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*

Experience

Senior Manager, Data Science — April 2024 – Present
Walmart, Inc. — *Hoboken, NJ*

- Leading a team of data scientists in developing advanced machine learning models for Walmart's BuyBox. These models determine the winning offer among competing sellers for a given product using state-of-the-art machine learning techniques.
- Designing and implementing seller performance signals to track and assess seller reliability across multiple dimensions. These foundational signals are utilized by various downstream services, including BuyBox, search, and recommendations.

Principal Data Scientist — August 2022 – April 2024
Rocket Travel by Agoda — *Chicago, IL*

- Led 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%.

Staff Data Scientist — December 2020 – August 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%.
- Designed the first multi-objective LETOR framework to empower a unified search experience in support of Walmart OneApp launch, achieving 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 characterize the spread of information and diseases in real-world complex networks (**PNAS**).
- Proposed and analyzed novel random graph models to 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

(P1) M. Goyal, A. Kast, **R. Eletreby**, X.Liu, B. Yang, and C. Mu *"Systems and methods for improving visual diversities of search results in real-time systems with large-scale databases"* - US20240256625A1 (August 2024)

(P2) **R. Eletreby**, C. Mu, Z. Wang and R. Mukherjee *"Machine learning based methods and apparatus for automatically generating item rankings "* - US20220351239A1 (November 2022)

(P3) **R. Eletreby**, D. Zhang, S. Kumar and O. Yağan *"Low-power wide area networks"* - US11139853B2 (October 2021)

(P4) M. Krunz, B. Akgun, P. Siyari, H. Rahbari, **R. Eletreby**, and O. Koyluoglu *"Systems and methods for securing wireless communications"* - US10069592B1 (September 2018)

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.