

CURRICULUM VITAE

Juanjuan Zhang

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RESEARCH INTERESTS

Juanjuan Zhang's research leverages mathematical/computational modeling and data science to provide a quantitative framework for:

- Understanding the transmission dynamics, epidemiological parameters, disease burden, and intervention evaluation of infectious diseases;
- Quantifying human social contact and mobility patterns to understand the interaction between human behavior and transmission dynamics of infectious diseases.

Most of her research has a key practical goal: support public health evidence-based decision-making.

WORK EXPERIENCE

- 2022-Pres. **Visiting Scholar**, School of Public Health, Indiana University, US
- 2021-Pres. **Tenure-Track Associate Professor**, School of Public Health, Fudan University, China
- 2019-2021 **Postdoctoral Fellow**, School of Public Health, Fudan University, China
Supervisor: Hongjie Yu and Yingyao Chen

EDUCATION

- 2018 **Visiting Scholar**, London School of Hygiene & Tropical Medicine
- 2016- **Ph.D.** in ***Epidemiology*** and Biostatistics, Fudan University, China
- 2019 Supervisor: Hongjie Yu and Henry Lynn
- 2013- **M.S.** in Epidemiology and ***Biostatistics***, Southern Medical University, China
- 2016 Supervisor: Pingyan Chen
- 2009- **B.S.** in ***Biostatistics***, Southern Medical University, China
- 2013

MAIN PUBLICATIONS IN INTERNATIONAL JOURNALS

I. First author[†] or corresponding author*

- 2023 1. **Zhang J**[†], Tan S[†], Peng C, Xu X, Wang M, Lu W, Wu Y, Sai B, Cai M, Kummer A. G, Chen Z, Zou J, Li W, Zheng W, Liang Y, Zhao Y, Vespignani A, Ajelli M, Lu X*, Yu H*. Heterogeneous changes in mobility in response to the SARS-CoV-2 Omicron BA.2 outbreak in Shanghai. ***Proceedings of the National Academy of Sciences***, 2023, 120(42): e2306710120.
- 2023 2. Liang Y, Peng C, You Q, Litvinova M, Ajelli M, **Zhang J**^{*}, Yu H*. Estimating Changes in Contact Patterns in China Over the First Year of the COVID-19 Pandemic: Implications for SARS-CoV-2 Spread — Four Cities, China, 2020. ***China CDC Weekly***, 2023, 5(5): 113-118.
- 2023 3. Zheng W, Deng X, Peng C, Yan X, Zheng N, Chen Z, Yang J, Ajelli M, **Zhang J**^{*}, Yu H*. Risk Factors Associated with the Spatiotemporal Spread of the SARS-CoV-2 Omicron BA.2 Variant — Shanghai Municipality, China, 2022. ***China CDC Weekly***, 2023, 5(5): 97-102.
- 2022 4. Liu QH[†], **Zhang J**[†], Peng C, Litvinova M, Huang S, Poletti P, Trentini F, Guzzetta G, Marziano V, Zhou T, Viboud C, Bento AI, Lv J, Vespignani A, Merler S, Yu H*, Ajelli M*. Model-based evaluation of alternative reactive class closure strategies against COVID-19. ***Nature Communications***. 2022; 13(1):322.
- 2022 5. Liu H[†], **Zhang J**[†], Cai J, Deng X, Peng C, Chen X, Yang J, Wu Q, Chen X, Chen Z, Zheng W, Viboud C, Zhang W, Ajelli M, Yu H*. Investigating vaccine-induced immunity and its effect in

- mitigating SARS-CoV-2 epidemics in China. *BMC Medicine*. 2022; 20(1):37.
- 2022 6. Chen Z[†], Deng X[†], Fang L[†], Sun K, Wu Y, Che T, Zou J, Cai J, Liu H, Wang Y, Wang T, Tian Y, Zheng N, Yan X, Sun R, Xu X, Zhou X, Ge S, Liang Y, Yi L, Yang J, **Zhang J**^{*}, Ajelli, M, Yu H^{*}. Epidemiological characteristics and transmission dynamics of the outbreak caused by the SARS-CoV-2 Omicron variant in Shanghai, China: A descriptive study. *The Lancet Regional Health - Western Pacific*. 2022; 29: 100592. (ESI highly cited paper)
 - 2021 7. **Zhang J**, Litvinova M, Liang Y, Zheng W, Shi H, Vespignani A, Viboud C, Ajelli M^{*}, Yu H^{*}. The impact of relaxing interventions on human contact patterns and SARS-CoV-2 transmission in China. *Science Advances*. 2021; 7(19): eabe2584.
 - 2020 8. **Zhang J**, Litvinova M, Liang Y, Wang Y, Wang W, Zhao S, Wu Q, Merler S, Viboud C, Vespignani A, Ajelli M^{*}, Yu H^{*}. Changes in contact patterns shape the dynamics of the COVID-19 outbreak in China. *Science*. 2020; 368 (6498): 1481-1486. (ESI hot paper, ESI highly cited paper)
 - 2020 9. **Zhang J**[†], Litvinova M[†], Wang W[†], Wang Y, Deng X, Chen X, Li M, Zheng W, Yi L, Chen X, Wu Q, Liang Y, Wang X, Yang J, Sun K, Longini Jr IM, Halloran ME, Wu P, Cowling BJ, Merler S, Viboud C, Vespignani A, Ajelli M^{*}, Yu H^{*}. Evolving epidemiology and transmission dynamics of novel coronavirus disease 2019 outside Hubei Province in China: a descriptive and modeling study. *Lancet Infect Dis*. 2020; 20 (7): 793-802. (ESI highly cited paper)

Comment: Azman AS^{*} and Luquero FJ. From China: hope and lessons for COVID-19 control. *Lancet Infectious Diseases*. 2020; 20 (7): 756-757.
 - 2019 10. **Zhang J**, Klepac P, Read J, Rosello A, Wang X, Lai S, Li M, Song Y, Wei Q, Jiang H, Yang J, Lynn H, Flasche S, Jit M, Yu H^{*}. Patterns of human social contact and contact with animals in Shanghai, China. *Scientific Reports*. 2019; 9(1): 15141.

II: Co-author

- 2023 1. Chen X, Bai X, Chen X, Zheng N, Yang J, **Zhang J**, Yu H^{*}. Modeling the Prediction on the Efficacy of a Homologous Third Dose of CoronaVac Against SARS-CoV-2 Omicron BA.1, BA.2, BA.2.12.1,

and BA.4/5 — China, 2020–2021. *China CDC Weekly*. 2023; 5(5):103-107.

- 2022 2. Chen X, Yan X, Sun K, Zheng N, Sun R, Zhou J, Deng X, Zhuang T, Cai J, **Zhang J**, Ajelli M, Yu H*. Estimation of disease burden and clinical severity of COVID-19 caused by Omicron BA.2 in Shanghai, February-June 2022. *Emerg Microbes Infect.* 2022; 11(1): 2800-2807
- 2022 3. Cai J[†], Yang J[†], Deng X, Peng C, Chen X, Wu Q, Liu H, **Zhang J**, Zheng W, Zou J, Zhao Z, Ajelli M, Yu H*. Assessing the transition of COVID-19 burden towards the young population while vaccines are rolled out in China. *Emerg Microbes Infect.* 2022; 11(1):1205-1214.
- 2021 4. Mousa A, Winskill P, Watson OJ, Ratmann O, Monod M, Ajelli M, Diallo A, Dodd PJ, Grijalva CG, Kiti MC, Krishnan A, Kumar R, Kumar S, Kwok KO, Lanata CF, Waroux OLP, Leung K, Mahikul W, Melegaro A, Morrow CD, Mossong J, Neal EF, Nokes DJ, Pan-Ngum W, Potter GE, Russell FM, Saha S, Sugimoto JD, Wei WI, Wood RR, Wu J, **Zhang J**, Walker P, Whittaker C. Social contact patterns and implications for infectious disease transmission - a systematic review and meta-analysis of contact surveys. *Elife*. 2021; 10.
- 2021 5. Han S[†], Cai J[†], Yang J, **Zhang J**, Wu Q, Zheng W, Shi H, Ajelli M, Zhou X*, Yu H*. Time-varying optimization of COVID-19 vaccine prioritization in the context of limited vaccination capacity. *Nature Communications*. 2021; 21(1): 4673.
- 2021 6. Yang J[†], Marziano V[†], Deng X, Guzzetta G, **Zhang J**, Trentini F, Cai J, Poletti P, Zheng W, Wang W, Wu Q, Zhao Z, Dong K, Zhong G, Viboud C, Merler S, Ajelli M*, Yu H*. Despite vaccination, China needs non-pharmaceutical interventions to prevent widespread outbreaks of COVID-19 in 2021. *Nature Human Behavior*. 2021; 5: 1009-1021.
- 2020 7. Wei X[†], Yang J[†], Gao L[†], Wang L[†], Liao Q[†], Qiu Q, Luo K, Yu S, Zhou Y, Liu F, Chen Q, **Zhang J**, Dai B, Yang H, Zhou J, Xing W, Chen X, He M, Ren L, Guo J, Luo L, Wu P, Chen Z, van Doorn HR, Cauchemez S, Cowling BJ, Yu H*. The transfer and decay of maternal antibodies against enterovirus A71, and dynamics of antibodies due to later natural infections in Chinese infants: a longitudinal, paired

mother-neonate cohort study. *Lancet Infect Dis*. 2020; 21(3): 418-426

Comment: Tan YW, Chu JJH. Protecting the most vulnerable from hand, foot, and mouth disease. *Lancet Infect Dis*. 2020 (published online)

- 2020 8. Deng X[†], Yang J[†], Wang W[†], Wang X[†], Zhou J, Chen Z, Li J, Chen Y, Yan H, **Zhang J**, Zhang Y, Wang Y, Qiu Q, Gong H, Wei X, Wang L, Sun K, Wu P, Ajelli M, Cowling BJ, Viboud C, Yu H*. Case fatality risk of the first pandemic wave of novel coronavirus disease 2019 (COVID-19) in China. *Clin Infect Dis*. 2020; 73(1):e79-e85
- 2019 9. Feng L[†], Feng S[†], Chen T[†], Yang J, Lau YC, Peng Z, Li L, Wang X, Wong JYT, Qin Y, Bond HS, **Zhang J**, Fang VJ, Zheng J, Yang J, Wu P, Jiang H, He Y, Cowling BJ, Yu H*, Shu Y*, Lau EH. Burden of influenza associated outpatient influenza-like illness consultations in China, 2006-2015: a population-based study. *Influenza Other Resp*. 2019; 14(2): 162-172.
- 2019 10. Li L[†], Liu Y[†], Wu P[†], Peng Z[†], Wang X, Chen T, Wong JYT, Yang J, Bond HS, Wang L, Lau YC, Zheng J, Feng S, Qin Y, Fang VJ, Jiang H, Lau EHY, Liu S, Qi J, **Zhang J**, Yang J, He Y, Zhou M, Cowling BJ, Feng L*, Yu H*. Influenza-associated excess respiratory mortality in China, 2010-15: a population-based study. *Lancet Public Health*. 2019; 4: e473-81.
- Comment: Huo X, Zhu F*. Influenza surveillance in China: a big jump, but further to go. *Lancet Public Health*. 2019; 4: e436-37.
- 2019 11. Wang X, Wu P, Pei Y, Tsang TK, Gu D, Wang W, **Zhang J**, Horby PW, Uyeki TM, Cowling BJ, Yu H*. Assessment of human-to-human transmissibility of avian influenza A(H7N9) virus across five waves by analyzing clusters of case-patients in mainland China, 2013-2017. *Clin Infect Dis*. 2019; 68(4): 623-31.
- 2018 12. Yang J[†], Lau YC[†], Wu P[†], Feng L, Wang X, Chen T, Ali ST, Peng Z, Fang VJ, **Zhang J**, He Y, Lau EHY, Qin Y, Yang J, Zheng J, Jiang H, Yu H*, Cowling BJ. Variation in influenza B virus epidemiology by lineage, China. *Emerg Infect Dis*. 2018;24(8):1536-1540.
- 2018 13. Artois J[†], Jiang H[†], Wang X, Qin Y, Pearcy M, Lai S, Shi Y, **Zhang J**, Peng Z, Zheng J, He Y, Dhingra MS, Dobschuetz SV, Guo F, Martin V, Kalpravidh W, Claes F, Robinson T, Hay SI, Xiao X, Feng L, Gilbert

M*, Yu H*. Changing geographic patterns and risk factors for avian influenza A(H7N9) infections in humans, China. *Emerg Infect Dis.* 2018;24(1):87-94.

- 2017 14. Wang X[†], Jiang H[†], Wu P[†], Uyeki TM[†], Feng L, Lai S, Wang L, Huo X, Xu K, Chen E, Wang X, He J, Kang M, Zhang R, **Zhang J**, Wu J, Hu S, Zhang H, Liu X, Fu W, Ou J, Wu S, Qin Y, Zhang Z, Shi Y, Zhang J, Artois J, Fang VJ, Zhu H, Guan Y, Gilbert M, Horby PW, Leung GM, Gao GF, Cowling BJ, Yu H*. Epidemiology of avian influenza A H7N9 virus in human beings across five epidemics in mainland China, 2013–17: an epidemiological study of laboratory-confirmed case series. *Lancet Infect Dis.* 2017;17(8):822-832.

Comment: Webby RJ*, Yang Z. The changing landscape of A H7N9 influenza virus infections in China. *Lancet Infect Dis.* 2017;17(8): 783-4.

- 2017 15. Liu X, Li Y, Zhu Y, **Zhang J**, Li X, Zhang J, Zhao K, Hu M, Qin G*, Wang X*. Seasonal pattern of influenza activity in a subtropical city, China, 2010–2015. *Scientific Reports.* 2017, 7(1): 17534.
- 2017 16. Zheng X, Song Z, Li Y, **Zhang J**, Wang X*. Possible interference between seasonal epidemics of influenza and other respiratory viruses in Hong Kong, 2014–2017. *BMC Infectious Diseases.* 2017, 17(1): 772.
- 2017 17. Li J, Ren H, **Zhang J**, Dong P, Wang Y*, Stevens AL, Han Y, Huang M. Cost-effectiveness of sunitinib as second-line treatment for gastrointestinal stromal tumor in the People's Republic of China. *Comparative Effectiveness Research.* 2017, 7: 1-9.

PUBLICATIONS: BOOK CHAPTERS & BOOKS

- 2023 **Zhang Juanjuan**: Theoretical Epidemiology in *Epidemiological Cases and Analysis*, Chapter 25, (eds. Xu Wanghong), People's Medical Publishing House, Beijing, 2023. (In Chinese)

RECENT SEMINARS AND TALKS

- 2023 “Heterogeneous changes in mobility in response to the SARS-CoV-2 Omicron BA.2 outbreak in Shanghai, China,” invited talk at the Contagion on Complex Social Systems Workshop (CCSS) organised by the University of Vermont, August 14-16, Burlington, Vermont, US.

- 2023 “Human behavior driven transmission dynamics of infectious diseases,” invited talk organized by school of Public Health, Nanjing Medical University, July 22, Nanjing, China.
- 2021 “Changes in contact patterns shape the dynamics of the COVID-19 outbreak in China,” invited talk at the Epidemics8 - 8th International Conference on Infectious Disease Dynamics organised by the ELSEVIER LTD, November 30-December 3, online, Italy.
- 2021 “Contact patterns and transmission dynamics of COVID-19 in China,” invited talk at the 2021 National Academic Conference on Epidemiology organised by the Epidemiology Branch of the Chinese Society of Preventive Medicine, October 11-13, Haikou, China.
- 2021 “Contact patterns and transmission dynamics of COVID-19 in China,” invited talk at the 3rd International Conference on Biomathematical Modelling and Stochastic Analysis organised by the Biomathematics Professional Committee of Chinese Mathematical Society, April 23-26, Lanzhou, China.
- 2020 “Contact patterns and transmission dynamics of COVID-19 in China,” invited talk organized by school of Public Health, Xi’an Jiaotong University, December 2, Xi’an, China.
- 2020 “Contact patterns and transmission dynamics of COVID-19 in China,” invited talk at the 16th Logistics System Engineering and the 4th Management System Engineering Academic Symposium organised by the Logistics Systems Engineering Professional Committee of Chinese Systems Engineering Society, November 28-29, Chongqing, China.
- 2020 “Impact of social distancing on the transmission dynamics of COVID-19 in China,” invited talk at the 2020 National Postdoctoral Forum "The Outbreak and Response to the COVID-19 Epidemic in the Context of Globalization: From Public Health to Economic and Social Development" organised by the National Postdoctoral Management Committee, November 7, Shanghai, China.
- 2020 “Contact patterns and transmission dynamics of COVID-19 in China,” invited talk at the Academic Seminar on the Epidemiology, Transmission Dynamics and Evaluation of Interventions for COVID-19 organised by the School of Public Health, Fudan University, October 25, Shanghai, China.

HONORS & AWARDS

- 2023 National Outstanding Young Scientific Research Talent

2022 Shanghai Rising-Star Program, *Shanghai Association for Science & Tech*

2020 FDU Post-doctoral Excellence Program, *Fudan University*

2020 FDU Outstanding Postdoctoral Fellow, *Fudan University*

2020 FDU Outstanding Doctoral Dissertation Award, *Fudan University*.

MAJOR RESEARCH GRANTS-PI

Period	Role	Title	Funding body
2024– 2026	PI	Interaction of human mobility and contact patterns with transmission of respiratory infectious diseases at high-resolution spatio-temporal scales (Ref: 82304202)	Young Scientists Fund of the National Natural Science Foundation of China (RMB 300,000)
2022– 2025	PI	Prediction and early warning on the outbreak of COVID-19 and the impact of vaccination on its spread (Ref: 22QA1402300)	Science and Technology Commission of Shanghai Municipality (RMB 400,000)
2021– 2026	PI	Technology development of epidemiological prediction and early warning of major and emerging infectious diseases (Ref: ZD2021CY001)	Shanghai Municipal Development and Reform Commission, Science and Technology Commission of Shanghai Municipality (RMB 2,820,900)
2021– 2023	PI	Dynamics of neutralizing antibodies induced by COVID-19 vaccines and its protective effect against SARS-CoV-2 variants (Ref: HS2021SHZX001)	Shanghai Municipal Development and Reform Commission, Science and Technology Commission of Shanghai Municipality (RMB 7,200,000)
2020– 2021	PI	Transmission modeling and evaluation of interventions against COVID-19 (Ref: 2020T130014ZX)	China Postdoctoral Science Foundation (RMB 180,000)

TEACHING

2021-Pres. The Great Invention of Mankind-Vaccine (undergraduate course)

2021-Pres. Vaccine Study Design and Data Analysis (graduate course)

2022-Pres. Infectious Disease Epidemiology (graduate course)

EDITORIAL BOARD MEMBERSIPS & SERVICE AS REVIEWER

2023-Pres. Member, Editorial Board, Science in One Health

2023-Pres. Member, Editorial Board, Infectious Medicine

Reviewer for the following journals: BMC Medicine, Epidemics, Infectious Diseases of Poverty, Journal of Theoretical Biology, etc.