Tan Tao-Lin

tanlin2013@gmail.com
https://github.com/tanlin2013
https://www.linkedin.com/in/tao-lin-tan-0788a5186/

Work Experience

2020/07 – present **Data Scientist,** Phison Electronics Corporation

2019/07 – 2020/06 **Junior Data Engineer,** Commerce Connector GmbH, Asia Limited

2016/02 – 2016/06 **Teaching Assistant of Classical Mechanics,** Department of Electrophysics, National Chiao Tung University

Education

2015 – 2018 **M.Sc., Institute of Physics, National Chiao Tung University**
Thesis title: *Tensor Network Study of the (1+1)-dimensional Thirring Model.*
Advisor: *Prof. C.-J. David Lin*

2011 – 2015 **B.Sc., Department of Physics, National Chung Hsing University**
Independent study: *Monte Carlo simulation to 2D Ising model with Metropolis sampling.*
Advisor: *Prof. Ming-Chiang Chung*

Skills

Languages	Strong reading, writing and speaking competencies for English and Mandarin. Currently learning Japanese.
Programming	C++, JavaScript, LaTeX, Python, shell script, SQL, …
Backend	AWS, CI/CD, Databases, Data Lakes, Docker, ETL, serverless, Spark, unit test, Unix/Linux, web crawling
Frontend	React
Numerical Methods	Tensor Network, Distributed Computing, Anomaly Detection, Clustering, Monte Carlo, XGBoost, Bayesian Optimization, …

Publications

Journal Articles

1. Bañuls, M., Cichy, K., Kao, Y.-J., Lin, C.-J., Lin, Y.-P., & **Tan**, **T.-L.** (2019). Phase structure of the (1 + 1)-dimensional massive thirring model from matrix product states. *Physical Review D*, *100*. doi:10.1103/PhysRevD.100.094504

2. Bañuls, M.-C., Cichy, K., Kao, Y.-J., Lin, C., Lin, Y.-P., & **Tan**, **T.-L.** (2017). Tensor network study of the (1+1)-dimensional thirring model. *EPJ Web of Conferences*, *175*. doi:10.1051/epjconf/201817511017

Conference Proceedings

1. Banuls, M., Cichy, K., Hung, H.-T., Kao, Y.-J., Lin, D., Lin, Y.-P., & **Tan**, **T.-L.** (2020). Phase structure and real-time dynamics of the massive thirring model in 1+1 dimensions using the tensor-network method. (p. 022). doi:10.22323/1.363.0022

2. Banuls, M.-C., Cichy, K., Kao, Y.-J., Lin, C.-J., Lin, Y.-P., & **Tan**, **T.-L.** (2019). Investigation of the 1+1 dimensional thirring model using the method of matrix product states. (p. 229). doi:10.22323/1.334.0229

Projects

- tnpy: A python implementation of Matrix Product State algorithms.
- HOTRG-2D-Ising: Higher-order Tensor Renormalization Group study to 2D classical Ising model (Jupyter notebook).
- anko: A python implementation of anomaly detection algorithms.
- binpr: Pattern recognition on the failed bins in silicon wafer based on OPTICS algorithm.

Miscellaneous Experience

Presentations

2018 **2018 Annual Meeting of the Physical Society of Taiwan**. Title: *Tensor Network Study of the (1+1)-dimensional Thirring Model.*

2017 **35th International Symposium On Lattice Field Theory**. Title: *Tensor Network study of the (1+1)-dimensional Thirring Model.*

The 12th particle physics phenomenology (ppp12) workshop. Title: *Tensor Network study of the (1+1)-dimensional Thirring Model.*

Research Visiting

2017 **DAMTP, Cambridge University**. Invited by: *Prof. Matthew Wingate*

2016 **Department of Physics, Goethe University Frankfurt**. Invited by: *Dr. Krzysztof Cichy*

Business Trip

2019 **Annual meeting at Commerce Connector GmbH headquarters, Stuttgart**.

Conferences and Workshops

2021 **NVDIA GPU Technology Conference 2021**

Workshop on Non-equilibrium Systems and Machine Learning

AWS AI/ML Web Day Taiwan

2020 **AWS re:Invent**

AWS Dev Day Taipei

AWS machine learning invention workshop

2018 **Mini-workshop on composite Higgs models and lattice gauge theory**

NVDIA Deep Learning Workshop

2018 Annual Meeting of the Physical Society of Taiwan

2017 **NCTS Annual Theory Meeting 2017: Particles, Cosmology and Strings**

Workshop on hadron physics and QCD

35th International Symposium On Lattice Field Theory

The 12th particle physics phenomenology (ppp12) workshop

Third TEQMS Hackathon

2016 **NCTS Annual Theory Meeting 2016: Quantum Simulations and Numerical Studies in Many-Body Physics**

Miscellaneous Experience (continued)

- **The fourth workshop on Tensor Network States: Algorithms and Applications**

2015
- **Workshop on non-perturbative QFT and LHC physics**
- **Second Hackathon for NCTS Thematic Group on Topology and Entanglement in Quantum Many-body Systems**

2014
- **AMO Summer School**

Journal Clubs

2016
- **Conjugate Gradient Descent**
- **Lattice Quantum Chromodynamics**

2015
- **Tensor Network Methods**

2014
- **Topological Insulators and Topological Superconductors**

Poster

2016
- **The fourth workshop on Tensor Network States: Algorithms and Applications**. Title: *Tensor network study to (1+1)-dimensional field theory: The quantum soliton states in sine-Gordon theory*