Christopher H. Greer, Ph.D

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Professional Experience

Children's Hospital Colorado — Aurora, Colorado
Data Scientist Advanced — **November, 2019 – Present**

As the senior data scientist in the Analytics Resource Center, I lead implementation of real–time machine–learning models into the Epic electronic health record. I provide expertise around software engineering and devops best practices, as well as piloting the use of new technologies for clinical applications (e.g. LLMs).

- Designed and built a pipeline for custom model implementation into the production Epic to predict: risk of complications from influenza, risk of septic shock, and risk of serious bacterial infection.
- Co–author on clinical trial results for the sepsis models. Spoke nationally to audiences on real–time implementation and MLOps pipelines for custom models in Epic.
- Replaced existing NLP process to analyize employee sentiment results using ChatGPT (via the Azure OpenAI Service), realizing savings of 400 developer hours per year.
- Designed and built a process using LLMs to build patient cohorts using information contained in clinical notes, doubling the precision of existing NLP techniques. Realized savings of 16 hours per 1000 patients.
- Supervised junior team members to design and develop two models predicting the risk of hospital acquired conditions and a time series epidemiology model to predict respiratory–season hospital volumes.

Oracle — Broomfield, Colorado
Principle Data Scientist — **February, 2017 – November, 2019**

- Incorporated geolocation data into the Oracle Data Cloud Identity Graph (using Apache Spark on AWS).
- Rebuilt a privacy–preserving record linkage algorithm between incoming and fulfilled datasets, improving the quality of the match by 45%, scale by 30%, and standardizing the approach across 1000s of datasets.
- Designed and built a graph–quality measurement algorithm using a Monte–Carlo approach, demonstrating a factor of ~ 6 improvement over deterministic graph approaches.

KPMG — Denver, Colorado
Sr. Associate Data Scientist — **October, 2015 – February, 2017**

- Built a data classification tool for end users using Apache OpenNLP, Spark, Hadoop, Sqoop, Hive, Python, and Elasticsearch.
- Built of suite of distributed tools to augment publicly available NLP packages.
- Used these tools for information security and control for KPMG as well as data separation for large, multinational clients across millions of documents hundreds of TB in size.

Steward Observatory, The University of Arizona — Tucson, Arizona
Postdoctoral Research Associate — **July, 2012 – September, 2015**

- 2020 Breakthrough Prize in Fundamental Physics Laureate for contributions to the Event Horizon Telescope project on the South Pole Telescope.
- Responsible for the receiver control and monitoring operating system using custom electronics (in C).
- Responsible for the optics design that integrated the receiver onto the telescope.

Skills

Data: Bayesian statistics, machine learning, natural language processing, Fourier signal analysis, MCMC, record linkage, visualization
Technology: Docker, Luigi, Azure DevOps Pipelines, Apache Spark, Python, MATLAB, C, SQL, git, BASH, Epic electronic health record, Microsoft Azure, AWS, Data Robot, Elasticsearch, R, Scala
Leadership: Experience organizing and leading workshops and collaboration meetings, Teaching and mentoring junior team members, Public speaking, Agile development, writing/publishing.

Education

University of Chicago, Chicago, IL
- Ph.D., Astronomy and Astrophysics, 2012
- M.S., Astronomy and Astrophysics, 2004

Northwestern University, Evanston, IL
- B.A., Physics and Mathematics, 2002