Stanford



Alison Callahan

Senior Research Engineer, Computational Medicine

Curriculum Vitae available Online

Bio

BIO

Alison Callahan is a Research Scientist in the Division of Computational Medicine and a Data Scientist on the Stanford Health Care Data Science team. Her current research uses informatics and artificial intelligence to improve rare disease screening. Her work in the SHC Data Science team focuses on developing and implementing methods to assess and identify high value applications of AI in healthcare settings.

Alison holds a master's degree in information studies from the University of Toronto, and a doctorate in bioinformatics from Carleton University. She completed her postdoctoral training at Stanford.

ACADEMIC APPOINTMENTS

- Senior Research Engineer, Computational Medicine
- Member, Maternal & Child Health Research Institute (MCHRI)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, American Medical Informatics Association (2014 - present)

PROFESSIONAL EDUCATION

- Doctor of Philosophy, Biology, Carleton University, Ottawa, Canada (2014)
- Master of Information Studies, University of Toronto, Toronto, Canada (2009)
- Bachelor of Science, Carleton University, Ottawa, Canada (2007)

PATENTS

- Nigam H. Shah, Vladimir Polony, Juan Manuel Banda, Alison Callahan. "United States Patent 17/654,569 Systems and Methods for Cohort Analysis Using Compressed Data Objects Enabling Fast Memory Lookups", The Board of Trustees of the Leland Stanford Junior University, Dec 22, 2021

LINKS

- Shah Lab: http://shahlab.stanford.edu
- Google scholar profile: https://scholar.google.com/citations?user=0w8U7NQAAAAJ&hl=en

Publications

PUBLICATIONS

- **Using aggregate patient data at the bedside via an on-demand consultation service** *NEJM Catalyst Innovations in Care Delivery*
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- **ACE: the Advanced Cohort Engine for searching longitudinal patient records.** *Journal of the American Medical Informatics Association : JAMIA*
  Callahan, A., Polony, V., Posada, J. D., Banda, J. M., Gombar, S., Shah, N. H.
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- **Assessment of Extractability and Accuracy of Electronic Health Record Data for Joint Implant Registries.** *JAMA network open*
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- **Association of Systemic Diseases With Surgical Treatment for Obstructive Sleep Apnea Compared With Continuous Positive Airway Pressure.** *JAMA otolaryngology-- head & neck surgery*
  Ibrahim, B., de Freitas Mendonca, M. I., Gombar, S., Callahan, A., Jung, K., Capasso, R.
  2021
- **Treatment and Monitoring Variability in US Metastatic Breast Cancer Care.** *JCO clinical cancer informatics*
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- **Trove: Ontology-driven weak supervision for medical entity classification.** *ArXiv*
  Fries, J. A., Steinberg, E., Khattar, S., Fleming, S. L., Posada, J., Callahan, A., Shah, N. H.
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- **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
- **Research and Reporting Considerations for Observational Studies Using Electronic Health Record Data.** *Annals of internal medicine*
  Callahan, A., Shah, N. H., Chen, J. H.
  2020; 172 (11_Supplement): S79–S84
- **Feasibility and evaluation of a large-scale external validation approach for patient-level prediction in an international data network: validation of models predicting stroke in female patients newly diagnosed with atrial fibrillation.** *BMC medical research methodology*
  Reps, J. M., Williams, R. D., You, S. C., Falconer, T., Minty, E., Callahan, A., Ryan, P. B., Park, R. W., Lim, H., Rijnbeek, P.
  2020; 20 (1): 102
- **FAIR SCI Ahead: The Evolution of the Open Data Commons for Pre-Clinical Spinal Cord Injury Research.** *Journal of neurotrauma*
  Fouad, K., Bixby, J. L., Callahan, A., Grethe, J. S., Jakeman, L. B., Lemmon, V. P., Magnuson, D. S., Martone, M. E., Nielson, J. L., Schwab, J. M., Taylor-Burds, C., Tetzlaff, W., Torres-Espin, et al
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- **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.
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- **Profiling off-label prescriptions in cancer treatment using social health networks.** *JAMIA open*
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  2019; 2 (3): 301–5
- **It is time to learn from patients like mine.** *NPJ digital medicine*
  Gombar, S., Callahan, A., Califf, R., Harrington, R., Shah, N. H.
  2019; 2: 16
- **Early Detection of Adverse Drug Reactions in Social Health Networks: A Natural Language Processing Pipeline for Signal Detection.** *JMIR public health and surveillance*
  Nikfarjam, A. n., Ransohoff, J. D., Callahan, A. n., Jones, E. n., Loew, B. n., Kwong, B. Y., Sarin, K. Y., Shah, N. H.

2019; 5 (2): e11264

- **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
- **A Second Opinion From Observational Data on Second-line Diabetes Drugs.** *JAMA network open*
  Callahan, A., Shah, N. H.
  2018; 1 (8): e186119
- **Comparing methods for estimation of heterogeneous treatment effects using observational data from health care databases.** *Statistics in medicine*
  Wendling, T., Jung, K., Callahan, A., Schuler, A., Shah, N. H., Gallego, B.
  2018; 37 (23): 3309-3324
- **Association of Hemoglobin A1c Levels With Use of Sulfonylureas, Dipeptidyl Peptidase 4 Inhibitors, and Thiazolidinediones in Patients With Type 2 Diabetes Treated With Metformin: Analysis From the Observational Health Data Sciences and Informatics Initiative.** *JAMA network open*
  Vashisht, R., Jung, K., Schuler, A., Banda, J. M., Park, R. W., Jin, S., Li, L., Dudley, J. T., Johnson, K. W., Shervey, M. M., Xu, H., Wu, Y., Natrajan, et al
  2018; 1 (4): e181755
- **U-Index, a dataset and an impact metric for informatics tools and databases** *SCIENTIFIC DATA*
  Callahan, A., Winnenburg, R., Shah, N. H.
  2018; 5: 180043
- **Performing an Informatics Consult: Methods and Challenges** *JOURNAL OF THE AMERICAN COLLEGE OF RADIOLOGY*
  Schuler, A., Callahan, A., Jung, K., Shah, N. H.
  2018; 15 (3): 563–68
- **Developing a data sharing community for spinal cord injury research.** *Experimental neurology*
  Callahan, A., Anderson, K. D., Beattie, M. S., Bixby, J. L., Ferguson, A. R., Fouad, K., Jakeman, L. B., Nielson, J. L., Popovich, P. G., Schwab, J. M., Lemmon, V. P.
  2017
- **Machine Learning in Healthcare** *Key Advances in Clinical Informatics: Transforming Health Care through Health Information Technology*
  Callahan, A., Shah, N. H.
  Elsevier.2017: 279–291
- **RegenBase: a knowledge base of spinal cord injury biology for translational research** *DATABASE-THE JOURNAL OF BIOLOGICAL DATABASES AND CURATION*
  Callahan, A., Abeyruwan, S. W., Al-Ali, H., Sakurai, K., Ferguson, A. R., Popovich, P. G., Shah, N. H., Visser, U., Bixby, J. L., Lemmon, V. P.
  2016
- **Feasibility of Prioritizing Drug-Drug-Event Associations Found in Electronic Health Records.** *Drug safety*
  Banda, J. M., Callahan, A., Winnenburg, R., Strasberg, H. R., Cami, A., Reis, B. Y., Vilar, S., Hripcsak, G., Dumontier, M., Shah, N. H.
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- **The health care and life sciences community profile for dataset descriptions.** *PeerJ*
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- **An evidence-based approach to identify aging-related genes in Caenorhabditis elegans** *BMC BIOINFORMATICS*
  Callahan, A., Cifuentes, J. J., Dumontier, M.
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- **Analyzing search behavior of healthcare professionals for drug safety surveillance.** *Pacific Symposium on Biocomputing. Pacific Symposium on Biocomputing*
  Odgers, D. J., Harpaz, R., Callahan, A., Stiglic, G., Shah, N. H.
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- **Analyzing Information Seeking and Drug-Safety Alert Response by Health Care Professionals as New Methods for Surveillance.** *Journal of medical Internet research*
  Callahan, A., Pernek, I., Stiglic, G., Leskovec, J., Strasberg, H. R., Shah, N. H.
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- **Text Mining for Adverse Drug Events: the Promise, Challenges, and State of the Art** *DRUG SAFETY*
  Harpaz, R., Callahan, A., Tamang, S., Low, Y., Odgers, D., Finlayson, S., Jung, K., LePendu, P., Shah, N. H.
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- **Minimum Information about a Spinal Cord Injury Experiment: A Proposed Reporting Standard for Spinal Cord Injury Experiments** *JOURNAL OF NEUROTRAUMA*
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- **Ontology-Based Querying with Bio2RDF's Linked Open Data.** *Journal of biomedical semantics*
  Callahan, A., Cruz-Toledo, J., Dumontier, M.
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- **Evaluating Scientific Hypotheses Using the SPARQL Inferencing Notation** *The Semantic Web: Research and Applications*
  Callahan, A., Dumontier, M.
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- **HyQue: evaluating hypotheses using Semantic Web technologies.** *Journal of biomedical semantics*
  Callahan, A., Dumontier, M., Shah, N. H.
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- **Contextual Cocitation: Augmenting Cocitation Analysis and its Applications** *JOURNAL OF THE AMERICAN SOCIETY FOR INFORMATION SCIENCE AND TECHNOLOGY*
  Callahan, A., Hockema, S., Eysenbach, G.
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- **Behaviourally mediated crypsis in two nocturnal moths with contrasting appearance** *PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES*
  Webster, R. J., Callahan, A., Godin, J. J., Sherratt, T. N.
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- **Empirical tests of the role of disruptive coloration in reducing detectability** *PROCEEDINGS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES*
  Fraser, S., Callahan, A., Klassen, D., Sherratt, T. N.
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