

Keith Harrigian

keith@kidzabout.net | kharrigian.github.io

Education

- Aug. 2019 – Present **Johns Hopkins University**
PhD, Computer Science. *GPA: 4.0/4.0*
- Sept. 2013 – May 2017 **Northeastern University**
BS, Mathematics. Minors in Physics and Music. *GPA: 3.91/4.0*

Academic Research

- Aug. 2019 – Present **Center for Language and Speech Processing (CLSP)**
Graduate Research Assistant | P.I. Mark Dredze
- Evaluate the reliability of mental health machine learning models in environments that differ from those used for training (e.g. data platform, demographic composition)
 - Design and deploy a web-based analytics dashboard for summarizing patient electronic communication data to aid in treatment of adolescent and adult mood disorders
- Aug. 2014 – Aug. 2019 **The Action Lab**
Research Assistant | P.I. Dagmar Sternad
- Engineered a new algorithm using Hidden Markov Models to precisely detect initiation of finger taps in noisy strain gauge time series data
 - Co-supervised “Pitchers and Pianists” study at Boston Museum of Science from September 2015 through May 2016; educated 400+ visitors on human coordination and neural control

Industry Experience

- April 2021 – Present **Unforged | Kidz About Network**
Data Science and Machine Learning
- Lead design and development of natural language processing pipeline to support proprietary digital wellness platform
 - Review grant applications to ensure technical contributions are accurately described; identify overlap in core technology with competitors to ensure contributions are novel
 - Curate technical and asset management plans (including personnel allocation)
- June 2018 – June 2019 **Warner Media Applied Analytics**
Senior Quantitative Analyst
- Developed speech and language feature-extraction tools to model the relationship between thematic content in movie trailers and downstream effects on Wikipedia web traffic
- Quantitative Analyst*
- Optimized the targeting of interest segments on Facebook in real time using contextual-bandits and factorization of audience overlap matrices
 - Advised Masters student on a project to identify film mentions in podcast audio via fuzzy matching and supervised learning, resulting in publication
- June 2017 – June 2018 **Legendary Entertainment**
Quantitative Analyst
- Developed a multi-modal model to infer demographics of Reddit users and a collaborative filtering system to segment online communities
 - Programmed a tool to extract book titles mentioned on Reddit, scrape metadata from an online reading database, and visualize demographic-level trends in an interactive web app
 - Leveraged partial least squares regression to create a content- and marketplace-aware arbitrage model for the digital promotion of news articles
- July 2016 – Dec. 2016 **True Fit Corporation**
Scientist (Co-op)
- Designed a robust anomaly detection system to capture fraudulent retail transactions, reducing noise by 10% in recommendation engine training data
 - Modeled e-commerce return rates to establish baselines for A/B testing
 - Curated resources in scientific literature to motivate foundational design decisions for a proprietary clothing style recommendation platform

July 2015 – July 2016

Legendary Entertainment

Quantitative Research Collaborator (Consultant)

- Led R&D of a conditional random field model for end-to-end named entity recognition on Twitter, allowing for dynamic query filtering based on temporal popularity fluctuations

Quantitative Research Analyst (Co-op)

- Created a command-line tool to acquire secondary market sales data and compile revenue reports, enabling 4 professional sports organizations to optimize ticket prices
- Trained Naïve Bayes model to quantify movie-going intent and infer sentiment within tweets

Publications

Harrigian, K.; Aguirre, C.; Dredze, M. On the State of Social Media Data for Mental Health Research. *In Proceedings of the 2021 Computational Linguistics and Clinical Psychology Workshop*. 11, June. 2021.

Sherman, E.; **Harrigian, K.**; Aguirre, C.; Dredze, M. “Towards Understanding the Role of Demographics in Deploying Social Media-Based Mental Health Surveillance Models.” *In Proceedings of the 2021 Computational Linguistics and Clinical Psychology Workshop*. 11, June. 2021.

Aguirre, C.; **Harrigian, K.**; Dredze, M. “Gender and Racial Fairness in Depression Research using Social Media.” *In Proceedings of the 16th Conference of the European Chapter of the ACL (EACL)*. 19, April. 2021.

Harrigian, K.; Aguirre, C.; Dredze, M. Do Models of Mental Health Based on Social Media Generalize? *In Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing: Findings (EMNLP)*. 16, Nov. 2020.

Harrigian, K.; Guo, D.; Park, S.; Sternad, D. Pitchers and Pianists: A Large-scale Study on Discrete and Rhythmic Timing. *In Preparation*.

Harrigian, K. Geocoding Without Geotags: A Text-based Approach for reddit. *In Proceedings of the 4th Workshop on Noisy User-generated Text (EMNLP)*. 1, Nov. 2018.

Gundogdu, A.; Sanghvi, A.; **Harrigian, K.** Recognizing Film Entities in Podcasts. *In Proceedings of the 1st Workshop on Machine Learning and Data Mining for Podcasts (KDD)*. 20, Aug. 2018.

Posters and Talks

Sternad, D.; Guo, D.; **Harrigian, K.** Pitchers and Pianists: Timing in Discrete and Rhythmic Motor Skills. *New England Sequencing and Timing Meeting*. 25, Mar. 2017.

Harrigian, K.; Sanders, N.; Foster, J.; Sanghvi, A. When Anonymity is Not Anonymous: Gender Inference on Reddit. **Won Outstanding Student Research (Computer and Information Sciences)**. *Northeastern Research, Innovation, and Scholarship Expo*. 7, Apr. 2016.

Harrigian, K.; Kuznetsov, N.; Sternad, D. Effects of tDCS on Precision of Finger Force Control and Rhythmic Tapping Movements. *Northeastern Research, Innovation, and Scholarship Expo*. 9, Apr. 2015.

Honors and Awards

Oct. 2016	Marshall Fellowship Finalist Nominated by faculty for outstanding academic merit and ambassadorial ability
Oct. 2016	Rhodes Fellowship Nominee Nominated by faculty for scholarly merit, social commitment, and leadership
Apr. 2016	Outstanding Student Research (Computer and Information Sciences) Best undergraduate poster in Computer and Information Science at Northeastern RISE 2016
Dec. 2015	Barry Goldwater Scholarship Nominee Research Proposal: Extreme Learning Machine for Localization of EEG in Parkinson’s Patients

Grants

Apr. 2015	Undergraduate Research and Creative Endeavors Award \$1000 to research effect of metric structure strength on motor learning of temporal rhythms
Apr. 2014	Lawrence Award for Undergraduate Scholastic Excellence in Physics \$250 scholarship awarded to student(s) with the highest GPA in class year
Sept. 2013	Northeastern College of Science Dean’s Scholarship \$80,000 scholarship awarded to top incoming undergraduates

Academic Service

- Aug. 2019 – June 2020 **Northeastern Honors Program**
Alumni Advisor
- Provide career and course guidance to two Northeastern University computer science undergraduate students
- Sept. 2015 – May 2017 **Northeastern College of Science**
Peer Advising Coach and Ambassador
- Met weekly with a first-year physics undergraduate student to instill successful academic habits; curated a study schedule to address time-management issues
- Sept. 2013 – Jan. 2016 **Northeastern Student Government Association**
Chair of Elections
- Raised voter turnout by 25% to a record high for campus of 18,000 undergraduates
 - Reformed referendum process by increasing accountability and transparency of legislature

Community Service

- Apr. 2014 – Apr. 2018 **Boston Athletic Association**
Team Captain (Recycling)
- Led recycling operations for the Boston Marathon Finish Area
 - Supervised team of 40+ volunteers in collection of recyclable goods and trash
- Jan. 2009 – Aug. 2014 **Golden Retriever Club of Greater Los Angeles Rescue**
Volunteer and Foster
- Served as caretaker for over 40 dogs; assisted in their transportation to medical appointments
 - Expedited revenue collection at several fundraisers via PayPal

Reviewing Service

Journals Journal of Medical Internet Research (JMIR)

Advising

- Apr. 2020 – Dec. 2020 **Narayani Wagle.** Johns Hopkins University. Undergraduate Student.
- Jan. 2019 – June 2019 **Aniruddah Tapas.** Warner Media Applied Analytics. Co-op Student.
- Oct. 2018 – Dec. 2018 **Ryan Oakley.** Warner Media Applied Analytics. Co-op Student.
- Jan. 2018 – June 2018 **Ahmet Gundogdu.** Warner Media Applied Analytics. Co-op Student.

Technical Skills

Programming Languages Python (Advanced), SQL (Intermediate), R (Functional), Stan (Functional), MATLAB (Functional)

Miscellaneous Git (Intermediate), Bash (Intermediate)

Certifications National Institutes of Health Office of Extramural Research (Human Subjects)