Jonathan H. Lu

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EDUCATION

Stanford-O'Connor Hospital Family Medicine Residency   June 2024 – June 2027
Family Medicine Resident

Stanford School of Medicine, Stanford, CA   Aug. 2019 – June 2024
M.D., Scholarly Concentration in Informatics & Data-Driven Medicine
5-year Discovery Curriculum

Princeton University, Princeton, NJ
M.S.E. Computer Science.   Sep. 2018 – June 2019
*B.S.E. Computer Scienc*e, highest honors   Aug. 2014 – June 2018
       Minor in Statistics & Machine Learning

RESEARCH

Shah lab, Stanford University   January 2020 – July 2022
Biomedical Informatics Researcher
- Informatics support for deployed machine learning model used to support End-of-life care at Stanford Hospital
- Systematically reviewed Epic clinical AI model documentation to identify gaps in transparency based on model reporting guidelines
- Demonstrated feasibility of routine reliability and fairness audits of clinical AI models before use
- Developed pipeline to share Stanford OMOP-CDM data with CDC during early months of the COVID-19 pandemic

PUBLICATIONS

Lu, J., Sattler, A.*, Wang, S.*, Khaki, A. R.*, Callahan, A., Fleming, S., Fong, R., Ehlert, B., Li, R. C., Shieh, L., Ramchandran, K., Gensheimer, M. F., Chobot, S., Pfohl, S., Li, S., Shum, K., Parikh, N., Desai, P., Seevaratnam, B., Hanson, M., Smith, M., Xu, Y., Gokhale, A., Lin, S., Pfeffer, M. A., Teuteberg W.**, & Shah N. H.**. (2022). Considerations in the Reliability and Fairness Audits of Predictive Models for Advance Care Planning. *Frontiers in Digital Health*. 4:943768. https://doi.org/10.3389/fdgth.2022.943768

Lu, J. H., Callahan, A., Patel, B. S., Morse, K. E., Dash, D., Pfeffer, M. A., & Shah, N. H. (2022). Assessment of adherence to reporting guidelines by commonly used clinical prediction models from a single vendor: a systematic review. JAMA Network Open, 5(8), e2227779-e2227779. https://doi.org/10.1001/jamanetworkopen.2022.27779

Li, R. C., Smith, M., **Lu, J.,** Avati, A., Wang, S., Teuteberg, W. G., Shum, K., Hong, G., Seevaratnam, B., Westphal, J., Dougherty, M., Rao, P., Asch, S., Lin, S., Sharp, C., Shieh, L., & Shah, N. H. (2022). Using AI to Empower Collaborative Team Workflows: Two Implementations for Advance Care Planning and Care Escalation. *NEJM Catalyst Innovations in Care Delivery,* 3(4), CAT-21. https://doi.org/10.1056/CAT.21.0457

Lu, J.*, Dumitrascu, B.*, McDowell, I. C., Jo, B., Barrera, A., Hong, L. K., Leichter, S. M., Reddy, T. E., & Engelhardt, B. E. (2021). Causal network inference from gene

transcriptional time-series response to glucocorticoids. *PLoS computational biology, 17*(1), e1008223. https://doi.org/10.1371/journal.pcbi.1008223

Jowell, A.*, Lachenauer, A.*, **Lu, J.,** Maines, B., Patel, L., Nadeau, K., & Erny, B. C. (2023). A model for comprehensive climate and medical education. *The Lancet Planetary Health, 7*(1), e2-e3. https://doi.org/10.1016/S2542-5196(22)00215-7

Baker, N.*, Bromley-Dulfano, R.*, Chan, J.*, Gupta, A.*, Herman, L.*, Jain, N.*, Lowe Taylor A.*, **Lu, J.*,** Pannu, J.*, Patel, L., & Prunicki, M. (2020). COVID-19 solutions are climate solutions: lessons from reusable gowns. *Frontiers in Public Health, 8*, 590275. https://doi.org/10.3389/fpubh.2020.590275

* indicates equal contribution
** indicates equal contribution and shared senior authorship

CONFERENCE PRESENTATIONS

Lu, J., Sattler, A.*, Wang, S.*, Khaki, A. R.*, Callahan, A., Fleming, S., Fong, R., Ehlert, B., Li, R. C., Shieh, L., Ramchandran, K., Gensheimer, M. F., Chobot, S., Pfohl, S., Li, S., Shum, K., Parikh, N., Desai, P., Seevaratnam, B., Hanson, M., Smith, M., Xu, Y., Gokhale, A., Lin, S., Pfeffer, M. A., Teuteberg W.**, & Shah N. H.**. (2024, Feb. 9th). *Can Advance Care Planning AI models support better End-of-life Care planning? [Poster presentation].* Society of Teachers of Family Medicine Conference on Medical Student Education. Atlanta, GA, United States.

Lu, J. H., Callahan, A., Patel, B. S., Morse, K. E., Dash, D., Pfeffer, M. A., & Shah, N. H. (2023, Oct. 28th). *Systematic Review of Reporting Guidelines for Clinical Prediction Models and Adherence of Models From Epic Systems [Poster presentation].* American College of Physicians Northern California Meeting. Stanford, CA, United States.

Lu, J., Bou-Khalil, C., Ike, S., Saena, V., Uhihamoelangi, S., Taylor, C., Grewe, H., Erny, B., & Owusu, Y. (2023, April 30th). *Evaluation of Community-Partnered Curricular Intervention on Climate Change and Mental Health in Preclinical Psychiatry Curriculum [Poster presentation].* Society of Teachers of Family Medicine Annual Spring Conference. Tampa, FL, United States.
https://lujonathanh.github.io/conference/Lu2023_poster_ClimateChangeMentalHealth.pdf

Lu, J., Sattler, A.*, Wang, S.*, Khaki, A. R.*, Callahan, A., Fleming, S., Fong, R., Ehlert, B., Li, R. C., Shieh, L., Ramchandran, K., Gensheimer, M. F., Chobot, S., Pfohl, S., Li, S., Shum, K., Parikh, N., Desai, P., Seevaratnam, B., Hanson, M., Smith, M., Xu, Y., Gokhale, A., Lin, S., Pfeffer, M. A., Teuteberg W.**, & Shah N. H.**. (2023, April 29th). *Can Advance Care Planning AI models support better End-of-life Care planning? [Poster presentation].* American College of Physicians Internal Medicine Meeting. San Diego, CA, United States.
https://lujonathanh.github.io/conference/Lu2022_poster_CanACPModelsSupportBetterEOLCare.pdf

Lu, J., Sattler, A.*, Wang, S.*, Khaki, A. R.*, Callahan, A., Fleming, S., Fong, R., Ehlert, B., Li, R. C., Shieh, L., Ramchandran, K., Gensheimer, M. F., Chobot, S., Pfohl, S., Li, S., Shum, K., Parikh, N., Desai, P., Seevaratnam, B., Hanson, M., Smith, M., Xu, Y., Gokhale, A., Lin, S., Pfeffer, M. A., Teuteberg W.**, & Shah N. H.**. (2022, October 15th). *Can Advance Care Planning AI models support better End-of-life Care planning? [Poster presentation].* American College of Physicians Northern California Meeting. Stanford, CA, United States.

https://lujonathanh.github.io/conference/Lu2022_poster_CanACPModelsSupportBetterEOLCare.pdf

Lu, J., Sattler, A.*, Wang, S.*, Khaki, A. R.*, Callahan, A., Fleming, S., Fong, R., Ehlert, B., Li, R. C., Shieh, L., Ramchandran, K., Gensheimer, M. F., Chobot, S., Pfohl, S., Li, S., Shum, K., Parikh, N., Desai, P., Seevaratnam, B., Hanson, M., Smith, M., Xu, Y., Gokhale, A., Lin, S., Pfeffer, M. A., Teuteberg W.**, & Shah N. H.**. (2022, May 12th). *Reliability and Fairness Audits of Clinical AI Models using STARR-OMOP [Conference Talk].* 2nd STARR Informatics Summit. Stanford, CA, United States.
https://lujonathanh.github.io/conference/Lu2022_presentation_AuditingClinicalAIModels.pdf

Terilli, K.*, McKinnon, L., Reyes, M.*, **Lu, J.**, Owen, S., Gomez-Lara, A., Lee, J., Shankar, A., & Woldeyesus, T. (2022, May 26th). *Roots Telehealth Support Program: A Community-Centered Approach Towards Bridging the Digital Divide [Poster presentation].* 18th Annual UCSF Family and Community Medicine Rodnick Colloquium. San Francisco, CA, United States.

Lu, J. H., Callahan, A., Patel, B. S., Morse, K. E., Dash, D., Pfeffer, M. A., & Shah, N. H. (2022, May 5th). *Low adherence to model reporting guidelines for commonly used clinical prediction models [Poster presentation].* 37th Stanford Medical Student Research Symposium. Stanford, CA, United States.
https://lujonathanh.github.io/conference/Lu2022_poster_LowAdherenceToModelReportingGuidelines.pdf

Owen, S., **Lu, J.,** Reyes, M., Terilli, K., Gomez-Lara, A., Lee, J. McKinnon, L., Shankar, A., & Woldeyesus, T. (2022, March 23rd)**.** *Roots Telehealth Support & Distribution Program [Poster presentation].* Stanford Community Health Symposium. Stanford, CA, United States.
https://lujonathanh.github.io/conference/Owen2022_poster_RootsTelehealthProgram.pdf

Rogers-Shepp, I., **Lu, J.,** Van Hentenryck, M., Eldeeb, S., Jain, N., Puvvala, A., & Patel, L. (2021, March 31st). *Review On Evaluating Associations Between Air Pollution Burden And Rates Of ED Visits And Hospitalization In Stockton's Disadvantaged Communities [Poster presentation].* Stanford Community Health Symposium. Stanford, CA, United States.
https://lujonathanh.github.io/conference/Rogers-Shepp2021_poster_StocktonAirPollution.pdf

Chang, M.*, **Lu, J.*,** Patel, B., Shah, N. H., & Chen, J.H. (2021, March 22) *Characterizing Respiratory Symptoms and COVID-19 Trends from OMOP-CDM database for Public Health Reporting [Poster presentation].* AMIA 2021 Informatics Summit. Virtual.
https://lujonathanh.github.io/conference/Lu2021_poster_CDC-COVID-19.pdf

Ludington, S., **Lu, J.,** Zudock, E., Savchuk, S., Besser, H., Liu, X., Caceres, W. & Singh, B. (2021, March 12th). *Bridging the Gap of Access to Affordable Medication [Poster presentation].* Society of Student-Run Free Clinics Conference. Virtual.
https://lujonathanh.github.io/conference/Ludington2021_poster_PFCBridgingMeds.pdf

Lu, J., Jowell, A., Carter, J., Erny, B., & Lachenauer, A. (2021, February 1st). *Advocacy and Assessment of Climate Change Integration into Preclinical Curriculum [Poster presentation].* Society of Teachers of Family Medicine Conference on Medical Student Education. Virtual.

https://lujonathanh.github.io/conference/Lu2021_poster_AdvocacyAssessmentClimateIntegrationCurriculum.pdf

Tam, L.*, **Lu, J.*,** Dacre, M.*, Jee, O., Chavez, J., Schillinger, E., Montecute, T., & Mesias, M. (2020, October 3rd). *Student Community OutReach and Physician Support (S-CORPS): Educating Medical Students and Enhancing Patient Support During the COVID-19 Crisis [Poster presentation].* The 4th Annual Medical and Bioscience Education Day / SIMEC V. Virtual. https://lujonathanh.github.io/conference/Tam2020_poster_S-CORPS.pdf

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GRANTS AND SCHOLARSHIPS	Baxter Foundation Graduate Student Scholar Award, Feb. 2024. Funding for grad students. Alan & Ruth Borenstein Medical Scholarship, Aug 2023. Funding for medical students. MacKenzie Scholarship, 2022 & 2023. Funding for primary care interested students. Mel Lane Grant, Feb 2021. Funding to support community partnership with Catholic Charities of the Diocese of Stockton. Union of Concerned Scientists Grant, Aug 2020. Funding to support the first annual NorCal Symposium on Climate Change and Pandemic Resilience. MedScholars, May 2020. Funded clinical informatics research in Prof. Nigam Shah's lab. Public Service Leadership Grant, April 2020. Funded Stanford Climate and Health work.
AWARDS	Stanford Wang Award for Excellence and Leadership in Family Medicine, 2024. Society of Teachers of Family Medicine Foundation Scholar, 2021 & 2024 (link) AAFP Family Medicine Leads Scholarship, July 2023. American College of Physicians, Northern California Chapter. Best Student Research Poster award, selected to present at national ACP Internal Medicine Meeting, Oct 2022 Stanford University Community Impact Award, May 2022 Medical Society Consortium on Climate and Health Champion of the month, March 2022 (link) Physicians for Social Responsibility Youth Climate Health Activist Award, 2021 (link)
TEACHING EXPERIENCE	Impact of Climate Change on Human Health Jan. 2021 – Mar 2021 *Teaching Assistant* ● Speaker seminar on impact of climate change on human health FAMMED 215 Primary Care Defined: Perspectives and Procedures Sep 2020 – Dec 2020 *Teaching Assistant* ● Course that exposed students to common primary care procedures with a variety of primary care clinician speakers about different aspects of training & life Stanford Student Community Outreach and Physician Support April 2020 – August 2020 *Teaching Assistant* ● Course that educated students in emotional support and providing check in support to the most vulnerable patients, practice triaging and communicating concerns to the team (link)
LEADERSHIP, ADVOCACY, SERVICE AND	**Stanford Climate and Health** Sep. 2019 – May 2024 *Co-Founder (2019), Co-Director (2020-2021, 2022-2023), Member*

COMMUNITY ENGAGEMENT	- Co-founded group at Stanford for all students, staff and faculty to engage on climate change's impact on health and healthcare sustainability - Co-advocated for climate and health integration into medical curriculum - Co-advocated successfully for Stanford Healthcare to set net-zero emissions goal - Co-founder and co-director of annual NorCal Symposium on Climate, Health and Equity in 2020 (partnership with UCSF and UC Davis) (site); organizing member 2021 and for mini-symposium in 2024 - Research for reusable laundered gowns at Stanford Healthcare - Supported community partnership with Environmental Justice partners in Stockton (Catholic Charities) where student research supported community advocacy (see post on CARB EJ blog) - Stanford Healthcare Sustainability Committee member, choose grant awardees for sustainability projects - Advocate for fossil fuel dissociation for Doerr School of Sustainability (op-ed) - Organize Talks on Environmental Justice in Palestine and in D.R. of Congo - Interview project with Medical Society Consortium on Climate and Health to understand barriers to a clean energy transition in rural communities

Stanford Pacific Free Clinic   Jan 2020 – Jan 2022
Vaccine Coordinator / Lab Manager
- Managed patients getting their labs, imaging and vaccines free-of-charge at Stanford's Pacific Free Clinic
- Co-developed telehealth lab workflow during COVID-19 pandemic
- Fax lab and medication paperwork to ensure patient access to low-cost labs / medications
- Mentored lab assistants in work and research project

Stanford Health Careers Collaborative   Nov 2019 – Mar 2022
Teaching Co-Director, Board Member
- Health careers outreach with East Palo Alto Academy high school students who predominantly identify as Latinx, Black or Pacific Islander and would be the first generation of their families to attend college
- Organize weekly Wednesday sessions with check-ins and interactive education on health topics (mental health, DNA/protein, surgical robotics)
- Coordinate with guest speakers (faculty, residents) to talk about their training paths
- Organize annual field trip for students to Stanford Medicine

California Medical Association   Nov. 2019 – Feb. 2024
Climate Champion Group Co-founder, Stanford Alternate delegate
- Represent Stanford Medical School at CMA medical student section
- Co-founded group of California trainees and physicians interested in climate change
- Led campaign making the case for climate change to be a major issue for annual House of Delegates Meeting, finally succeeding in 2023
- Co-organized climate session with CMA presidential candidates
- Organized within CMA to successfully garner support for climate and health related legislation, including CA AB579: Zero Emissions school buses and SB12: Emissions limit of the Global Warming Solutions Act.
- Co-authored resolution to create a Technical Advisory Committee on Climate, adopted with changes by the Council on Science and Public Health

Stanford Family Medicine/Primary Care Interest Group   Jan 2020 – March 2021
Student Co-leader
- Co-organize primary care panels to learn about primary care, training path, match

panels, COVID-19 and mentorship mixers
- Liaison between primary care interested students, applicants, faculty & resources
- Our FMIG chapter won the AAFP Program of Excellence Award (link)

Roots Community Health Center   April 2021 - April 2022
Digital Health Equity Member
- Roots aims to uplift communities impacted by systemic racism, especially the Black community in East Oakland
- Support design and trialing of telehealth screening for internet and device access
- Support connecting clients without access to affordable resources

Stanford LCME Re-Accreditation   May 2020 – July 2020
Student Committee Member
- Co-design survey of student body for medical school re-accreditation process
- Engage classmates in designing questions assessing sufficiency of our medical school's diversity (student and faculty), community engagement, and training to work with patients of diverse identities
- Present webinar on our process to LCME

Stanford Health Policy Collective   April 2020 - May 2024
Board Member (2020-2021), Organizing Member
- Organize advocacy related actions and events, including on healthcare for homeless people, speakers on health equity, letter writing workshops, meetings with legislators on bills such as AB85: Social Determinants of Health screening, events on genocide in Palestine, and advocacy open mics for students

Stanford Medicine Arts Collective   Feb 2021 - Nov 2021
Co-Director
- Co-organize regular open mics to provide a space for the medical school community to share artistic talents, e.g. singing, jazz, breakdance, poetry, comedy

Stanford School of Sustainability   Jan 2021 - Mar 2021
Student Committee Member
- Support student focus groups regarding design of new school of sustainability

PROFESSIONAL SOCIETY MEMBERSHIP	American Academy of Family Physicians, Student Member Society of Teachers of Family Medicine, Student Member California Medical Association, Student Member American Medical Informatics Association, Student Member American College of Physicians, Student Member
ACADEMIC SERVICE	Reviewer, Machine Learning for Healthcare Conference, 2022-2024