Cheng Ren

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Education

University of California, Berkeley   Berkeley, CA
PhD in Social Welfare Designated Emphasis in Data Science   *08/2018 – 2023 (Expected)*
Dissertation Title: Application of Computational Methods in Eviction Research
Mentors: Julian Chun-Chung Chow, David Harding, Emmeline Chuang, Rediet Abebe
- Applied Data Science Certificate @ School of Information
- Summer Institutes in Computational Social Science 2020 @ Berkeley & Stanford

Case Western Reserve University   Cleveland, OH
Master of Science in Social Administration   *08/2015 – 05/2017*

Shanxi University   Shanxi, China
Bachelor of Arts in Media Study   *09/2011 – 06/2015*

Research Interests

Computational Social Welfare, Eviction and Housing Research, Nonprofit Development, Migrant Well-being, Data Science, Community Engagement and Assessment

Teaching Interests

Data Science and Social Justice, Research Methods and Program Evaluation, Housing Policy and Eviction Research, Community Development and GIS, Advanced Statistical Methods

Peer-reviewed Publications

- **Ren, C.,** & Bloemraad, I. (2022). New Methods and the Study of Vulnerable Groups: Using Machine Learning to Identify Immigrant-Oriented Nonprofit Organizations. *Socius, 8, 23780231221076992.*

- Lyu, Y., Chow, J. C. C., Hwang, J. J., Li, Z., **Ren, C.**, & Xie, J. (2022). Psychological Well-Being of Left-Behind Children in China: Text Mining of the Social Media Website Zhihu. *International journal of environmental research and public health, 19(4), 2127-2127.*

- Li, Z., **Ren, C.**, Li, X., & Pardos, Z. A. (2021). Learning Skill Equivalencies Across Platform Taxonomies. *In LAK21: 11th International Learning Analytics and Knowledge Conference (pp. 354-363).*

- **Ren, C.**, Stuart, M., Chow, J. C. C., (2020), Computational Social Welfare: Applying Data Science in Social Work. *obo in Social Work. doi: 10.1093/obo/9780195389678-0286*

- Chow, J. C.-C., Cai, Y., Gu, T., Lyu Y., **Ren, C.**, Stuart M., Stone, S., (2019). Research on Rural Left Behind Children Welfare Policy Supported by Big Data. *Social Security Studies*,72-80. (in Chinese)

- Chow, J. C.-C., **Ren, C.**, Mathias, B., & Liu, J. (2019). InterBoxes: A social innovation in education in rural China. *Children and Youth Services Review*, 101, 217 224.

- Cai, Y., Chen, S., **Ren,C.**. (2019). Research on the Impact of Executive-Employee Compensation Gap on Corporate Performance -Based on Panel Threshold Regression Analysis of China A-stock Listed Companies on Shanghai Stock Exchange and Shenzhen Stock Exchange. *Journal of Beijing Technology and Business University (Social Sciences)*. 34(2):52 -62. (in Chinese)

- **Ren, C.** (2013). Knowledge Spread Under the View of Innovation Diffusion - Take TED Speech as an Example.". *Today's Mass Media*, 52-53. Retrieved from 10.3969/j.issn.1672-8122.2013.11.024. (in Chinese)

Manuscripts in preparation

- **Ren, C.,** Pardos, Z., Li, Z., Speed and Accuracy of Skill Tagging Through AI-Human Collaboration, *AIED 2023: The 24th International Conference on Artificial Intelligence in Education* (under review)

- Mathias, B., **Ren, C.**, Chow, J. C.-C, Community Engagement as a Predictor of Social Capital: An Analysis from the Knight Soul of the Community Study. *People, Place and Policy* (under review)

- Li, Z., Pardos, Z., **Ren, C.**, Meeting the Challenge of OER Alignment to New Taxonomies, *Computers & Education* (under review)

- Pleasants E, Ryan J, **Ren C,** Prata N, Gomez AM, Marshall C., Exploring Language Used in Posts on r/birthcontrol: Case Study Using Data From Reddit Posts and Natural Language Processing to Advance Contraception Research. *Journal of Medical Internet Research*. 02/06/2023:46342 (in press)

- Lou, C. Zhou, L, **Ren, C,** Chow, J, Early Impact of the COVID-19 Pandemic on Public Benefits Recipients

- **Ren, C.**, Thomas, T., What Lies Behind the Answers: Applying Machine Learning to Understand Tenants' Reaction of Eviction

- **Ren, C.**, Griswold, M., Thomas, T., Chen, X. The Eviction Analysis through California Sheriff Data

Peer-reviewed Presentations

- **Ren, C.**, Thomas, T., Applying Machine Learning to Understand the Cause and Cost of Eviction at *Society for Social Work and Research*. Phoenix, AZ (January 2023)

- **Ren, C.**, Chuang, E., Chow, J., A Machine Learning Analysis of Social Work Job Advertisements in the Post-Pandemic Era at *Society for Social Work and Research*. Phoenix, AZ (January 2023)

- **Ren, C.**, Sosa, H, Mirsaidova. A, Patel, P., Exploring new understandings of the cost of living at a basic needs level using the Self-Sufficiency Standard database at *Learning & Doing Data for Good*. Seattle, WA (September 2022)

- **Ren, C.**, Bloemraad, I., Using Machine Learning to Code Immigrant-Serving Organizations ePost at *Society for Social Work and Research*. Washington DC (January 2022)

- Ziemer, K.L., **Ren, C.**, Rodriguez, M.Y., & Jung, W., Social Media As a Source of Data - Lessons Learned and Implications for Utilizing Computational Methods in Social Work Research (Round table, withdraw due to Covid-19) at *Society for Social Work and Research*. Washington DC (January 2022)

- **Ren, C.**, Chow, J. C.-C, Mathias, B., Weng, S., Zhi, L., How Nonprofits React to Economic Downturn after the 2008 Recession? Analysis By Natural Language Processing. Presentation ePost at *Society for Social Work and Research*. Virtual (January 2021)

- Weng, S., Chow, J. C.-C, **Ren, C.**, Mathias, B., Changing Identities Among Identity-Based Asian Pacific American Ethnic Agencies. Presentation ePost at *Society for Social Work and Research*. Virtual (January 2021)

- Chow, J. C.-C, Weng, S.,**Ren, C.**, Mathias, B., Examining Major Changes in Asian Pacific American Ethnic Agencies. Presentation ePost at *Society for Social Work and Research*. Virtual (January 2021)

- Lee, J., Jung, W., **Ren, C.**, Teaching Data Science in Social Work: Lived Experiences and Future Directions. Presentation at *Council on Social Work Education* Virtual (November 2020)

- **Ren, C.**, Mathias, B., Chow, J. C.-C, Lyu, Y. , Trends in Non-Profit Sectors: A Predictive Analysis of Agency Longevity in the US. Presentation at *Society for Social Work and Research*. Washington DC (January 2020)

- Mathias, B., **Ren, C.**, Chow, J. C.-C, Community Engagement as a Predictor of Social Capital: An Analysis from the Knight Soul of the Community Study. ePost at *Society for Social Work and Research.* Washington DC (January 2020)

- Chow, J., **Ren, C.**, Mathias, B. Liu, J., Strengthening social development through social innovation in rural education in China. Presentation at *21st Conference of the International Consortium for Social Development*. Yogyakarta, Indonesia (July 2019)

- Stuart, M., **Ren, C.**, Launching a Computational Social Welfare Lab: Reflecting on the Benefits and Obstacles Identified in the Grand Challenge. Presentation at *Society for Social Work and Research*. San Francisco, CA (January 2019)

- Stone, S., Wu, Q., Stuart, M., **Ren, C.**, An Examination of School Influences on the Academic Achievement of Left behind Children in China. Presentation at *Society for Social Work and Research*. San Francisco, CA (January 2019)

- Scharlach, A., Bai, X., Stuart, M., **Ren, C.**, Zhang, Y., Effects of Personal, Social, and Environmental Characteristics on Negative Health Outcomes Among Older Adults in China. Presentation at *Society for Social Work and Research*. San Francisco, CA (January 2019)

- Chow, J., **Ren, C.**, Mathias, B., InterBoxes: A Social Innovation in Education in Rural China. Presentation at *International Conference on Social Innovation in Child and Youth Services*. Beijing, China (October 2018)

Invited Professional Presentations

- **Ren, C.**, Alschech, J., Newton, B., Jung, W., White, K., Using Python for Applied Data Science in Social Work: Introduction to Concepts, Methods, Model Building, and Critical Perspectives Workshop at *Society for Social Work and Research*. Phoenix, AZ (January 2023)

- **Ren, C.**, How to Use Data Visualizations for Program Evaluation at *UC Berkeley 282B*. (March 2021)

- **Ren, C.**, Bloemraad, I., Using Machine Learning to Code Immigrant-Serving Organizations at *Berkeley Institute for Data Science*. (September 2021)

- Stuart, M., Geiger, S., **Ren, C.** A guided ethnographic reflection on a large-scale U.S.-China data science collaboration. presentation at *Moore Sloan Data Science Annual Summit*. Salt Lake City, Utah (November 2018)

- Stuart, M., **Ren, C.**, Launching a Computational Social Welfare Lab. Presentation at *Big Data Expo*. Guiyang, China (May 2018)

Awards & Fellowships

Summer Departmental Fellowship (2020-2022): Annual summer fellowship of $5,000 from Berkeley Social Welfare

PhD/Early Career Paper Award (07/2021): People, Place, and Policy Conference

Senior Data Science Fellowship (2020-2021): $2000 from UC Berkeley D-Lab

Discovery Fellowship (2021-2022): $9,000 from the Computing, Data Science, and Society Division of UC Berkeley

Travel Grant (2019-2022): Annual $1600 for conference presentations

Micron Opportunity Scholarship (2022): $2300 from the University of Washington

Conference Travel Grant (2023): $900 from the University of California, Berkeley

Research Experience

Urban Displacement Project   Berkeley, CA
Graduate Student Researcher   *02/2021 – Present*
- Utilized and optimized Optical Character Recognition strategies to convert key information in eviction-related court files, e.g., increased the accuracy of addresses recognition from 74% to 88%
- Obtained funding from the Patrick J McGovern Foundation and applied NLP to categorize the eviction results to identify the violence during the eviction.
- Supported Bay Area eviction research and helped build the Eviction Research Network website, whose products were reported by KQED, an NPR-member radio

Berkeley Center for Law & Technology   Berkeley, CA
Data Manager/Graduate Student Researcher   *08/2020 – 08/2021*
- Led 5 undergraduate students from The Data Science Discovery Program with Prof. Sonia Katyal to detect rebranding activities in the public media and more than 30,000 related news articles were collected
- Construct research frameworks and guide students on how to apply Natural Language Processing skills for text analysis. Around 70% of the organizations' names are successfully extracted from the articles
- Collaborate with Prof. Erik Stallman and go through open data governance over the Obama/Trump eras, and open data policy from each federal agency

Berkeley Interdisciplinary Migration Initiative   Berkeley, CA
Data Analyst   *03/2020 – 01/2021*
- Created an interactive map to explore spatial inequality of immigrant health and legal services in the CA, NA and AZ, which will cover around 2000 clinics information with Prof. Irene Bloemraad (map website)
- Created an interactive map for COVID-19 health resources. (map website)

- Applied Natural Language Processing to build a recommendation system for immigration institutes detection. The new algorithm increases the accuracy from 0.72 to 0.92 in the validation set.

Professional Experience

School of Social Welfare, University at Albany   Albany, NY
Lecturer   *07/2023 – Present*

Contra Costa County-Employment & Human Services   Martinez, CA
Data Scientist Intern   *11/2022 – Present*
- Explored and resolved discrepancies within the human service administrative databases using Python.
- Assisted in analyzing data pertaining to foster care and Medicaid users for the fiscal year report.

D(Data)-Lab   Berkeley, CA
Senior Data Science Fellow and Consultant   *11/2019 – Present*
- Provided more than 100 consulting service for students with R, Python, geographic information system (GIS) and machine learning questions at UC Berkeley and was promoted to senior fellow due to excellent performance
- Collaborated with students in one Kaggle competition and increased the prediction rate from 83% to 90% via an NLP model. Finally, we got 4/50 teams
- Provided mentorship for 30 undergraduate Data Science Projects, like IBM, The Boston Global and became lead fellow due to excellent performance

University of Washington eScience Institute   Seattle, WA
Data Science for Social Good Fellow—-Summer Intern   *06/2022 – 08/2022*
- Built a Python package for the project partner to create a customized database for their work. The package and database speed up analyses like city comparison, from 3 hours to 5 minutes
- Created a live map to first ever compare the gap between Self Sufficiency Standard and the Poverty line nationally

Guizhou Berkeley Big Data Innovation Research Center   Berkeley, CA
Research Associate   *09/2017 – 07/2018*
- Conducted literature reviews about left-behind children and aging service in China for Professor Susan Stone and Professor Andrew Scharlach
- Cleaned and analyzed data from four departments in Guiyang via R and Python as a coder supervisor, wrangling over 1 million individuals' information linked through 200+ tables
- Led a "student experience" research about the "Shipping Container Library" in rural China by interview and survey. The paper was published on Children and Youth Services Review

Center on Urban Poverty and Community Development   Cleveland, OH
Research Assistant   *08/2016 – 08/2017*
- Maintained the Northeast Ohio Community and Neighborhood Data for Organizing dataset (NEO CANDO) and Neighborhood Stabilization Team Web Application (NST) and provided data training for students and local residents

- Designed surveys to gather information and feedback from users for Community Profile Website and prepare GIS (online and offline) maps for communities and other geographic analyses for the organizations
- Used SAS, R, Python and ArcGIS to analyze large-scale data for research papers and generate data stories or reports, such as Lead Exposure Survey

Neighborhood Connections   Cleveland, OH
Practicum Student   *08/2015 – 5/2016*
- Collected and sorted data from grant proposals. Used data to create a networking map among the community members
- Visited local non-profit organizations and gathered information about training opportunities around Cleveland. Prepared brochures and shared them with residents in the communities
- Pioneered a one-on-one interview program to understand residents' perception of the neighborhood and drew the perception boundary map using GIS tools

Projects (Selected)

Birth Control Topics on Reddit   The Wallace Center at UC Berkeley
Graduate Student Researcher   *01/2021 – 06/2021*
- Collected metadata related to birth control on Reddit
- Applied NLP on Reddit posts to explore the side effects of various products that people are discussing online and how online-offline interacts

Infonavit's Portfolio of Foreclosed Mortgages   Solve for Good at CMU
Data Scientist   *08/2020 – 10/2020*
- Built a data collection plan for Infonavit, a Mexican organization
- Created a sample code and taught them how to visualize the data via GIS; our project present at DSSG DataFest (Video link)

Cross-platform Skill Embedding   Computational Approaches to Human Learning at UC Berkeley
Member   *08/2020 – 10/2020*
- Applied Natural Language Processing to build an algorithm that can connect skill labels cross different educational platforms
- The recall accuracy is 0.89, paper accept at Learning Analytics 2021

Exploring Funding Equity With DonorsChoose   Summer Institutes in Computational Social Science 2020
Member   *06/2020 – 07/2020*
- Helped DonorsChoose support more underprivileged schools, came up with a plan to measure their effectiveness and collected data
- Developed a tool for exploring whether DonorsChoose funded schools with lower per-pupil expenditures (Map link), (Media mention)

UNICEF Asian Pacific Youth Innovation Challenge   Kuala Lumpur, Malaysia
Co-leader   *09/2016 – 11/2016*
- Developed a proposal of an "Independent Account for Health Services" to address affordable health care issues for women and left behind children
- Selected in the final round of competition from 660 participants in 17 Asia Pacific countries (45/660)

Teaching Experience

Data Science + Social Justice Workshop — Graduate Students Level   University of California, Berkeley
Teaching Assistant   *Summer 2022*
- This workshop provided essential tools and methods for data science analysis and introduced critical frameworks for social justice. I assisted students in forming their research and debugging the codes.

SOC WEL 282B Seminar in Social Welfare Research — MSW Level   University of California, Berkeley
Graduate Student Instructor   *Spring 2022*
- This course provided needs assessment and program evaluation. I helped students with design evaluation and analysis plan

SOC WEL 200 Theories for Multilevel Practice — MSW Level   University of California, Berkeley
Graduate Student Instructor   *Fall 2020*
- It provides an overview of the impact of the social environment, the impact of the "ecology" of human behavior. I hosted office hours for students' questions and graded quizzes and homework.

D-Lab Python Programming —All Level   University of California, Berkeley
Instructor   *Fall 2020*
- Designed and taught Python coding courses for D(Data)-Lab at UC Berkeley

SOC WEL 282A Seminar in Social Welfare Research —MSW Level   University of California, Berkeley
Graduate Student Instructor   *Fall 2019*
- Problem formulation, design, and implementation. I taught Python coding in this class and hosted office hours to answer questions

Professional Service

Journal Ad-Hoc Reviewer (2020-present): Computers in Human Behavior, Frontiers in Public Health

Conference Reviewer (Program Committee) (2020-present):
- Learning Analytics and Knowledge Conference 2023 (3 papers)
- ACM Conference on Fairness, Accountability and Transparency 2022 (5 papers)

Panel Moderator (2018): Big Data Expo, Data Science for Social Wellbeing

Student Mentoring

2022-2023, Research Assistant Supervisor, Jennifer Chen BS in Operations Research

2022-2023, Research Assistant Supervisor, Cardi Seim BA in Data Science

2021-2022, Research Assistant Supervisor, Grace Zhao BA in Computer Science

Skills

Programming/Software: Python, R, SQL, HTML, SPSS, STATA

Technologies: Git, Machine Learning, Natural Language Processing, Geographic Information System
Languages: Native in Mandarin and fluent in English