

Stanford



Jason Fries

Research Engineer, Med/BMIR

Bio

CURRENT ROLE AT STANFORD

I'm currently working as a staff research scientist in the Shah Lab and research scientist at Snorkel AI. My interests fall in the intersection of computer science and medical informatics. My research interests include:

- Machine learning with limited labeled data, e.g., weak supervision, self-supervision, and few-shot learning.
- Multimodal learning, e.g., combining text, imaging, video and electronic health record data for improving clinical outcome prediction
- Human-in-the-loop machine learning systems.
- Knowledge graphs and their use in improving representation learning

PROJECTS

- Weakly supervised classification of rare aortic valve malformations using unlabeled cardiac MRI sequences - Stanford University (1/1/2018 - 7/1/2019)
- Snorkel: Rapid Training Data Creation with Weak Supervision - Stanford University (6/1/2016 - 12/1/2018)

SERVICE, VOLUNTEER, AND COMMUNITY WORK

- Co-organizer for Machine Learning for Health Workshop @ NeurIPS (12/2016 - 12/2018)
- Area Chair @ Machine Learning for Healthcare Conference (MLHC) (2019 - 2021)

Publications

PUBLICATIONS

- **Ontology-driven weak supervision for clinical entity classification in electronic health records.** *Nature communications*
Fries, J. A., Steinberg, E., Khattar, S., Fleming, S. L., Posada, J., Callahan, A., Shah, N. H.
2021; 12 (1): 2017
- **Weakly supervised classification of rare aortic valve malformations using unlabeled cardiac MRI sequences** *Nature Communications*
Fries, J. A., Varma, P., Chen, V. S., Xiao, K., Tejada, H., Saha, P., Dunnmon, J., Chubb, H., Maskatia, S., Fiterau, M., Delp, S., Ashley, E., Ré, et al
2019; 10
- **Snorkel: Rapid Training Data Creation with Weak Supervision** *PROCEEDINGS OF THE VLDB ENDOWMENT*
Ratner, A., Bach, S. H., Ehrenberg, H., Fries, J., Wu, S., Re, C.
2017; 11 (3): 269–82
- **Evaluation of domain generalization and adaptation on improving model robustness to temporal dataset shift in clinical medicine.** *Scientific reports*
Guo, L. L., Pfohl, S. R., Fries, J., Johnson, A. E., Posada, J., Aftandilian, C., Shah, N., Sung, L.
2022; 12 (1): 2726

- **Systematic Review of Approaches to Preserve Machine Learning Performance in the Presence of Temporal Dataset Shift in Clinical Medicine.** *Applied clinical informatics*
Guo, L. L., Pfohl, S. R., Fries, J., Posada, J., Fleming, S. L., Aftandilian, C., Shah, N., Sung, L.
2021; 12 (4): 808-815
- **Assessment of Extractability and Accuracy of Electronic Health Record Data for Joint Implant Registries.** *JAMA network open*
Giori, N. J., Radin, J., Callahan, A., Fries, J. A., Halilaj, E., Re, C., Delp, S. L., Shah, N. H., Harris, A. H.
2021; 4 (3): e211728
- **Estimating the efficacy of symptom-based screening for COVID-19.** *NPJ digital medicine*
Callahan, A., Steinberg, E., Fries, J. A., Gombar, S., Patel, B., Corbin, C. K., Shah, N. H.
2020; 3 (1): 95
- **Measure what matters: Counts of hospitalized patients are a better metric for health system capacity planning for a reopening.** *Journal of the American Medical Informatics Association : JAMIA*
Kashyap, S., Gombar, S., Yadlowsky, S., Callahan, A., Fries, J., Pinsky, B. A., Shah, N. H.
2020
- **Assessing the accuracy of automatic speech recognition for psychotherapy.** *NPJ digital medicine*
Miner, A. S., Haque, A., Fries, J. A., Fleming, S. L., Wilfley, D. E., Terence Wilson, G., Milstein, A., Jurafsky, D., Arnow, B. A., Stewart Agras, W., Fei-Fei, L., Shah, N. H.
2020; 3: 82
- **Assessing the accuracy of automatic speech recognition for psychotherapy** *NPJ DIGITAL MEDICINE*
Miner, A. S., Haque, A., Fries, J. A., Fleming, S. L., Wilfley, D. E., Wilson, G., Milstein, A., Jurafsky, D., Arnow, B. A., Agras, W., Li Fei-Fei, Shah, N. H.
2020; 3 (1)
- **Language models are an effective representation learning technique for electronic health record data.** *Journal of biomedical informatics*
Steinberg, E. n., Jung, K. n., Fries, J. A., Corbin, C. K., Pfohl, S. R., Shah, N. H.
2020: 103637
- **Assessing the accuracy of automatic speech recognition for psychotherapy.** *NPJ digital medicine*
Miner, A. S., Haque, A. n., Fries, J. A., Fleming, S. L., Wilfley, D. E., Terence Wilson, G. n., Milstein, A. n., Jurafsky, D. n., Arnow, B. A., Stewart Agras, W. n., Fei-Fei, L. n., Shah, N. H.
2020; 3 (1): 82
- **Snorkel: rapid training data creation with weak supervision.** *The VLDB journal : very large data bases : a publication of the VLDB Endowment*
Ratner, A., Bach, S. H., Ehrenberg, H., Fries, J., Wu, S., Re, C.
2020; 29 (2): 709–30
- **The accuracy vs. coverage trade-off in patient-facing diagnosis models.** *AMIA Joint Summits on Translational Science proceedings. AMIA Joint Summits on Translational Science*
Kannan, A., Fries, J. A., Kramer, E., Chen, J. J., Shah, N., Amatriain, X.
2020; 2020: 298–307
- **Cardiac Imaging of Aortic Valve Area from 34,287 UK Biobank Participants Reveal Novel Genetic Associations and Shared Genetic Comorbidity with Multiple Disease Phenotypes.** *Circulation. Genomic and precision medicine*
Córdova-Palomera, A. n., Tcheandjieu, C. n., Fries, J. n., Varma, P. n., Chen, V. S., Fiteau, M. n., Xiao, K. n., Tejada, H. n., Keavney, B. n., Cordell, H. J., Tanigawa, Y. n., Venkataraman, G. n., Rivas, et al
2020
- **Estimating the efficacy of symptom-based screening for COVID-19.** *NPJ digital medicine*
Callahan, A., Steinberg, E., Fries, J. A., Gombar, S., Patel, B., Corbin, C. K., Shah, N. H.
2020; 3: 95
- **Medical device surveillance with electronic health records.** *NPJ digital medicine*
Callahan, A. n., Fries, J. A., Ré, C. n., Huddleston, J. I., Giori, N. J., Delp, S. n., Shah, N. H.
2019; 2: 94
- **Multi-Resolution Weak Supervision for Sequential Data**
Sala, F., Varma, P., Fries, J., Fu, D. Y., Sagawa, S., Khattar, S., Ramamoorthy, A., Xiao, K., Fatahalian, K., Priest, J., Re, C., Wallach, H., Larochelle, et al

NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2019

- **ShortFuse: Biomedical Time Series Representations in the Presence of Structured Information.** *Proceedings of machine learning research*
Fiterau, M. n., Bhooshan, S. n., Fries, J. n., Bournhonesque, C. n., Hicks, J. n., Halilaj, E. n., Ré, C. n., Delp, S. n.
2017; 68: 59–74
- **Brundlefly at SemEval-2016 Task 12: Recurrent Neural Networks vs. Joint Inference for Clinical Temporal Information Extraction** *Jason Alan Fries*
Fries, J. A.
2016: 1274–79

PRESENTATIONS

- Workshop: Rapid Biomedical Knowledge Base Construction from Unstructured Data - Stanford University (10/21/2017 - October 25, 2017)
- Weakly Supervised Learning in Medicine - Stanford MedAI (4/15/2021)