Ryan Tatton

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Cleveland, OH

Education

Case Western Reserve University — **Cleveland, OH**
MS Computer Science candidate, BS Computer Science, BS Biomedical Engineering; 3.5 GPA — *Expected Fall 2022*

- Dean's (High*) Honor List: Fall 2017*, Spring 2019, Spring 2020*, Spring 2021
- Relevant coursework: Machine Learning, Sequential Decision Making, Probabilistic Graphical Models, Natural Language Processing, Advanced Algorithms, High-Performance Computing, Operating Systems, Data Privacy

Work Experience

Amazon.com, Inc. (Tax Services) — **Seattle, WA**
Software Development Engineer Intern — *May – Aug 2020, May – Aug 2021*

- Designed an extensible Java library that utilizes Amazon DynamoDB to prevent version conflicts during cross-region database replication that previously cost several weeks of development time to resolve.
- Implemented a deployment pipeline using TypeScript, AWS AppConfig, and AWS CDK to streamline the workflow of modifying, reviewing, deploying, and rolling back application configuration changes.
- Provided well-written technical documentation and thorough oral presentation to demonstrate the value of the developed software to project stakeholders.

ShareTrace — **Cleveland, OH**
Software Engineer, Researcher — *May 2020 – present*

- Developed the serverless backend of the ShareTrace mobile app that predicates infection risk from user symptoms and (in)direct contact with other users. Source code: github.com/share-trace.
- Master's thesis: improve efficiency, scalability, and robustness with actor-based asynchronous, concurrent message passing; study effects of concurrency and temporal network structure on algorithmic output and performance.
- Tatton, R., Ayday, E., Yoo, Y., & Halimi, A. (2022). ShareTrace: Contact tracing with asynchronous, parallel message passing on a temporal graph. arxiv.org/abs/2203.12445.
- Tools: Python, Java, AWS Lambda, Amazon EMR, Amazon S3, Apache Giraph, Akka, Ray, Gradle, Docker.

Hesiod Financial, LLC — **Cleveland, OH**
Software Engineer — *Oct 2018 – Jan 2020*

- Implemented a Flask-based web app using Scikit-learn and Plotly Dash to configure and train machine-learning models to improve portfolio performance. Source code: github.com/Hesiod-Labs/ai.ML.
- Programmed an internal Java accounting library to securely manage firm transactions using blockchain. Source code: github.com/Hesiod-Labs/Project-Luca.

Academic Projects

connect.fm: Personalized Music Recommendation Android Mobile App — **Cleveland, OH**
Computer Science Senior Capstone Project — *Feb – May 2021*

- Researched and implemented a scalable, context-aware recommender system using a Dirichlet process mixture model and personalized near-neighbor ancestral sampling. Source code and documentation: github.com/connectfm/cfm.
- Designed the serverless cloud architecture for storing user data and generating recommendations.
- Tools: Python, Redis, Amazon Elasticache, AWS Lambda, Amazon DynamoDB, AWS Amplify, Tensorflow.

Wearable Stress Measurement System — **Cleveland, OH**
Biomedical Engineering Senior Capstone Project — *Feb – May 2021*

- Reviewed machine learning literature to determine an appropriate technique for predicting ICU patient stress according to user needs and technical specifications.
- Implemented a deep reconstruction classification neural network to predict ICU patient stress in an unsupervised manner using Keras. Source code: github.com/rtatton/ebme380.

Personalized Truck Rental Service — **Cleveland, OH**
Digital Innovation Course — *Jan – Apr 2020*

- Researched and proposed to Penske Truck Leasing Co., L.P. a novel deep-learning-based approach to improve the personalization of their consumer truck rental services.
- Implemented a unique vehicle-routing algorithm using Google OR-Tools to satisfy customer requirements.

Extracurriculars

***Discussions*, Undergraduate Research Journal** — **Cleveland, OH**
Director of Review (Aug 2019 – Apr 2021), Copy Editor (Aug 2017 – Nov 2018) — *Aug 2017 – Apr 2021*

- Reviewed and revised 32 undergraduate research articles for fall and spring publications.
- Created formal documentation that explains the review process and guidelines.

Varsity Cross Country Team — **Cleveland, OH**
Aug 2017 – Sep 2019