KRISTY HOLLINGSHEAD, PHD

hollingk@gmail.com 503-860-7667 hollingk.github.io Denver, CO

Senior data scientist & Artificial Intelligence researcher seeks challenging puzzles and interesting stories to tell using computational techniques on user data; particular expertise in natural language processing (NLP), anomaly detection, and psycholinguistic and pattern-of-life analysis for mental and physical health monitoring.

Big data analytics

Machine learning

Model evaluation

Cloud computing

Statistics

Skills

Language Expertise: 10+ Years: Python, C, bash, awk, sed, git 5+ Years: Java, C++, SQL, Docker, Spanish Familiar with: MATLAB, R, Hadoop, Korean Platforms: Unix, Linux, Mac, AWS, SGE

Education

PhD Computer Science Engineering, 2010MS Computer Science Engineering, 2004BA English – Creative Writing, 2000

Work Experience

Senior Data Scientist, 4/21-present

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Information Systems Support Office (ISSO) — Tampa, FL

Team leader

Trusted mentor

Experienced instructor

Highly skilled presenter

Oregon Health & Science University

Oregon Health & Science University

University of Colorado at Boulder

Clearbrief - remote

- Build syntactic models of legal authority citations, allowing for user errors and suggesting corrections.Direct annotation and quality assurance projects. Envision and help build feedback mechanisms for
- Enable semantic scoring from assertion to legal authority source.

Lead Data Scientist, 4/19–4/21

users to customize learned models.

• Lead a small team of data scientists in support of intel analysts at a DoD R&D shop.

- Direct research on semantic meaning (word embeddings) in temporal knowledge graphs.
- Implement a novel technique to inject human knowledge into deep learning models.
- Apply a machine learning algorithms to identify anomalous patterns in geospatial data.

Research Scientist, 12/14–4/19 Florida Institute for Human and Machine Cognition — Ocala, FL

- Principal Investigator on DARPA SocialSim program, simulating information propagation in social networks with a focus on group influence on social norm behaviors.
- Apply novel sentiment analysis techniques to online content to predict future online behavior.
- Develop automated methods for quantifying signals of health from a multi-modal array of features including written and spoken language, as well as pattern of life, social engagement, and physiology.
- Demonstrate that quantifiable indicators of neurological health can be automatically obtained, analyzed, and used to aid clinical diagnosticians in the assessment, monitoring, and treatment of patients with neurological disorders such as Alzheimer's, Parkinson's, or traumatic brain injuries.

Summer Workshop Team Co-Lead, 6/16-8/16

Johns Hopkins University — Baltimore, MD

• Co-lead a team of ten researchers on 'Detecting Risk and Protective Factors of Mental Health using Social Media Linked with Electronic Health Records'.

• Conduct automated analyses of social media to understand how language use and online behavior reflects a patient's mental health, with the goals of automatically detecting crisis points in a patient's lifeline and discovering features indicative of onset and recovery of mental health disorders.

Computer Systems Researcher, 5/12–11/14

Department of Defense — Ft. Meade, MD

- Lead teams of contractors extracting data from unstructured sources to build knowledgebases, trace errors to their analytic source, and work with developers to determine the best resolution.
- Build visualization widgets for exploratory data analysis, to include faceted search, timeline visualization, changepoint detection, and sentiment analysis.

Post-doctoral Research Associate, 9/10–5/12University of Maryland (UMD) — College Park, MDGraduate Research Assistant, 9/03–8/10Oregon Health & Science University — Beaverton, ORTechnical Writer, 7/00–11/02IBM — Boulder, CO

Select Publications

(Full list available on Google Scholar.)

M.K. Kim, S. Druga, S. Esmaeili, J. Woodward, A. Shaw, A. Jain, J. Langham, K. Hollingshead, S.B. Lovato, E. Beneteau, J. Ruiz, L. Anthony, A. Hiniker. 2022. Examining Voice Assistants in the Context of Children's Speech. *International Journal of Child-Computer Interaction* 34, 100540.

A. Zirikly, P. Resnik, Ö. Uzuner, **K. Hollingshead**. 2019. CLPsych 2019 Shared Task: Predicting the Degree of Suicide Risk in Reddit Posts. In *Proceedings of the Sixth Workshop on Computational Linguistics and Clinical Psychology*.

K. Hollingshead, B.J. Dorr, A. Dalton, M. Barton. 2019. Does Outrage Signal Cyber Attacks? Predicting "Bad Behavior" from Sentiment in Online Content. In the *Thirty-Second International Flairs Conference*.

A. Raj, B. Roberts, **K. Hollingshead**, N. McDonald, M. Poquette, and W. Soussou. 2018. A Wearable Multi-sensory, Multi-agent Approach for Detection and Mitigation of Acute Cognitive Strain. In *Proceedings of Human-Computer Interaction (HCI) International Conference*, Las Vegas NV, USA.

J. Austin, K. Hollingshead, and J. Kaye. 2017. Internet Searches and their Relationship to Cognitive Function in Older Adults. *Journal of Medical Internet Research (JMIR)*, 19(9):e307. doi:10.2196/jmir.7671

A. Bhatia, B.J. Dorr, **K. Hollingshead**, S.L. Phillips, and B. McKenzie. 2017. Characterization of divergence in impaired speech of ALS patients. In *Proceedings of the ACL BioNLP Workshop*, pages 149-158, Vancouver BC, Canada.

G. Coppersmith, **K. Hollingshead**, H.A. Schwartz, M.E. Ireland, R. Resnik, K. Loveys, A. Foreman, and L. Ingraham. 2016. The Clinical Panel: Leveraging Psychological Expertise During NLP Research. In *Proceedings of the NLP+CSS Workshop at EMNLP*.

G. Coppersmith, M. Dredze, C. Harman, and K. Hollingshead. 2015. From ADHD to SAD: Analyzing the Language of Mental Health on Twitter through Self-Reported Diagnoses. In *Proceedings of the 2nd Workshop on Computational Linguistics and Clinical Psychology (CLPsych)*.

B. Roark, **K. Hollingshead**, and N. Bodenstab. 2012. Finite-state chart constraints for reduced complexity context-free parsing pipelines. *Computational Linguistics*, 38(4):719–753.

B. Roark, M. Mitchell, J.-P. Hosom, **K. Hollingshead**, and J. Kaye. 2011. Spoken language derived measures for detecting Mild Cognitive Impairment. *IEEE Transactions on Audio, Speech and Language Processing*, 19(7):2081–2090.

PROFESSIONAL AFFILIATIONS AND AWARDS

Co-organizer of Computational Linguistics and Clinical Psychology annual workshop: 2015–2020. Reviewer for ACL, COLING, DARPA, EACL, EMNLP, HLT-NAACL. Member of Association for Computational Linguistics (ACL): 2006–present.