Jiayi (Jessie) Tong

Blockley Hall, Room 634/635, 423 Guardian Drive, Philadelphia, PA 19104

Jiayi.Tong@pennmedicine.upenn.edu; (858)-249-8559

Education

- **Ph.D. in Biostatistics, Sep 2019 - Jun 2024 (Expected)**
  Department of Biostatistics, Epidemiology and Informatics
  Perelman School of Medicine at the University of Pennsylvania
  Advisor: Dr. Yong Chen (Professor of Biostatistics at the University of Pennsylvania)

- **M.S. in Biostatistics, Sep 2019 - Jun 2021**
  Department of Biostatistics, Epidemiology and Informatics
  Perelman School of Medicine at the University of Pennsylvania
  Advisors: Dr. Yong Chen, Dr. Adam Cuker (Associate Professor of Medicine at the Hospital of the University of Pennsylvania)

- **B.S. with High Honors in Applied Mathematics, Sep 2014 - Jun 2017**
  Cum Laude, Phi Beta Kappa, Provost's Honors (2015, 2016, 2017)
  University of California, San Diego
  Honor thesis title: Random Matrices with Blocks of Intermediate Scale: Strongly Correlated Band Random Matrices
  Advisor: Dr. Todd Kemp (Professor of Mathematics, UC San Diego)

Professional Experiences

- **Graduate Research Assistant, Sep 2021 - present**
  Department of Biostatistics, Epidemiology and Informatics
  Perelman School of Medicine at the University of Pennsylvania
  Advisor: Dr. Yong Chen

- **Data Scientist and Research Graduate Intern, Jun 2021 - Aug 2021**
  OptumLabs UnitedHealth Group
  Advisors: Dr. Natalie Sheils, Dr. Nazmul Islam

- **Research Assistant, Jan 2018 - May 2019**
  Department of Biostatistics, Epidemiology and Informatics
  Perelman School of Medicine at the University of Pennsylvania
  Advisor: Dr. Yong Chen

Awards & Honors

- **The Observational Health Data Sciences and Informatics (OHDSI) Titan Award for Methodological Research (2023)**
  "to recognize extraordinary contributions by an individual, organization, or team in development or evaluation in analytical methods for clinical characterization, population-level effect estimation, or patient-level prediction"

- **Health Policy Statistics Section of American Statistical Association (ASA) Student Paper Award (2023)**
  "End-to-end secure federated hospital profiling using real-world data"
  Invited to be presented at the invited session of Health Policy Statistics Section at Joint Statistical Meeting at Toronto, Canada in August 2023

- **Best Annals of Applied Statistics (AoAS) papers of the year (2023)**
  "PALM: Patient-centered treatment ranking via large-scale multivariate network meta-analysis"
  Invited to be presented at the invited session of Annals of Applied Statistics at Joint Statistical Meeting at Toronto, Canada in August 2023

- **Best Student Poster Award of the Annual DBEI & CCEB Research Day (2023)**
  "A new end-to-end data aggregation approach for comparing hospital performance without sharing patient-level data"
  Perelman School of Medicine at the University of Pennsylvania

- **American Statistical Association (ASA) Philadelphia Chapter Exceptional Achievement Award for Graduate Students (2022)**
  American Statistical Association (ASA) Phidelphia Chapter

- **Graduate Student Teaching Award (2022)**
  Graduate Group in Epidemiology and Biostatistics (GGEB) University of Pennsylvania

- **Award for Outstanding Data Science Communication and Innovation (2021)**
  OptumLabs UnitedHealth Group, Minnetonka

- **Department Honors in Mathematics (Applied) with High Distinction (2017)**
  University of California, San Diego

- **Honor society: Phi Beta Kappa (2017)**
  University of California, San Diego

- **Provost's Honors (2015, 2016, 2017)**
  University of California, San Diego

Professional Activities & Services

1. **Reviewer of** Research Synthesis Methods, PLOS Computational Biology, Pacific Symposium on Biocomputing (PSB), American Medical Informatics Association (AMIA) Annual Symposium

2. **Session chair at JSM 2021, ENAR 2021**
   JSM 2021: "Distributed Regressions in Real-World Data"
   ENAR 2021: "Advanced Methods for Pharmacoepidemiology"

Research Grants

1. *ClinEX - Clinical Evidence Extraction, Representation, and Appraisal*
   PI: Yong Chen (MPI), Yifan Peng (MPI) and Chunhua Weng (contact PI)
   Role: Graduate Research Assistant
   Funding Agency: NLM (1R01LM014344)
   Budgeted Period: 09/20/2023 - 08/31/2028
   Description: We propose research on transforming free-text clinical evidence in the literature into a computable knowledge graph that can better support clinical evidence retrieval, extraction, appraisal and reasoning. This research is expected to support evidence-based clinical research and to enhance the health of the public.

2. *PANDA-MSD: Predictive Analytics via Networked Distributed Algorithms for Multi-System Diseases*
   PI: Yong Chen (contact PI), Peter A. Merkel (MPI) and Jiang Bian (MPI)
   Role: Graduate Research Assistant
   Funding Agency: NIH (U01TR003709)
   Period: 07/01/2022 - 06/30/2026
   Description: This project aims to develop novel data integration methods using electronic health records from multiple CTSA hubs to create predictive models for multi-system diseases. We propose to develop the Predictive Analytics via Networked Distributed Algorithms (PANDA) framework, which will enable accurate risk prediction to help healthcare providers reach accurate diagnoses earlier.

3. *TRiPOD: Toward Reusable Phenotypes in Observational Data for AD/ADRD - managing definitions and correcting bias*
   PI: Yong Chen (contact PI) and Hua Xu (MPI)
   Role: Graduate Research Assistant
   Funding Agency: NIH (1R01AG073435)
   Period: 09/15/2021 - 05/31/2026
   Description: This project aims at developing novel informatics methods and tools to manage phenotype definitions and correct bias associated with phenotyping errors on local data, thus enhancing the reproducibility and quality of observational studies on AD/ADRD.

4. *An efficient distributed learning framework for integrating evidence in clinical research networks*
   PI: Yong Chen
   Role: Graduate Research Assistant
   Funding Agency: PCORI (ME-2019C3-18315)
   Period: 10/01/2020 - 11/30/2024
   Description: The overarching goal of this proposal is to develop a framework of distributed algorithms that efficiently synthesize evidence in large clinical research networks, in order to better identify patient subpopulations at high risk of adverse events and use prediction models to better support clinical decision making for patients and stakeholders.

5. *A general framework to account for outcome reporting bias in systematic reviews*
   PI: Yong Chen
   Role: Graduate Research Assistant
   Funding Agency: NLM (1R01LM012607)
   Period: 09/08/2017 - 08/31/2021
   Description: We aim to tackle the much-needed research area of selective reporting bias by proposing a general framework to quantify, adjust and evaluate the impact of outcome reporting bias in both multiple outcome meta-analysis and multiple outcome network meta-analysis.

Publications

*: **co-first author**

Methodological papers (Under revision/Published)

1. **Tong, J.**, Reps, J., Luo, C., Schuemie, M., Yan, C., Ryan, P.B., Chu, H., Bian, J., Shenkman, E.A., Lu, Y., Ramirez-Anguita, J.M., Brand, M., Chen, Z., DuVall, S., Falconer, T., Fuentes, A.M., He, K., Li, J., Matheny, M.E., Mayer, M.A., Patel, B., Wang, D., Willilams, R.D., Simon, K., Seager, S., Yang, J., Zhou, Y., Morris, J.S., Wang, F., Stuart, E.A., Krumholz, H.M., Xu, H., Werner, R.M., Suchard, M.A., Lumley, T., Malin, B., Asch, D.A., and Chen, Y. (2023) A new end-to-end data aggregation approach for comparing hospital performance without sharing patient-level data. **Nature Medicine**. (Revision Submitted). **Health Policy Statistics Section of American Statistical Association (ASA) Student Paper Award (2023)**

2. Wu, Q.*, **Tong, J.***, Zhang, B., Zhang, D., Xu, J., Shen, Y., Bailey, C., Bian, J., Christakis, D., Fitzgerald, M., Hirabayashi K., Jhaveri, R., Khaitan, A., Lyu, T., Rao, S., Razzaghi, H., Schwenk, H., Wang, F., Wigvliet, M., Tchetgen Tchetgen, E., Morris, J., Forrest, C.B., and Chen, Y. (2023) Effectiveness of BNT162b2 in Children and Adolescents against infection and severe disease: Findings from Trial Emulation using an EHR-Based Cohort from the RECOVER Program. **The Annals of Internal Medicine**. (Invited revision). **(co-first author)**

3. **Tong, J.**, Qu, A., Carroll, R., Ning, Y., and Chen, Y. (2022) On the proportional likelihood ratio model for sparse data. **The Annals of Applied Statistics**. (Invited revision)

4. **Tong, T.**, Li, L., Reps, J.M., Lorman, V., Jing, N., Edmondson, M., Lorman, Lou, X., Jhaveri, R., Kelleher, K.J., Pajor, N.M., Forrest, C.B., Bian, J., Chu, H., and Chen, Y. (2023) Advancing Interpretable Regression Analysis for Binary Data: A Novel Distributed Algorithm Approach. **Statistics in Medicine**. (Invited revision).

5. **Tong, J.**, Shen, Y., Xu, A., Luo, C., He, X., Edmondson, M., Li, R., Zhang, D., Lu, Y., Chao, Y., Siegel, L., Sun, L., Shenkman, E.A., Morton, S.C., Malin, B.A., Bian, J., Asch, D.A., and Chen, Y. (2023) Evaluating Site-of-Care-Related Racial Disparities in Kidney Graft Failure Using a Novel Federated Learning Framework. **The Journal of the American Medical Informatics Association**. (Revision Submitted)

6. **Tong, J.**, Luo, C., Sun, Y., Duan, R., Saine, M.E., Lin, L., Peng, Y., Lu, Y., Batra, A., Pan, A., Wang, O., Li, R., Anglin, A., Yang, Y., Zuo, X., Liu, Y., Bian, J., Kimmel, S.E., Hamilton, K., Cuker, A., Hubbard, R.A., Xu, H., and Chen, Y. (2023). Confidence Score: A

Data-Driven Measure for Inclusive Systematic Reviews Considering Unpublished Preprints. **The Journal of the American Medical Informatics Association**. (Revision Submitted)

7. **Tong, J.**, Luo, C., Islam, M.N., Sheils, N.E., Buresh, J., Edmondson, M., Merkel, P.A., Lautenbach, E., Duan, R. and Chen, Y. (2022). Distributed learning for heterogeneous clinical data with application to integrating COVID-19 data across 230 sites. **nature partner journals (npj) Digital Medicine (Impact factor: 15.4)**, 5(1), pp.1-8.

8. **Tong, J.***, Duan, R.*, Li, R., Scheuemie, M. J., Moore, J. H., and Chen, Y. (2020). Robust-ODAL: Learning from heterogeneous health systems without sharing patient-level data. **Pacific Symposium on Biocomputing**, Vol. 25, pp. 695-706. **(co-first author)**

9. **Tong, J.**, Huang, J., Chubak, J., Wang, X., Hubbard, R., and Chen, Y. (2019) An Augmented Estimation Procedure for EHR-based Association Studies Accounting for Differential Misclassification. **The Journal of the American Medical Informatics Association**, 27(2), pp.244-253.

10. **Tong, J.**, Huang, J., Du, J., Cai, Y., Tao, C. and Chen, Y. (2018) The Use of Likelihood Ratio Test to Identify Rare Adverse Events with Year-varying Reporting Rates for FLU4 Vaccine in VAERS. **American Medical Informatics Association (AMIA) Annual Symposium Proceedings**, Vol. 2018, p. 1544.

11. Duan, R., Piao, J., Marks-Anglin, A., **Tong, J.**, Lin, L., Chu, H., Ning, J., Chen, Y. (2023) Testing for publication bias in meta-analysis under Copas selection model. *arXiv preprint* arXiv:2007.00836. **Statistics in Medicine**. (Invited Revision)

12. Duan, R., **Tong, J.**, Sutton, AJ., Asch, DA., Chu, H., Schmid, CH., Chen, Y. (2023) Origami plot: a novel multivariate data visualization tool that improves radar chart. **Journal of Clinical Epidemiology**. 2023 Apr 1;156:85-94.

13. Duan, R., **Tong, J.**, Sutton, AJ., Asch DA., Chu, H., Schmid, CH., Chen, Y. (2023) The origami plot indeed improves the radar plot: response to the letter from Maarten Boers "Does the origami plot really improve the radar plot? Comment on the article by Duan et al". **Journal of Clinical Epidemiology**. 2023 Sep 12:S0895-4356.

14. Duan, R., **Tong, J.**, Lin, L., Levine, L., Sammel, M., Stoddard, J., Li, T., Schmid, CH., Chu, H., Chen, Y. (2023) PALM: Patient-centered treatment ranking via large-scale multivariate network meta-analysis. **The Annals of Applied Statistics**, 17(1):815-37. **(Best Annals of Applied Statistics (AoAS) papers of the year selected by the editors, 2023)**

15. Li, W., **Tong, J.**, Anjum, M., Mohammed, N., Chen, Y. and Jiang, X. (2022). Federated learning algorithms for generalized mixed-effects model (GLMM) on horizontally partitioned data from distributed sources. **BMC Medical Informatics and Decision Making. 2022 Oct 16;22(1):269.**

16. Yin, Z., **Tong, J.**, Chen, Y., Hubbard, R.A. and Tang, C.Y. (2022). A cost-effective chart review sampling design to account for phenotyping error in electronic health records (EHR) data. **The Journal of the American Medical Informatics Association**, 29(1), pp.52-61

17. Hubbard, R. A., **Tong, J.**, Duan, R., Chen, Y. (2020). Reducing Bias Due to Outcome Misclassification for Epidemiologic Studies Using EHR-derived Probabilistic Phenotypes. **Epidemiology**, 31(4), pp.542-550.

18. Li, R., **Tong, J.**, Duan, R., Chen, Y. and Moore, J.H. (2019). Evaluation of phenotyping errors on polygenic risk score predictions. **International Conference on Bioinformatics Models, Methods and Algorithms**, 2019 Aug 4:724534.

19. Luo, C., Islam, M., Sheils, N.E., Buresh, J., Reps, J., Schuemie, M.J., Ryan, P.B., Edmondson, M., Duan, R., **Tong, J.**, Marks-Anglin, A., Bian, J., Chen, Z., Duarte-Salles, T., Fernández-Bertolín, S., Falconer, T., Kim, C., Park, R.W., Pfohl, S.R., Shah, N.H., Williams, A.E., Xu, H., Zhou, Y., Lautenbach, E., Doshi, J.A., Werner, R.M., Asch, D.A., and Chen, Y. (2022). DLMM as a lossless one-shot algorithm for collaborative multi-site distributed linear mixed models. **Nature Communications**, 13(1), pp.1-10.

20. Luo, C., Jiang, Y., Du, J., **Tong, J.**, Huang, J., Lo Re III, V., Ellenberg, S.S., Poland, G.A., Tao, C. and Chen, Y. (2021). Prediction of post-vaccination Guillain-Barré syndrome using data from a passive surveillance system. **Pharmacoepidemiology and Drug Safety**, 30(5), pp.602-609.

21. Duan, R., Luo, C., Schuemie, M.J., **Tong, J.**, Liang, J., Boland, M.R., Bian, J., Xu, H., Berlin, J.A., Moore, J.H., Mahoney, K.B. and Chen, Y. (2020). Learning from local to global - an efficient distributed algorithm for modeling time to event data. **The Journal of the American Medical Informatics Association**, 27(7), pp.1028-1036.

22. Huang, J., Zhang, X., **Tong, J.**, Du, J., Duan, R., Yang, L., Moore, J.H., Tao, C. and Chen, Y. (2019). Comparing drug safety of hepatitis C therapies using post-market data. **BMC Medical Informatics and Decision Making**, 19(4), p.147.

23. Luo, C., Zhang, X., Yang, L., Du, J., **Tong, J.**, Huang, J., Tao, C. and Chen, Y., (2019), August. Rare adverse effects analysis of new generation hepatitis C medications using EMR and FAERS data. **Pharmacoepidemiology and Drug Safety**, Vol. 28, pp. 580-581.

24. Huang, J., Zhang, X., **Tong, J.**, Du, J., Duan, R., Yang, L., Moore, J.H., Chen, Y. and Tao, C. (2018). Comparing adverse effects of Hepatitis C drugs using FAERS data. **In 2018 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)** (pp. 1653-1656). IEEE.

Scientific papers (Under revision/Published)

25. **Tong, J.**, Duan, R., Li, R., Luo, C., Moore. J.H., Zhu, J., Foster, G.D., Volpp, K.G., Yancy, W.S., Shaw, P.A., and Chen, Y. (2023). Quantifying and correcting bias due to outcome dependent self-reported weights in longitudinal study of weight loss interventions. **Scientific Reports**. (In press).

26. **Tong, J.**, Chen, Z., Duan, R., Lo-Ciganic, W., Lyu, T., Tao, C., Merkel, P., Kranzler, H., Bian, J., Chen, Y.. (2020) Identifying Clinical Risk Factors of Opioid Use Disorder using a Distributed Algorithm to Combine Real-World Data from a Large Clinical Data Research Network. **AMIA Annu Symp Proc.** Vol. 2020, p. 1220

27. Lake, E., Zhang, B., **Tong, J.,** Mpundu, G., Gross, K., Chen, Y. (2023) Practice Environment Scale of the Nursing Work Index: A Descriptive Statistics Meta-Analysis. **International Journal of Nursing Studies**. (Invited revision)

28. Abene, J., **Tong, J.**, Chen, Y., Chao, A. (2023) Binge Eating and Food Insecurity: A Systematic Review. **International Journal of Eating Disorders**. 2023 Apr 11.

29. Djulbegovic, M., **Tong, J.**, Xu, A., Yang, J., Chen, Y., Cuker, A. and Pishko, A.M. (2023). Adding caplacizumab to standard of care in thrombotic thrombocytopenic purpura: A systematic review and meta-analysis. **Blood Advances**. 2023 May 23;7(10):2132-42.

30. Zhang, M., **Tong, J.**, Ma, W., Luo, C., Liu, H., Jiang, Y., Qin, L., Wang, X., Yuan, L., Zhang, J. and Peng, F. (2022). Predictors of Lung Adenocarcinoma With Leptomeningeal Metastases: A 2022 Target-Therapy Assisted molGPA Model for LM. **Frontiers in Oncology.** 2022 Jun 10;12:903851.

31. Qin, B.E., Cheng, C., Luo, C., Liu, J., Xu, X.F., **Tong, J.**, Yuan, D., Chen, Y., Peng, F.H. and Jiang, Y. (2022). The effect on brain volume in HIV-negative and non-transplant cryptococcal meningitis. **Medical Mycology**, 60(9), p.myac068.

32. Fan, R., Zhang, Y., Xu, Y., **Tong, J.,** Chen, Z., Gu, M., Fan, W., Chen, Y., Peng, F., Jiang, Y. (2021) Serum antinuclear antibodies associate with worse prognosis in AQP4-positive neuromyelitis optica spectrum disorder. **Brain and Behavior**, p.e01865.

33. Paydary, K., Banwell, E., **Tong, J.,** Chen, Y. and Cuker, A. (2020). Diagnostic accuracy of the PLASMIC score in patients with suspected thrombotic thrombocytopenic purpura: A systematic review and meta-analysis. **Transfusion**, 60(9), pp.2047-2057.

34. Duan, R., Chen Z., **Tong, J.**, Luo, C., Lyu, T., Tao, C., Maraganore, D., Bian, J. and Chen, Y.. (2020) Leverage real-world longitudinal data in large clinical research networks for Alzheimer's disease and related dementia. **AMIA Annu Symp Proc.**, Vol. 2020, p. 393.

35. Liang, J., Liu, J., Fan, R., Chen, Z., Chen, X., **Tong, J.**, Chen, Y., Peng, F. and Jiang, Y., (2019). Plasma Homocysteine Level Is Associated with the Expanded Disability Status Scale in Neuromyelitis Optica Spectrum Disorder. **Neuroimmunomodulation**, 26(5), pp.258-264.

36. Chiasakul, T., Jesus, E., **Tong, J.**, Chen, Y., Crowther, M., Garcia, D., Chai-Adisaksopha, C., Messe, S. and Cuker, A. (2019) Inherited Thrombophilia and the Risk of Arterial Ischemic Stroke: A Systematic Review and Meta-Analysis. **Journal of the American Heart Association**, 8(19), e012877.

Under review

1. **Tong, J.***, Hu, J.*, Hripcsak, G., Ning, Y., and Chen, Y. (2023) DisC^{2}o-HD: Distributed Causal inference with covariates shift for analyzing real-world high-dimensional data. **Journal of Machine Learning Research**. (Under review)

2. **Tong, J.**, Sun, Y., Hubbard, R.A., Saine, M.E., Xu, H., Zuo, X., Lin, L., Weng, C., Schumid, C., Kimmel, S.E., Umscheid, C.A., Cuker, A., and Chen, Y.(2023). Advancing timely and reliable evidence synthesis in the era of COVID-19: A novel method for including preprints in systematic reviews. **JAMA Network Open**. (Under review)

3. Liang, W.*, **Tong, J.,*** Chu, H., Rodondi, N., Baumgartner, C., Cappola, A. , Carroll, R., and Chen., Y. (2023) Meta-analysis of Reference Ranges. **Biometrics**. (Under review). **(co-first author)**

4. Wang, X.*, **Tong, J.,*** Peng, S., Chen, Y., and Ning, Y. (2023) Communication-efficient distributed estimation of causal effects with high-dimensional data. **Stat**. (Under review). **(co-first author)**

5. Yin, Z., **Tong, J.**, Chen, Y., and Tang, C (2023) Statistical Inference of M-estimations with Distributed Data. **Journal of the American Statistical Association**. (Under review)

6. Zhang, D.,**Tong, J.**, Jing, N., Yang, Y., Luo, C., Lu, Y., Christakis, D.A., Kelleher, K.J., Morse, K., Rogerson, C.M., Carroll, R., Forrest, C.B., and Chen, Y. (2023) Learning Competing Risks Across Multiple Hospitals: One-Shot Distributed Algorithms. **The Journal of the American Medical Informatics Association**. (Under review)

7. Zhang, D.,**Tong, J.**, Jing, N., Yang, Y., Luo, C., Lu, Y., Stein, R., Boland, M.R., Carroll, R., Forrest, C.B., and Chen, Y. (2023) Addressing Heterogeneity in Competing Risks Data across Clinical Sites: One-Shot Distributed Algorithms. **The Journal of the American Medical Informatics Association**. (Under review)

8. Zhang, B. Liu, Z., **Tong, J**., Xu, J., Lin, L., Cappelleri, J.C., Chu, H., and Chen, Y. (2023) Non-collapsible Odds Ratio Can Falsely Yield Small-Study Effects. **American Journal of Epidemiology**. (Under review)

9. Wang, Y., Ye, Z., **Tong, J.**, Tang. C., Chen., Y. (2023) Analysis of Time to Event Data Under Two-Layer Censoring. **The Annals of Statistics**. (Under review)

10. Wu, Q., Pajor, N.M., **Tong, J.**, Lu, Y, Wolock, C, Asch, D, Forrest, C.B., and Chen, Y. (2023) Advancing learning health system via targeted causal inference of heterogeneous effect of COVID-19 exposure on healthcare utility outcomes - findings from RECOVER EHR study. **Nature Methods**. (Under review)

11. Tara Trujillo, T., Duan, R., **Tong, J.**, Chen, Y., Stoddard, J. (2023) Testing Multiple Outcomes Across Mental Health Treatment Options: An Example Using Antidepressants. (Under review)

12. Rao, S., Jing, N., Liu, X., Lorman, V., Maltenfort, M., Schuchard, J., Wu, Q., **Tong, J.**, Razzaghi, H., Mejias, A. and Lee, G.M. (2023). Clinical Subphenotypes of Multisystem Inflammatory Syndrome in Children: An EHR-based cohort study from the RECOVER program. **Scientifc Reports**. (Invited revision)

13. Zhang, D., Zhang, B., Wu, Q., Zhou, T., **Tong, J.**, Lu, Y., Chen, J., Chisolm, D., Jhaveri, R., Rothman, R.L., Rao, S., Willliams, D.A., Hornig, M., Morris, J.S., Forrest, C.B., and Chen, Y. (2023) Does COVID-19 increase Racial/Ethnic Differences in Prevalence of Post-acute Sequelae of SARS-CoV-2 Infection (PASC) in Children and Adolescents? Findings from Difference-in-Differences Analyses using an EHR-Based Cohort from the RECOVER Program. **The BMJ**. (Under review)

14. Chisolm, D., Webb, R., Salamon, K.S., Schuchard, J., Mendonca, E.A., Sills, M.R., Prahalad, P., Patel, P., **Tong, J.**, Zhang, D., Chen, Y., Musante, J., Bailey, C.L., Christakis, D., Forrest, C.B., Jhaveri, R., Pajor, N.M., Rao, S., Razzaghi, H., Thacker, D., Lee, G., and Mejias, Asun. (2023) Pediatric COVID-19 and community level social determinants of health: An EHR-based cohort study from the RECOVER program. **Pediatrics**. (Under review)

Ongoing work

1. Monitoring hospital performance without sharing patient-level via lossless, one-shot federated counterfactual modeling. (To be submitted to **Nature Methods**) **(Role: lead author)**

2. A nearly lossless, one-shot algorithm for federated learning in distributed research networks with time-to-event data. (To be submitted to **the Annals of Applied Statistics**) **(Role: lead author)**

3. PPV-guided cost-effective chart review for model-agnostic RWD-based discovery. (To be submitted to **the Journal of the American Medical Informatics Association**) **(Role: first author)**

4. Federated feature selection via false discovery rate control. (To be submitted to **Journal of the American Statistical Association – Theory and Methods**) **(Role: co-first author)**

5. Fed-HTE: Federated causal inference for heterogeneous treatment effects using multi-site data. (To be submitted to **Nature Communications**) **(Role: second author)**

Oral Presentation

Invited talk

1. **Tong, J.**, Reps, J., Luo, C., Schuemie, M., Yan, C., Ryan, P.B., Chu, H., Bian, J., Shenkman, E.A., Lu, Y., Ramirez-Anguita, J.M., Brand, M., Chen, Z., DuVall, S., Falconer, T., Fuentes, A.M., He, K., Li, J., Matheny, M.E., Mayer, M.A., Patel, B., Wang, D., Willilams, R.D., Simon, K., Seager, S., Yang, J., Zhou, Y., Morris, J.S., Wang, F., Stuart, E.A., Krumholz, H.M., Xu, H., Werner, R.M., Suchard, M.A., Lumley, T., Malin, B., Asch, D.A., Chen, Y. A new end-to-end data aggregation approach for comparing hospital performance without sharing patient-level data. **2023 Joint Statistical Meetings (JSM)**, Toronto ON, Canada, August 2023. **Invited talk – Health Policy Statistics Section Student Paper Award**

Contributed talk

1. Lu, Y., **Tong, J.**, Habbard, R., Chen, Y. An Augmented Estimation Procedure for EHR-based Association Studies with Multiple Surrogate Outcomes. **2023 Joint Statistical Meetings (JSM)**, Toronto ON, Canada, August 2023.

2. Shen, Y., **Tong, J.**, Ning, Y., Chen, Y. An A Distributed Semi-parametric Model to Quantify Heterogeneous Treatment Effect: FED-SCI. **2023 Joint Statistical Meetings (JSM)**, Toronto ON, Canada, August 2023.

3. **Tong, J.**, Reps, J., Luo, C., Schuemie, M., Yan, C., Ryan, P.B., Chu, H., Bian, J., Shenkman, E.A., Lu, Y., Ramirez-Anguita, J.M., Brand, M., Chen, Z., DuVall, S., Falconer, T., Fuentes, A.M., He, K., Li, J., Matheny, M.E., Mayer, M.A., Patel, B., Wang, D., Willilams, R.D., Simon, K., Seager, S., Yang, J., Zhou, Y., Morris, J.S., Wang, F., Stuart, E.A., Krumholz, H.M., Xu, H., Werner, R.M., Suchard, M.A., Lumley, T., Malin, B., Asch, D.A., Chen, Y. A new end-to-end data aggregation approach for comparing hospital performance without sharing patient-level data. **2023 Eastern North American Region (ENAR)**, Nashville TN, March 2023

4. **Tong, J.**, Yang, N., Islam, N., Qu, A. and Chen, Y. On the proportional likelihood ratio model for sparse data. **2022 Joint Statistical Meetings (JSM)**, Washington DC, July 2022.

5. **Tong, J.**, Sun, Y., Hubbard, R.A., Saine, M.E., Xu, H., Zuo, X., Lin, L., Weng, C., Schumid, C., Kimmel, S.E., Umscheid, C.A., Cuker, A., and Chen, Y. Advancing timely and reliable evidence synthesis in the era of COVID-19: A novel method for including preprints in systematic reviews. **2022 Eastern North American Region (ENAR)**, virtual March 2022.

6. **Tong, J.**, Sun, Y., Hubbard, R.A., Saine, M.E., Xu, H., Zuo, X., Lin, L., Weng, C., Schumid, C., Kimmel, S.E., Umscheid, C.A., Cuker, A., and Chen, Y. Advancing timely and reliable evidence synthesis in the era of COVID-19: A novel method for including preprints in systematic reviews. **The 34th New England Statistics Symposium (NESS)**, **invited session**, virtual October 2021.

7. **Tong, J.**, Sun, Y., Hubbard, R.A., Saine, M.E., Xu, H., Zuo, X., Lin, L., Weng, C., Schumid, C., Kimmel, S.E., Umscheid, C.A., Cuker, A., and Chen, Y. Advancing timely and reliable evidence synthesis in the era of COVID-19: A novel method for including preprints in systematic reviews. **2021 Joint Statistical Meetings (JSM)**, virtual August 2021.

8. **Tong, J.**, Luo, C., Islam, M.N., Sheils, N., Buresh, J., Edmondson, M., Merkel, P.A., Lautenbach, E., Duan, R. and Chen, Y. Distributed Binary Regression of Electronic Health Records Data Across Heterogeneous Clinical Sites. **2021 Eastern North American Region (ENAR)**, virtual March 2021.

9. **Tong, J.**, Chen, Z., Duan, R., Lo-Ciganic, W., Lyu, T., Tao, C., Merkel, P., Kranzler, H., Bian, J., Chen, Y. Identifying Clinical Risk Factors of Opioid Use Disorder using a Distributed Algorithm to Combine Real-World Data from a Large Clinical Data Research Network. **AMIA 2020 Annual Symposium**, virtual Nov 2020.

10. Duan, R., Chen Z., **Tong, J.**, Luo, C., Lyu, T., Tao, C., Maraganore, D., Bian, J. and Chen, Y. Leverage real-world longitudinal data in large clinical research networks for Alzheimer's disease and related dementia. **AMIA 2020 Annual Symposium**, virtual Nov 2020.

11. **Tong, J.**, Ren, B., Liu, Y., Moore, J., Xu, H. and Chen, Y. Xmeta-COVID19: A Comprehensive Web-based Toolbox for Meta-analysis on COVID19 Research. **2020 The Observational Health Data Sciences and Informatics (OHDSI)**, virtual Oct 2020.

12. **Tong, J.**, Luo, C., Duan, R., and Chen, Y. Distributed Learning From EHR across Multiple Heterogenous Clinical Sites. **2020 Joint Statistical Meetings (JSM)**, virtual July 2020.

13. **Tong, J.**, Huang, J., Chubak, J., Wang, X., Hubbard, R., and Chen, Y. An Augmented Estimation Procedure for EHR-based Association Studies. **Eastern North American Region (ENAR)**, virtual March 2020.

14. **Tong, J.***, Duan, R.*, Li, R., Scheuemie, M. J., Moore, J. H., and Chen, Y. Robust-ODAL: Learning from heterogeneous health systems without sharing patient-level data. **Pacific Symposium on Biocomputing**, Hawaii Jan 2020

15. **Tong, J.**, Li, R., Zhou, D., Duan, R., Moore, J., and Chen, Y. Improving the reproducibility of EHR-based association studies for pleiotropic effects by accounting for phenotyping errors. **Eastern North American Region (ENAR)**, Philadelphia Oct 2019.

16. **Tong, J.**, Huang, J., Du, J., Cai, Y., Tao, C. and Chen, Y. The Use of Likelihood Ratio Test to Identify Rare Adverse Events with Year-varying Reporting Rates for FLU4 Vaccine in VAERS. **AMIA 2018 Annual Symposium**, San Francisco Nov 2018.

Poster Presentation

17. **Tong, J.**, Luo, C., Sun, Y., Duan, R., Saine, M.E., Lin, L., Peng, Y., Lu, Y., Batra, A., Pan, A., Wang, O., Li, R., Anglin, A., Yang, Y., Zuo, X., Liu, Y., Bian, J., Kimmel, S.E., Hamilton, K., Cuker, A., Hubbard, R.A., Xu, H., and Chen, Y. Confidence Score: A Data-Driven Measure for Inclusive Systematic Reviews Considering Unpublished Preprints. **OHDSI 2023**, October 2023. (forthcoming)

18. Lu, Y., **Tong, J.**, Habbard, R., Chen, Y. An Augmented Estimation Procedure for EHR-based Association Studies with Multiple Surrogate Outcomes. **2023 Joint Statistical Meetings (JSM)**, Toronto ON, Canada, August 2023.

19. **Tong, J.**, Reps, J., Luo, C., Schuemie, M., Yan, C., Ryan, P.B., Chu, H., Bian, J., Shenkman, E.A., Lu, Y., Ramirez-Anguita, J.M., Brand, M., Chen, Z., DuVall, S., Falconer, T., Fuentes, A.M., He, K., Li, J., Matheny, M.E., Mayer, M.A., Patel, B., Wang, D., Willilams, R.D., Simon, K., Seager, S., Yang, J., Zhou, Y., Morris, J.S., Wang, F., Stuart, E.A., Krumholz, H.M., Xu, H., Werner, R.M., Suchard, M.A., Lumley, T., Malin, B., Asch, D.A., and Chen, Y. Secure federated hospital profiling using real-world data. **2023 DBEI & CCEB Research Day**, University of Pennsylvania, Philadelphia April 2023.

20. **Tong, J.**, Reps, J., Luo, C., Schuemie, M., Yan, C., Ryan, P.B., Chu, H., Bian, J., Shenkman, E.A., Lu, Y., Ramirez-Anguita, J.M., Brand, M., Chen, Z., DuVall, S., Falconer, T., Fuentes, A.M., He, K., Li, J., Matheny, M.E., Mayer, M.A., Patel, B., Wang, D., Willilams, R.D., Simon, K., Seager, S., Yang, J., Zhou, Y., Morris, J.S., Wang, F., Stuart, E.A., Krumholz, H.M., Xu, H., Werner, R.M., Suchard, M.A., Lumley, T., Malin, B., Asch, D.A., and Chen, Y. Secure federated hospital profiling using real-world data. **2023 ICSA**, University of Michigan, Ann Arbor June 2023.

21. **Tong, J.**, Reps, J., Luo, C., Schuemie, M., Yan, C., Ryan, P.B., Chu, H., Bian, J., Shenkman, E.A., Lu, Y., Ramirez-Anguita, J.M., Brand, M., Chen, Z., DuVall, S., Falconer, T., Fuentes, A.M., He, K., Li, J., Matheny, M.E., Mayer, M.A., Patel, B., Wang, D., Willilams, R.D., Simon, K., Seager, S., Yang, J., Zhou, Y., Morris, J.S., Wang, F., Stuart, E.A., Krumholz, H.M., Xu, H., Werner, R.M., Suchard, M.A., Lumley, T., Malin, B., Asch, D.A., and Chen, Y. Secure federated hospital profiling using real-world data. **OHDSI 2022**, October 2022.

22. **Tong, J.**, Shen, Y., Xu, A., Luo, C., He, X., Edmondson, M., Li, R., Zhang, D., Lu, Y., Chao, Y., Siegel, L., Sun, L., Shenkman, E.A., Morton, S.C., Malin, B.A., Bian, J., Asch, D.A., and Chen, Y. A federated learning algorithm to quantify racial disparities in kidney graft failure rates using US registry data from 29,468 patients across 149 transplant centers (2022). **OHDSI 2022**, October 2022.

23. **Tong, T.**, Li, L., Rao, S., Edmondson, M., Lorman, V., Razzaghi, H., Chu, H., Forrest, C.B., and Chen, Y. Advancing Interpretable Regression Analysis for Binary Data: A Novel Distributed Algorithm Approach. **OHDSI 2022**, October 2022.

24. Chen, Y., **Tong, J.**, Luo, C., Li, L., Lu, Y., Shu, H. PDA-OTA: Privacy-preserving Distributed Algorithms Over the Air, an OHDSI journey (2022). **OHDSI 2022**, October 2022.

25. **Tong, J.**, Yang, N., Islam, N., Qu, A. and Chen, Y. On the proportional likelihood ratio model for sparse data. **2022 Joint Statistical Meetings (JSM)**, July 2022.

26. **Tong, J.**, Duan, R., Liu, Y., Hong, C., Chi, K., and Chen, Y. A Comprehensive Toolbox for Advanced Meta-analysis. **2018 DBEI & CCEB Research Day**, University of Pennsylvania, Philadelphia April 2018.

Teaching Experience

1. **Teaching Assistant**   August 2023
   JSM 2023 Short Course: Clinical evidence generation using electronic health records data
   Toronto, ON, Canada
   Instructors: Yong Chen and Xu Shi (Assistant Professor of Biostatistics at University of Michigan)

2. **Teaching Assistant**   August 2022
   JSM 2022 Professional Development Continuing Education Course: Practical Solutions for Working with Electronic Health Records Data   Washington, DC
   Instructors: Yong Chen and Rebecca A. Hubbard

3. **Teaching Assistant**   July 2022
   27th Summer Institute in Statistical Genetics (SISG) – Regression methods: concepts and applications   Virtual
   Instructors: Rebecca A. Hubbard and Xu Shi

4. **Teaching Assistant**   Nov 2021 - Dec 2021
   BSTA 754: Advanced Survival Analysis   Philadelphia, PA
   Instructor: Douglas E. Schaubel

5. **Teaching Assistant**   Sep 2021 - Nov 2021
   BSTA 656: Longitudinal Data Analysis   Philadelphia, PA
   Instructor: Ian J. Barnett

6. **Teaching Assistant**   Nov 2020 - Dec 2020
   BSTA 660: Design of Observational Studies   Philadelphia, PA
   Instructor: Rebecca A. Hubbard

7. **Teaching Assistant**   Sep 2020 - Nov 2020
   BSTA 661: Design Of Interventional Studies   Philadelphia, PA
   Instructor: Alisa J. Stephens-Shields

Professional Membership

1. **American Statistical Association**   2019 - Present
2. **Eastern North American Region (ENAR)**   2019 - Present

Computing Skill

- R, MATLAB, Python, JAVA, SQL

Hobbies & Personal Interests

- Running (Half Marathon Runner), Photography, Piano Playing, Music Enthusiast