

# William E. Jarrard

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## EDUCATION

**University of Virginia School of Data Science, Charlottesville, VA**

*Class of 2022*

MS, Masters of Data Science

GPA 3.89

**Activities:** MSDS Admissions Ambassador; Co-Founder of Sports Analytics Club, Rock Climbing Club

**University of Virginia School of Engineering and Applied Science, Charlottesville, VA**

*Class of 2021*

BS, With High Distinction: **Major:** Systems Engineering w/ pre-medical course work

**Activities:** Swim Club, Mad House Volunteering, Online Tutoring During the COVID-19 Pandemic

## SKILLS and TECHNIQUES

- **Languages and Packages:** Python, R, SQL, Shell, Pytorch, TensorFlow/Keras, PySpark, Pandas, Matplotlib, Numpy, Scikit-learn, Tidyverse, Tableau, git, AWS, Terraform
- **Domain Knowledge:** Classical Statistical Learning Techniques, Deep Learning (image classification, object detection, RNN's, transformers, generative networks) Infrastructure as Code, Probabilistic Programming

## WORK EXPERIENCE

**CGHE Researcher, University of Virginia Hospital**

*Summer 2021*

- Created a method for extracting features such as drug names from paper medical sheets by implementing YOLO for segmentation and classification, and LSTMs for capturing the sequential nature of drugs.
- Created a simulation of a hospital using queuing theory (python library Simpy) in Rwanda to do stress tests to explore implications of overflow of patients and learned about the different bottlenecks in the hospital.

**Devops/ Data Science Intern, Propeller Health**

*Summer 2019, 2020*

- Improved air quality and weather data sets for machine learning and forecast models – created novel baseline air quality prediction
- Created an automated alert system to send messages to Slack when services in AWS crash which helped the company improve response times over 50% in off hours. Used services such as Lambda, EC2, S3, IAM, Cloudwatch, Cloudtrail, and ECS.

## SIDE PROJECTS

**Predicting Music Genre with Song Lyrics using Statistical Learning Methods, GRU's and BERT**

- Web scraped song lyrics to predict songs genres utilizing statistical learning methods such as multinomial logistic regression, naive bayes and linear SVC. Also utilized newer deep learning NLP methods such as GRU's, CNN's, basic transformers, and BERT.

**Building Identification Model using Transfer Learning of CNNs**

- Used transfer learning of a RegNetY model to identify photos of different buildings (mix from online and ones I took) at UVA with over 90% top-1 accuracy.

**Clothes Recommendation System Using Collaborative Filtering**

- Created a recommendation system in PySpark using ALS modeling and association analysis to recommend clothes a person is likely to buy next.

## PUBLICATIONS

**“UTX condensation underlies its tumour-suppressive activity” 2021, Nature.**

- Novel study of how condensation of certain proteins (UTX) in cells can decrease its ability to combat cancer formation.

**“A User Interface Informing Medical Staff on Continuous Indoor Environmental Quality to Support Patient Care and Airborne Disease Mitigation” 2021, IEEE.**

- Analyzed and created an interface to record indoor environmental quality (IEQ) that informed medical staff to help support patient care and airborne disease mitigation.