# Ryan Bieber

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## Summary

Data Scientist with a M.S. in Economics with 2 years of professional experience using advanced analytical techniques to analyze data.

## Experience

IBM, Data Science & Technology, Finance. Rochester, MN. 07/2019 – Present
**Squad Lead Data Scientist**

- Created a modelling application using R inside a docker container that is able to forecast, in parallel, any series given to it through a series of back-testing and error minimization algorithms to produce the most accurate forecast possible with the given data.
- Pushed for using cloud deployment stratgies with a CI/CD framework of being able to have your entire application be rebuilt all from a git push trigger.
- Mentored, taught, and assisted my squad of 7 people in using data science fundamentals of programming with Python, R, and SQL. Along with statistical fundamentals of regression techinques(random forest, glm, ols), machine learning(KNN, clustering, nerual nets), and time-series techniques(ARIMA, exponetial smoothing, tbats).
- Created a REST API in R that was housed in a kubernetes cluster using a docker that used webhooks and the Trello API to improve process management for over 10,000+ people by tracking their tasks every day and being able to visual those inside a dashboard.
- Worked with teams across finance in IBM to develop and implement forecasting models to help improve workflow and reduce time spent by the analyst.
- Reduced development time for modelling applications by creating processes that my team was able to use and replicate to standardize modelling in R.
- Pushed for the iterative design framework to push out applications in a MVP stage and to iterate on that design so our stakeholders weren't waiting empty handed when we had results that could be used.

University of North Dakota, Economics Department. Grand Forks, ND. 05/2017 – 05/2019
**Graduate Research Assistant**

- Worked with professors doing research in the fields of macroeconomics, financial econometrics, and housing prices across the US by using Stata and R to analyze data.
- Tutored undergraduate and MBA's for 2 years in statistical methodologies along with basic economic principles.

InfoTech, Consulting. Gainesville, FL. 05/2018 – 08/2018
**Consulting Internship**

- Worked with PhD consultants in class action lawsuits to help prove if collusion was evident by using SAS and regression techniques to show a "but-for" price and the actual price with the difference being the amount gained by collusion.
- Analyzed millions of rows of data inside SAS and gathered key insights for our economic litigation team to look into more deeply as to why these anomalies were happening.

Mayo Clinic, Advanced Image Research. Rochester, MN. 05/2015 – 08/2015
**Research Fellowship**

- Analyzed 3d image scans of livers, hearts, and kidneys inside Matlab. The data was then sent through a series of ordinary differential equations(ODE's) to determine the stiffness of the body parts.
- Researched the effect of passing waves through a plate of varying thicknesses to simulate the wall of the heart to determine if it is possible to measure heart stiffness without going through an invasive process. (See Lamb Waves)

## Technology and Data Toolbox

**Technology:** Kubernetes, Docker, Openshift, IBM Cloud, R, Python, SQL, Cognos, HTML/CSS/JS, RShiny, Plumbr, Django, Keras, Tensorflow, and SparkR.
**Data Toolbox:** Deep learning, time-series, data mining, visualization, regression, ensembling, machine learning, ETL, Rest API's, cloud deployment, and NLP.

## Data Science Projects

- TimeSeriesCatchAll A time-series package that runs 1000s of models against your series in parallel. It uses Hyndman's Forecast, Forecasthybrid and DLM to forecast a time-series. It is able to go through 1000s of models in parallel for a time-series and based off the steps forward you want to look it is able to do the back testing and pick the best model forward based on an error metric of your choosing.
- World of Warcraft, Black Market Gold The whole point of this project was to look at how patches impacted gold prices in world of warcraft. It evolved into trying to predict when to *buy gold* in the game to try and play the market just like in the stock market. It turns out that gold prices are very unpredictable and follow a stochastic trend.
- Twitter NLP This was brought about by being interested in seeing if we could predict the stock market based on twitter sentiment. using sentimentr we are able to determine the sentiment of string of texts. Using this, we can get a time-series of someone's sentiment. Long story short, it did not work out as I wanted it to but, it is pretty cool to see someone's sentiment over time using their twitter data.
- Deploying plumber in the IBM Cloud This was more of a learning experience with understanding how a full-stack web API works with R. Also, connecting to a DB2 from a container is somewhat annoying if you must use that dbms.
- Social Distancing Example This Rshiny app was based on the SIR model to look at how social distancing works in a simple example and how epidemics work in this classical example.

## Education

University of North Dakota. Grand Forks, ND. 2017 – 2019
**Masters in Science, Applied Economics** GPA 4.0

University of North Dakota. Grand Forks, ND. 2013 – 2017
**Bachelors of Arts, Economics & Bachelors of Science, Mathematics**