Stanford

Feng Xie

Postdoctoral Scholar, Anesthesiology, Perioperative and Pain Medicine

Resume available Online

Bio

BIO

Feng Xie is currently a postdoctoral scholar at Stanford University School of Medicine, and he recently graduated with a joint Ph.D. degree from Duke University and the National University of Singapore. He previously obtained his bachelor's degree from Tsinghua University, Beijing, China, in 2017. His research focuses on developing novel informatics methodologies and applying them to various healthcare domains, including children's health, critical care, and emergency medicine. He extensively utilized large-scale multimodal data including electronic health records (EHR), clinical notes, and medical signal data, to address critical healthcare challenges. In his Ph.D. and postdoctoral training, he developed multiple advanced methods and informatics tools, including AutoScore, MIMIC-IV-ED benchmark, and NeonatalBERT. Used by other researchers globally, some of them have been applied to a wide range of clinical applications including risk prediction and model benchmarking, resulting in dozens of publications by other users. Specifically, AutoScore software has been downloaded more than 10,000 times from the R CRAN platform. and the original paper has garnered over 70 official citations for about 2 years.

Over 5 years, he published 8 first-author research papers in high-impact journals in the field, with a total impact factor of over 60. His extensive collaborations with clinicians, engineers, and health service researchers also resulted in 12 co-author papers.

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Associate Editor, Journal of Medical Internet Research (2024 - present)
- Student Editorial Board, Journal of Biomedical Informatics (2022 - present)
- Reviewer, EBioMedicine (by The Lancet) (2022 - present)
- Reviewer, Patterns (by Cell Press) (2022 - present)
- Reviewer, BMC Medical Research Methodology (2022 - present)
- Reviewer, International Conference on Health Informatics (ICHI) (2023 - present)
- Reviewer, BMC Medical Informatics and Decision Making (2022 - present)
- Reviewer, International Journal of Medical Informatics (2022 - present)
- Reviewer, Mathematical Biosciences and Engineering (2023 - present)
- Reviewer, Scientific Report (2022 - present)
- Reviewer, AMIA Annual Symposium (2020 - 2022)
- Reviewer, PLOS ONE (2019 - 2022)

PROFESSIONAL EDUCATION

- Bachelor of Science, Tsinghua University (2017)

- Doctor of Philosophy, National University Of Singapore (2022)

- PhD, National University of Singapore / Duke University (2022)

- Bachelor of Science, Tsinghua University (2017)

STANFORD ADVISORS

- Nima Aghaeepour, Postdoctoral Faculty Sponsor

LINKS

- Google Scholar: https://scholar.google.com/citations?user=_lCrZBkAAAAJ&hl=en

- Research Gate: https://www.researchgate.net/profile/Feng_Xie34

- Linkedin: https://www.linkedin.com/in/feng-xie-0b6350b8/

- Twitter: https://twitter.com/fengx_thu

Research & Scholarship

RESEARCH INTERESTS

- Data Sciences

- Research Methods

LAB AFFILIATIONS

- Nima Aghaeepour, Aghaeepour Laboratory (9/19/2022)

Publications

PUBLICATIONS

- **A universal AutoScore framework to develop interpretable scoring systems for predicting common types of clinical outcomes.** *STAR protocols*
  Xie, F., Ning, Y., Liu, M., Li, S., Saffari, S. E., Yuan, H., Volovici, V., Ting, D. S., Goldstein, B. A., Ong, M. E., Vaughan, R., Chakraborty, B., Liu, et al
  2023; 4 (2): 102302

- **Benchmarking emergency department prediction models with machine learning and public electronic health records.** *Scientific data*
  Xie, F., Zhou, J., Lee, J. W., Tan, M., Li, S., Rajnthern, L. S., Chee, M. L., Chakraborty, B., Wong, A. I., Dagan, A., Ong, M. E., Gao, F., Liu, et al
  2022; 9 (1): 658

- **Development and validation of an interpretable machine learning scoring tool for estimating time to emergency readmissions** *ECLINICALMEDICINE*
  Xie, F., Liu, N., Yan, L., Ning, Y., Lim, K., Gong, C., Kwan, Y., Ho, A., Low, L., Chakraborty, B., Ong, M.
  2022; 45: 101315

- **Deep learning for temporal data representation in electronic health records: A systematic review of challenges and methodologies** *JOURNAL OF BIOMEDICAL INFORMATICS*
  Xie, F., Yuan, H., Ning, Y., Ong, M., Feng, M., Hsu, W., Chakraborty, B., Liu, N.
  2022; 126: 103980

- **AutoScore-Survival: Developing interpretable machine learning-based time-to-event scores with right-censored survival data** *JOURNAL OF BIOMEDICAL INFORMATICS*
  Xie, F., Ning, Y., Yuan, H., Goldstein, B., Ong, M., Liu, N., Chakraborty, B.
  2022; 125: 103959

- **Development and Assessment of an Interpretable Machine Learning Triage Tool for Estimating Mortality After Emergency Admissions** *JAMA NETWORK OPEN*
  Xie, F., Ong, M., Liew, J., Tan, K., Ho, A., Nadarajan, G., Low, L., Kwan, Y., Goldstein, B., Matchar, D., Chakraborty, B., Liu, N.
  2021; 4 (8): e2118467

- **AutoScore: A Machine Learning-Based Automatic Clinical Score Generator and Its Application to Mortality Prediction Using Electronic Health Records** *JMIR MEDICAL INFORMATICS*

Xie, F., Chakraborty, B., Ong, M., Goldstein, B., Liu, N.

2020; 8 (10): e21798

- **Novel model for predicting inpatient mortality after emergency admission to hospital in Singapore: retrospective observational study** *BMJ OPEN*

  Xie, F., Liu, N., Wu, S., Ang, Y., Low, L., Ho, A., Lam, S., Matchar, D., Ong, M., Chakraborty, B.

  2019; 9 (9): e031382

- **Inter hospital external validation of interpretable machine learning based triage score for the emergency department using common data model.** *Scientific reports*

  Yu, J. Y., Kim, D., Yoon, S., Kim, T., Heo, S., Chang, H., Han, G. S., Jeong, K. W., Park, R. W., Gwon, J. M., Xie, F., Ong, M. E., Ng, et al

  2024; 14 (1): 6666

- **LEVERAGING ELECTRONIC MEDICAL RECORDS REVEALS COMORBIDITIES SIGNIFICANTLY ASSOCIATED WITH MALE INFERTILITY**

  Woldemariam, S., Xie, F., Roldan, A., Roger, J., Tang, A., Oskotsky, T., Aghaeepour, N., Eisenberg, M., Sirota, M.

  ELSEVIER SCIENCE INC.2023: E53-E54

- **FedScore: A Privacy-Preserving Framework for Federated Scoring System Development.** *Journal of biomedical informatics*

  Li, S., Ning, Y., Eng Hock Ong, M., Chakraborty, B., Hong, C., Xie, F., Yuan, H., Liu, M., Buckland, D. M., Chen, Y., Liu, N.

  2023: 104485

- **Federated and distributed learning applications for electronic health records and structured medical data: a scoping review.** *Journal of the American Medical Informatics Association : JAMIA*

  Li, S., Liu, P., Nascimento, G. G., Wang, X., Leite, F. R., Chakraborty, B., Hong, C., Ning, Y., Xie, F., Teo, Z. L., Ting, D. S., Haddadi, H., Ong, et al

  2023

- **Handling missing values in healthcare data: A systematic review of deep learning-based imputation techniques.** *Artificial intelligence in medicine*

  Liu, M., Li, S., Yuan, H., Ong, M. E., Ning, Y., Xie, F., Saffari, S. E., Shang, Y., Volovici, V., Chakraborty, B., Liu, N.

  2023; 142: 102587

- **Development and Asian-wide validation of the Grade for Interpretable Field Triage (GIFT) for predicting mortality in pre-hospital patients using the Pan-Asian Trauma Outcomes Study (PATOS).** *The Lancet regional health. Western Pacific*

  Yu, J. Y., Heo, S., Xie, F., Liu, N., Yoon, S. Y., Chang, H. S., Kim, T., Lee, S. U., Hock Ong, M. E., Ng, Y. Y., Do Shin, S., Kajino, K., Cha, et al

  2023; 34: 100733

- **Leveraging electronic health records to identify risk factors for recurrent pregnancy loss across two medical centers: a case-control study.** *Research square*

  Roger, J., Xie, F., Costello, J., Tang, A., Liu, J., Oskotsky, T., Woldemariam, S., Kosti, I., Le, B., Snyder, M. P., Giudice, L. C., Torgerson, D., Shaw, et al

  2023

- **AutoScore-Ordinal: an interpretable machine learning framework for generating scoring models for ordinal outcomes.** *BMC medical research methodology*

  Saffari, S. E., Ning, Y., Xie, F., Chakraborty, B., Volovici, V., Vaughan, R., Ong, M. E., Liu, N.

  2022; 22 (1): 286

- **An external validation study of the Score for Emergency Risk Prediction (SERP), an interpretable machine learning-based triage score for the emergency department.** *Scientific reports*

  Yu, J. Y., Xie, F., Nan, L., Yoon, S., Ong, M. E., Ng, Y. Y., Cha, W. C.

  2022; 12 (1): 17466

- **A novel interpretable machine learning system to generate clinical risk scores: An application for predicting early mortality or unplanned readmission in a retrospective cohort study.** *PLOS digital health*

  Ning, Y., Li, S., Ong, M. E., Xie, F., Chakraborty, B., Ting, D. S., Liu, N.

  2022; 1 (6): e0000062

- **Development and validation of an interpretable clinical score for early identification of acute kidney injury at the emergency department** *SCIENTIFIC REPORTS*

  Ang, Y., Li, S., Ong, M., Xie, F., Teo, S., Choong, L., Koniman, R., Chakraborty, B., Ho, A., Liu, N.

  2022; 12 (1): 7111

- **AutoScore-Imbalance: An interpretable machine learning tool for development of clinical scores with rare events data** *JOURNAL OF BIOMEDICAL INFORMATICS*

  Yuan, H., Xie, F., Ong, M., Ning, Y., Chee, M., Saffari, S., Abdullah, H., Goldstein, B., Chakraborty, B., Liu, N.

  2022; 129: 104072

- **Leveraging Large-Scale Electronic Health Records and Interpretable Machine Learning for Clinical Decision Making at the Emergency Department: Protocol for System Development and Validation** *JMIR RESEARCH PROTOCOLS*

  Liu, N., Xie, F., Siddiqui, F., Ho, A., Chakraborty, B., Nadarajan, G., Tan, K., Ong, M.

  2022; 11 (3): e34201

- **External validation of the Survival After ROSC in Cardiac Arrest (SARICA) score for predicting survival after return of spontaneous circulation using multinational pan-asian cohorts.** *Frontiers in medicine*

  Rajendram, M. F., Zarisfi, F., Xie, F., Shahidah, N., Pek, P. P., Yeo, J. W., Tan, B. Y., Ma, M., Do Shin, S., Tanaka, H., Ong, M. E., Liu, N., Ho, et al

  2022; 9: 930226

- **Heart rate n-variability (HRnV) and its application to risk stratification of chest pain patients in the emergency department.** *BMC cardiovascular disorders*

  Liu, N. n., Guo, D. n., Koh, Z. X., Ho, A. F., Xie, F. n., Tagami, T. n., Sakamoto, J. T., Pek, P. P., Chakraborty, B. n., Lim, S. H., Tan, J. W., Ong, M. E.

  2020; 20 (1): 168