

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

EXPERIENCE

Amazon, 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., and 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, Dataswift PDAs.

Hesiod Financial

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.

PROJECTS

xLab: Digital Innovation

Cleveland, OH

Student (Jan – Apr 2020), Senior Software Engineer (Aug 2021 – May 2022)

Jan 2020 – present

- *Hyland Credentials*. Extended the open-source Blockcerts Wallet Android app to store verifiable credentials in Dataswift PDAs and share them according to the principles of self-sovereign identity.
- *Penske*. Researched and proposed a novel usage of autoencoders to provide a personalized truck rental experience.
- Designed a full-stack onboarding project for new students using Python, Flask, Redis, Dataswift PDAs (including an unofficial Python SDK, github.com/rtatton/hat-py-sdk), Bootstrap, and Docker Compose.

connect.fm: Personalized Music Recommendation Android 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.

EXTRACURRICULARS

***Discussions*, Undergraduate Research Journal**

Director of Review (Aug 2019 – Apr 2021), Copy Editor (Aug 2017 – Nov 2018)

Cleveland, OH

Aug 2017 – Apr 2021

- Reviewed and revised 30+ undergraduate research articles for fall and spring publications.
- Created formal documentation that explains the review process and guidelines.
- Streamlined the peer-review process by integrating with Scholastica.

Varsity Cross Country Team

Cleveland, OH

Aug 2017 – Sep 2019