

# Rashad Eletreby

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US Permanent Resident

## EDUCATION

### Carnegie Mellon University

*PhD in Electrical and Computer Engineering*

Pittsburgh, PA

Aug. 2015 – Sep. 2019

### Carnegie Mellon University

*MS in Electrical and Computer Engineering*

Pittsburgh, PA

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

*Rocket Travel by Agoda*

August 2022 – Present

*New York City, NY*

- Pioneering the use of OpenAI ChatGPT in creating a travel assistant for 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

*Walmart, Inc.*

January 2022 – August 2022

*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

*Walmart, Inc.*

December 2020 – January 2022

*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

*Walmart, Inc.*

October 2019 – December 2020

*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

*Carnegie Mellon University*

Aug. 2015 – Sep. 2019

*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

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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

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- (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. Yağın “*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

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### Journal Papers

- (J1) M.Sood, A.Sridhar, **R.Eletreby**, C.W.Wu, S.A.Levin, H.V.Poor, and O.Yağın “*Spreading processes with mutations over multilayer networks*” - Proceedings of the National Academy of Sciences (April 2023)
- (J2) O.Yağın, 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.Yağın, 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.Yağın “*Connectivity of Inhomogeneous Random K-out Graphs*” - IEEE Transactions on Information Theory (June 2020)
- (J5) **R.Eletreby** and O.Yağın “*k-connectivity of Inhomogeneous Random Key Graphs with Unreliable Links*” - IEEE Transactions on Information Theory (January 2019)

### Conference Papers

- (C1) A.Sridhar, O.Yağın, **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.Yağın “*Epidemic Spreading of Mutating Contagions over Multi-Layer Contact Networks*” - NetSci 2021
- (C3) **R.Eletreby** and O.Yağın “*On the Connectivity of Inhomogeneous Random K-out Graphs*” - IEEE ISIT 2019
- (C4) **R.Eletreby** and O.Yağın “*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.Yağın “*Empowering Low-Power Wide Area Networks in Urban Settings*” - ACM SIGCOMM 2017

For a full list of publications, please visit my [Google Scholar profile](#).