# Zitao Wang

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CONTACT INFORMATION

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EDUCATION

**California Institute of Technology**      **Sep. 2013 - June 2019**

Ph.D. in Physics, Minor in Computer Science

- Courses: Machine Learning and Data Mining, Stochastic Processes, Probability and Statistics

**Hong Kong University of Science and Technology**      **Sep. 2009 - June 2013**

B.Sc. in Physics (Physics and Mathematics Option)

- First Class Honors
- Courses: OOP and Data Structures, Algorithms, Discrete Mathematics, PDE

SKILLS

- Programming Languages: Python, C++, SQL
- Libraries: NumPy, Pandas, PyTorch, Scikit-learn

EXPERIENCE

Facebook, Inc.      Research Scientist
Menlo Park, CA      **July 2019 - Present**

- Led the backend development of the non-constraining default semantics (NCDS) for Lookalike targeting, which leverages the advertiser targeting input as signals in the ads delivery stack, and launched the solution to support the Lookalike Expansion product.

- Contributed to the Lookalike strategy work, including running budget-controlled A/B tests, long-term advertiser tests, and split tests, and performing the relevant data science work, to establish the value of the NCDS solution and unblock product launches.

- Worked on building and launching the advertiser calibration system to support the Detailed Targeting Expansion product.

- Investigated and established the value of targeting signals at different stages of ads delivery, including ads retrieval, ranking, and calibration.

- Worked on building the framework to perform customized budget-controlled A/B tests for targeting relaxation.

California Institute of Technology      Research Assistant
Pasadena, CA      **Sep. 2013 - June 2019**

- Constructed the first exactly solvable model of a two-dimensional topological superconductor, applicable to both the weakly and strongly interacting regimes. Resolved a long-standing puzzle regarding time-reversal symmetry in such materials.

- Proposed a new description of three-dimensional discrete gauge theories and their twisted versions, providing a different physical picture of these theories. Numerically computed modular transformations of these systems to detect their topological order.

- Proposed and analytically computed the complete classification of gapped phases of fermions with short-range entanglement.

RabbitPre Intelligent Technology Co., Ltd.      Machine Learning Intern
Shenzhen, CN      **June 2018 - Sep. 2018**

- Experiment with different machine learning techniques in optical character recognition (OCR) to detect and recognize Chinese characters in posters.

Hong Kong University of Science and Technology                    Undergraduate Researcher
Hong Kong                                                        **Sep. 2010 - June 2012**

- Numerically study the network reliability subject to random edge failures. Established a novel relation between the network reliability and the spectral gap of the adjacency matrix.

PUBLICATIONS     Zitao Wang, Shang-Qiang Ning, and Xie Chen, Exactly solvable model for two dimensional topological superconductor, Phys. Rev. B **98**, 094502 (2018).

Zitao Wang and Xie Chen, Twisted gauge theories in three-dimensional Walker-Wang models, Phys. Rev. B **95**, 115142 (2017).

Anton Kapustin, Ryan Thorngren, Alex Turzillo, and Zitao Wang, Fermionic symmetry protected topological phases and cobordisms, J. High Energ. Phys. **12**, 052 (2015).

Ning Bao, ChunJun Cao, Michael Walter, and Zitao Wang, Holographic entropy inequalities and gapped phases of matter, J. High Energ. Phys. **09**, 203 (2015).

Zitao Wang and Kwok Yip Szeto, Comparing the reliability of networks by spectral analysis, Eur. Phys. J. B **87**, 234 (2014).