RYAN MCWHORTER

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Education

The University of Texas at Austin — Bachelor of Business Administration, Quantitative Finance — May 2022
Overall GPA: 3.0053
I have completed 105 credit hours, including 20 additional hours of upper division mathematics.

Projects and Research

Sigmoid Technologies – *Co-founder;* Austin, TX — December 2019 – Present
Pre-seed startup focusing on medical imaging

- I partnered with my co-founder to design and build an app which allows on the fly diagnosis of chest x-rays.
- This included work with machine learning which entailed training convolutional neural networks as well as replicating established scientific work such as CheXNet.
- I also built a backend system on Firebase which includes the ability to authenticate users, upload images, and process image data (all done in Python).
- We also integrated and maintained a NoSQL database, allowing us to efficient serve both our iOS app and our automatic image processing services.
- We faced challenges including getting our ML models to run automatically in the cloud (via Google Cloud AI Platform and Google Cloud Function), and getting these models to run in a performant manner on constrained hardware.

Differential Geometry and Portfolio Theory — February 2020 – Present

- This research is on going and as of yet unpublished.
- Alongside several professors, I have been investigating the application of differential geometry (and in particular, Riemannian geometry) to the study of financial risk
- This approach yielded a new way of thinking about risk measures and promises to yield interesting results concerning measurement of arbitrage opportunities.
- Any research program is at times fraught with challenges, and for me that has mostly been in digesting a wealth of literature across fields as far apart as statistical divergences and mathematical physics

Leadership Experience and Activities

Texas USIT – *General Member* — Fall 2018 – Fall 2020

- Voted on various positions to take with USIT capital, alongside other general members.
- Attended secondary analyst group meetings, centered on learning financial fundamentals, e.g. GAAP accounting and using DCFs to value investments
- Participated in annual Analyst Group Stock Pitch

Technical Qualifications

Programming and Development:

- Fluent in Python and Rust with a focus on performant data gathering and manipulation.
- I have varying degrees of exposure to R, MatLab, Bash, and SQL.
- I've developed applications on most operating systems, including Window, Linux (Ubuntu), and MacOS.
- I also have experience in machine learning, in particular in image classification.
- I am familiar with Git, having hosted many personal things on GitHub and Sigmoid Technologies' codebase on GitLab

Mathematics:

- My mathematical education includes probability, linear algebra, vector calculus, differential equations, and real analysis. This includes ongoing education in complex analysis and algebraic structures.
- In addition to standard curricular courses, I have some degree of familiarity with differential geometry and multilinear algebra.

Additional Information About Me

Computer Skills

- I have extensive experience with Microsoft Word, Excel, and PowerPoint.

Interests:

- I read frequently, and I have a reading list that can be found at rmcwhorter.github.io/reading.html.
- Most of my reading relates to finance, economic history, military history, and philosophy and sociology

Work Eligibility

- Eligible to work in the U.S. with no restrictions