

# JUNGYANG CAI

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## EDUCATION

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<b>Doctor of Philosophy (operation management)</b>	Sep 2024 - Feb 2028 (expect)
The faculty of data and decision sciences, Technion - Israel Institute of Technology	
<b>Master in management science and engineering</b>	Sep 2021 - Mar 2024
School of Management, Shanghai University (Postgraduate recommendation)	
<b>Bachelor in statistics</b>	Sep 2017 - Jun 2021
School of Science, Harbin University of Science and Technology	

## RESEARCH INTEREST

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Operations management/Operations research in healthcare

## PUBLICATION

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- **Cai J**, Zhou J\*. How many asymptomatic cases were unconfirmed in the US COVID-19 pandemic? The evidence from a serological survey. *Chaos, Solitons & Fractals*, 2022, 164: 112630. Click [here](#)
- Li H, **Cai J\***. Arithmetic operations and expected values of regular interval type-2 fuzzy variables. *Symmetry-Basel*, 2021, 13(1): 2196. Click [here](#)

## WORKING PAPER

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- Zhou J, **Cai J\***, Pantelous AA, Li Z, Li M. A decision-making framework for supporting an equitable global vaccine distribution under humanitarian perspectives. (*European Journal of Operational Research*, Major Revision)

## DISSERTATION

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**“Inequality rather than want is the cause of trouble”: Equitable vaccine distribution under humanitarian perspectives** (Master thesis, Nov 2022 - Dec 2023) Advisor: [Jian Zhou](#)

- Develop a data-driven framework of vaccine distribution consisting of a multi-strain Susceptible-Vaccinated-Infected-Removed-Susceptible network model and a vaccine distribution model with equitable constraints to break vaccine nationalism during pandemics
- Consider a particular phenomenon of vaccine hesitancy and model it as an uncertain parameter to reflect the individuals’ ambivalence when confronting vaccinations
- Apply the proposed distribution framework to the case of the COVID-19 pandemic to demonstrate its superior performance, and carry out more sensitivity analyses (such as the introduction of booster injections) to obtain the related insights
- Simulate the detrimental phenomenon of vaccine nationalism by two setups (bi-level programming distributional strategy and a Type- $\delta$  one) to deepen the understanding of the severity of unfairness

## INTERNSHIP

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<b>Data analyst</b> in Baozun E-commerce (data operation control center)	Nov 2023 - Mar 2024
• Wrote Python code to aggregate data from multiple sources and automatically calculated the daily/weekly utilization rate of customer service representatives to evaluate their performance.	

- Wrote Python code to batch process excel files, perform multi-dimensional analysis on sales data, KOL live streaming data, and logistics data of brands such as DESCENTE, Crocs, Calvin Klein, and Tommy Hilfiger on Tmall, JD.com, and Douyin platforms. Calculate various monthly/annual metrics (including sales volume, sales amount, and return rate) for each SKU across different stores. Calculated the above-mentioned metrics for each store during promotional periods (e.g., D11, 618) on different platforms. Computed the logistics punctuality rate for different regions/express companies. Evaluated and summarize the return situations of popular products, KOLs' live streaming performance, and consumer purchase behaviors.

## SKILL

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**Programming languages: Python** (I have a comparative good command of some packages such as *Scikit-learn*, *Numpy*, *Pandas*, *Scipy* as well as *Matplotlib*. Additionally, I have used the *Gurobi* package to solve mathematical programming problems.); **Matlab**

**Text editing:** Latex; Markdown

**Other software:** SPSS (for statistic analysis); Tableau (for data visualization)

## SELECTED HONORS AND AWARD

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- The 19th China post-graduate mathematical contest in modeling - The third prize (2022)
- National scholarship for Postgraduates (2022)
- The 18th China post-graduate mathematical contest in modeling - The second prize (2021)
- The 2nd IKCEST "The Belt and Road" International Big Data Competition and the 6th Baidu & Xi'an Jiaotong University Big Data Competition - International Excellence Award (2020) Click [here](#)
- The 10th blue bridge cup Java program design competition - The second prize of group A in Heilongjiang division (2019)
- The 11th Chinese mathematics competitions (preliminary contest) - The first prize in mathematics major group A (2019)