Ilan Reinstein, M.S.

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Summary

Data scientist with 4+ years of experience applying machine learning, statistics, and data mining techniques to deliver data-driven insights and solutions to a wide variety of applications and problems. Proficient in developing and integrating robust data science and machine learning software into production pipelines using Python, R, SQL, and AWS.

Education

Master of Science in Applied Physics, September 2015 - May 2017
New York University Tandon School of Engineering, Brooklyn, NY

Bachelor of Science in Physics, January 2009 - March 2014
Universidad de Los Andes, Bogotá, Colombia

Certifications

Data Engineering - Udacity, July 2021, New York, NY
Data Science for All (DS4A) Colombia - Correlation One, November 2020, New York, NY

Skills

- Python, R, SQL, Linux, Git, AWS, Docker, Spark, Airflow
- Machine Learning; Statistical Inference and Modeling; Data and Software Engineering; Research; Bayesian Statistics

Languages

English (fluent)**; Spanish** (native)

Professional Experience

Institute for Innovations in Medical Education, New York University Grossman School of Medicine, New York, NY
Senior Data Science Engineer, March 2021 – Present

- *Analytics and Dashboard Development Consulting. C*onsulted with multiple divisions, and contributed to the development and deployment of statistical models, strategic analytic frameworks and interactive dashboards for KPI tracking and modeling
- *Machine Learning for Clinical Note Quality Assessment.* Deploy a data and machine learning pipeline to extract, clean, and model text from clinical notes of medicine residents' to assess, measure, and predict clinical thinking via note quality
- *Machine Learning for Admissions Screening.* Develop, deploy and evaluate machine learning models to automate, and optimize the admissions committee's operational workflow. The human effort and the time spent by the stakeholders in reviewing applications was reduced by over 70% and class diversity improved by 20%

Associate Research/Data Scientist, April 2018 – February 2021

- *Machine Learning for Student Performance and Risk Prediction.* Build and deploy a model to monitor students' performance to identify risk factors. The model provides faculty with insight into the students' challenges and helps develop student-specific recommendations and feedback for learning
- *Learning curves and multilevel models.* Analyze structured and unstructured data obtained from three experiments conducted to gain insights and model learning during deliberate practice of visual diagnosis like ECG readings and elbow radiographs. Developed a model capable of generating personalized predictions and item recommendations for practice to each participant in the study
- *Adaptive Learning Algorithm for Electrocardiogram (ECG) Teaching.* Launched and integrated an educational algorithm into a web-based ECG case simulator to capture and analyze the subject's responses in real-time, to provide feedback on performance and to recommend new practice examples
- *NYU COVID-19 Response.* Collaborated with a team of statisticians and physicians from NYU Langone to develop a predictive model that would determine favorable outcomes in admitted COVID-19 patients.

KDnuggets, Brooklyn, NY
Contributing Editor, September 2017 – February 2018

- *Original Content.* Authored, edited, and published original articles about educational resources on advanced algorithms and descriptive reports about current trends and discoveries in the Big Data and Analytics field. Obtained recognition for five Most Read articles on the site

Inter-American Development Bank (IADB), New York, NY
Data Visualization Consultant, August 2017 – February 2018

- *Interactive Data Visualizations.* Developed and designed an interactive visualization for data collected from annual reports, research centers and other public resources on Latin America's usage of renewable energy to recommend policies in the region, and to enhance outreach and communication to senior leadership about sustainable energy initiatives within the bank

Bayesquare Foundation, New York, NY
Machine Learning Research Assistant, July 2017 – October 2017

- *Machine Learning and Economic Policy.* Developed and applied machine learning models to financial and economic data to determine novel technological approaches to economic policy such as interest rate decisions

- *Cities with High Crime Rates*. Analyze and implement a statistical model capable of identifying relevant risk factors that drive crime in large cities across the US

Urban Observatory, Center for Urban Science + Progress, Brooklyn, New York University, NY
Research Assistant, January 2017 – June 2017
- *Visible Building Emissions Detection.* Developed software to prepare, analyze, and automate image processing and feature extraction a big data set of 70k images for the detection of smoke and vapor emissions from buildings across the NYC skyline. Conducted and presented literature reviews on computer vision, anomaly detection, and time series

Aentrópico, Bogotá, Colombia
Data Science Intern, April 2014 – November 2014
- *Automated Visualization Packages.* Developed, designed and integrated automated software for visualization and analysis into the company's ready-to-use web application to gain insight on all the clients' available and relevant data
- *Data and Business blog.* Use and apply the company's software platform to publish brief data analysis reports as blog entries to showcase and outreach to new customers

Publications

Papers

- Burk-Rafel, Jesse; **Reinstein, Ilan**; Feng, James; Kim, Moosun Brad; Miller, Louis H.; Cocks, Patrick M.; Marin, Marina; Aphinyanaphongs, Yindalon. Development and Validation of a Machine-Learning-Based Decision Support Tool for Residency Applicant Screening and Review, *Academic Medicine: August 3, 2021 - Volume - Issue - doi: 10.1097/ACM.0000000000004317*
- **Reinstein, I.**, Hill, J., Cook, D.A. *et al.* Multi-level longitudinal learning curve regression models integrated with item difficulty metrics for deliberate practice of visual diagnosis: groundwork for adaptive learning. *Adv in Health Sci Educ* (2021). https://doi.org/10.1007/s10459-021-10027-0
- Razavian N, Major V, Sudarshan M, Burk-Rafel J, Stella P, Randhawa H, Bilaloglu S, Chen J, Nguy V, Wang W, Zhang H, **Reinstein I**, Kudlowitz D, Zenger C, Cao M, Zhang R, Dogra S, Harish K, Bosworth B, Francois F, Horwitz L, Ranganath R, Austrian J, Aphinyanaphongs Y. A Validated, Real-Time Prediction Model for Favorable Outcomes in Hospitalized COVID-19 Patients. *npj Digit. Med.* **3,** 130 (2020). https://doi.org/10.1038/s41746-020-00343-x

Abstracts

- Burk-Rafel J, Marin M, **Reinstein I**, Aphinyanaphongs Y, Miller L, Cocks P. Resident Retriever: A Machine Learning Approach to Screening Residency Applicants. *AAMC Learn Serve Lead annual meeting. 2020. [Accepted. Meeting Cancelled due to COVID-19]*
- Schaye V, Kudlowitz D, Guzman B, Miller L, Chun J, **Reinstein I,** Burk-Rafel J, Cocks P, Aphinyanaphongs Y, Marin M. NoteSense: Development of a Machine Learning Algorithm for Feedback on Clinical Reasoning Documentation. Abstract published at Hospital Medicine 2020, Virtual Competition. Abstract 448 Journal of Hospital Medicine. *https://shmabstracts.org/abstract/notesense-development-of-a-machine-learning-algorithm-for-feedback-on-clinical-reasoning-documentation/. July 10th 2020*

Posters

- **Reinstein I**, Savadamuthu V, Marin M, Triola M, Gillespie C. Determining Predictors of Success in Medical School. *2020 Information Technology in Academic Medicine Conference. AAMC Group on Information Resources (GIR). [Accepted. Conference Cancelled due to COVID-19]*
- **Reinstein I**, Koscica N, Savadamuthu V, Hardowar K, Wilhite J, Gillespie C. Automated Reporting Platform. *2020 Information Technology in Academic Medicine Conference. AAMC Group on Information Resources (GIR). [Accepted. Conference Cancelled due to COVID-19]*

Teaching

Universidad de Los Andes, Physics Department, Bogotá, Colombia
Adjunct Professor, January 2015 – May 2015
- *Courses: Pre-Physics, Physics 101, Physics 102.* Managed and delivered weekly problem-solving sessions to 60 engineering and science students. Reviewed and graded assignments

Universidad de Los Andes, Physics Department, Bogotá, Colombia
Teaching Assistant, January 2011 – Dec 2013
- *Clinic for Problem Solving in Physics:* Supported and helped students from engineering and science with their weekly assignments from intermediate and advanced physics courses