. Eletreby**, C. Mu, Z. Wang and R. Mukherjee *"Systems and Methods for Improving eCommerce Search Ranking Via Labelling Enhancements in LETOR"* - patent pending

(P2) **R. Eletreby**, D. Zhang, S. Kumar and O. Yağan *"Empowering Low-Power Wide Area Networks in Urban Settings"* - patent granted by USPTO

(P1) M. Krunz, B. Akgun, P. Siyari, H. Rahbari, **R. Eletreby**, and O. Koyluoglu *"Systems and methods for securing wireless communications"* - patent granted by USPTO

Selected Publications

Journal Papers

(J1) M.Sood, A.Sridhar, **R.Eletreby**, C.W.Wu, S.A.Levin, H.V.Poor, and O.Yağan *"Spreading processes with mutations over multilayer networks"* - Proceedings of the National Academy of Sciences (April 2023)

(J2) O.Yağan, A.Sridhar, **R.Eletreby**, S.Levin, J.B.Plotkin, and H.V.Poor *"Modeling and Analysis of the Spread of COVID-19 under a Multiple-strain Model with Mutations"* - Harvard Data Science Review (April 2021)

(J3) **R.Eletreby**, Y.Zhuang, K.M.Carley, O.Yağan, and H.V.Poor *"The Effects of Evolutionary Adaptations on Spreading Processes in Complex Networks"* - Proceedings of the National Academy of Sciences (March 2020)

(J4) **R.Eletreby** and O.Yağan *"Connectivity of Inhomogeneous Random K-out Graphs"* - IEEE Transactions on Information Theory (June 2020)

(J5) **R.Eletreby** and O.Yağan *"k-connectivity of Inhomogeneous Random Key Graphs with Unreliable Links"* - IEEE Transactions on Information Theory (January 2019)

Conference Papers

(C1) A.Sridhar, O.Yağan, **R.Eletreby**, S.Levin, J.B.Plotkin, and H.V.Poor *"Leveraging A Multiple-Strain Model with Mutations in Analyzing the Spread of Covid-19"* - IEEE ICASSP 2021

(C2) M.Sood, A.Sridhar, **R.Eletreby**, C.W.Wu, H.V.Poor, and O.Yağan *"Epidemic Spreading of Mutating Contagions over Multi-Layer Contact Networks"* - NetSci 2021

(C3) **R.Eletreby** and O.Yağan *"On the Connectivity of Inhomogeneous Random K-out Graphs"* - IEEE ISIT 2019

(C4) **R.Eletreby** and O.Yağan *"Connectivity of Wireless Sensor Networks Secured by the Heterogeneous Random Pairwise Key Predistribution Scheme"* - IEEE CDC 2018

(C5) **R.Eletreby**, D.Zhang, S.Kumar and O.Yağan *"Empowering Low-Power Wide Area Networks in Urban Settings"* - ACM SIGCOMM 2017

For a full list of publications, please visit my Google Scholar profile.