

Louis Tiao

Machine Learning Researcher & Ph.D. Candidate
Cambridge, United Kingdom

louistiao@me.com
<https://tiao.io/>

Education

| | |
|--|--------------------------------------|
| Ph.D. Computer Science, University of Sydney <i>Supervisors: Edwin Bonilla, Fabio Ramos</i> | 2023 (expected) Sydney, Australia |
| B.Sc. (Honours 1st Class) Computer Science, University of New South Wales <i>Major concentrations: Artificial Intelligence, Mathematics</i> | 2015 Sydney, Australia |

Employment

| | |
|---|--|
| Applied Scientist Intern Amazon <i>Hosts: Aaron Klein, Matthias Seeger, Cédric Archambeau</i> | May 2022 – Sep 2022 Cambridge, United Kingdom |
| Doctoral Student Researcher Secondmind (PROWLER.io) | Sep 2021 – Apr 2022 Cambridge, United Kingdom |
| Applied Scientist Intern Amazon <i>Hosts: Matthias Seeger, Aaron Klein, Cédric Archambeau</i> | Jun 2019 – Dec 2019 Berlin, Germany |
| Teaching Assistant University of New South Wales (UNSW) <i>Course: COMP9418 – Advanced Topics in Statistical Machine Learning</i> | Aug 2017 – Nov 2018 Sydney, Australia |
| Research Software Engineer CSIRO Data61 | Jun 2016 – Apr 2019 Sydney, Australia |
| Research Software Engineer National ICT Australia (NICTA) | Jun 2015 – Jun 2016 Sydney, Australia |
| Research Intern Commonwealth Scientific and Industrial Research Organisation (CSIRO) | Nov 2013 – Feb 2014 Sydney, Australia |

Publications

1. R. Oliveira, **L. Tiao**, and F. Ramos. Batch Bayesian Optimisation via Density-Ratio Estimation with Guarantees. In *Advances in Neural Information Processing Systems 35 (NeurIPS2022)*, New Orleans, Louisiana, December 2022.
2. **L. Tiao**, A. Klein, C. Archambeau, E. V. Bonilla, M. Seeger, and F. Ramos. Bayesian Optimization by Density-Ratio Estimation. In *Proceedings of the 38th International Conference on Machine Learning (ICML2021)*, Virtual (Online), July 2021. Accepted as **Long Talk** (Awarded to top 3% of submissions).

3. P. Elinas, E. V. Bonilla, and **L. Tiao**. Variational Inference for Graph Convolutional Networks in the Absence of Graph Data and Adversarial Settings. In *Advances in Neural Information Processing Systems 33 (NeurIPS2020)*, Virtual (Online), December 2020. Accepted as **Spotlight Presentation** (Awarded to top 3% of submissions).

PREPRINTS

4. **L. Tiao** and E. V. Bonilla. Gaussian Process Density-Ratio Estimation. *Preprint*, May 2021.
5. M. Seeger, A. Klein, T. Lienart, and **L. Tiao**. Simulation-based Scoring for Model-based Asynchronous Hyperparameter and Neural Architecture Search. In *ICLR2021 Neural Architecture Search*, Virtual (Online), May 2021.
6. **L. Tiao**, A. Klein, C. Archambeau, E. V. Bonilla, M. Seeger, and F. Ramos. Bayesian Optimization by Density Ratio Estimation. In *NeurIPS2020 MetaLearn*, Virtual (Online), December 2020. Accepted as **Contributed Talk** (Awarded to best 3 submissions).
7. A. Klein, **L. Tiao**, T. Lienart, C. Archambeau, and M. Seeger. Model-based Asynchronous Hyperparameter and Neural Architecture Search. *arXiv preprint arXiv:2003.10865*, June 2020.
8. **L. Tiao**, P. Elinas, H. Nguyen, and E. V. Bonilla. Variational Graph Convolutional Networks. In *NeurIPS2019 Graph Representation Learning*, Vancouver, Canada, December 2019. Accepted as **Outstanding Contribution Talk** (Awarded to best 3 submissions).
9. **L. Tiao**, E. V. Bonilla, and F. Ramos. Cycle-Consistent Adversarial Learning as Approximate Bayesian Inference. In *ICML2018 Theoretical Foundations and Applications of Deep Generative Models*, Stockholm, Sweden, July 2018. Accepted as **Contributed Talk**.

THESES

10. **L. Tiao**. Robust Non-convex Optimization in Reputation Aggregation Systems. *Undergraduate Honours Thesis (Advisor: Aleksandar Ignjatovic)*, May 2015.

Awards and Honors

| | |
|--|-----------|
| Machine Learning Summer School (MLSS) 2021 Taipei Best Poster Award | 2021 |
| Selected to participate in MLSS2021 Taipei | 2021 |
| NeurIPS2020 Travel Award | 2020 |
| Australian Government Research Training Program (RTP) Scholarship (Full funding) | 2017– |
| CSIRO Data61 Postgraduate Research Scholarship | 2017– |
| UNSW Faculty of Engineering Dean’s Honours List for Academic Excellence | 2013–2014 |
| UNSW School of Computer Science and Engineering 3rd Year Undergraduate Performance Prize | 2013 |

Software

| | |
|--|-------|
| GPflux: A Tensorflow/Keras framework for Deep Gaussian Processes V. Dutordoir, S.T. John, L. Tiao , and other members and collaborators of Secondmind Labs | 2021– |
| BORE: A framework for Bayesian Optimization by Probabilistic Classification L. Tiao , A. Klein | 2021– |
| AutoGluon: An AutoML toolkit for Deep Learning Members and collaborators of Amazon Web Services (AWS) Labs, L. Tiao (a core developer of the Gaussian process-based multi-fidelity searcher module) | 2019– |
| Aboleth: A minimalistic TensorFlow framework for scalable Bayesian Deep Learning D. Steinberg, L. McCalman, L. Tiao | 2017 |
| revrand: A Python library for scalable Bayesian Generalized Linear Models D. Steinberg, L. Tiao , L. McCalman, A. Reid and S. O’Callaghan | 2015 |
| Scientific Python: Contributions to the releases of TensorFlow 1.3.0rc1, scikit-learn 0.19.1, SciPy 0.17.0, NLTK 3.0b1, Cartopy 0.14.1, and others | 2014– |

Academic Service

REVIEWER

| | |
|---|-------|
| ICLR2023, NeurIPS2022, ICML2022, ICLR2022, NeurIPS2021, ICML2021 – <i>Best Reviewer Award (Top 10%)</i> | |
| 1st International Conference on Automated Machine Learning (AutoML-Conf) | 2022 |
| AutoML-Conf Late-Breaking Workshop | 2022 |
| ICLR 2nd Workshop on on Neural Architecture Search | 2021 |
| NeurIPS 4th Workshop on Meta-Learning | 2020 |
| ICML 1st Workshop on Graph Representation Learning and Beyond | 2020 |
| Transactions on Machine Learning Research (TMLR) | 2022– |
| IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) | 2019– |

Talks

1. The 38th International Conference on Machine Learning (ICML2021) Jul 2021
2. European Laboratory for Learning and Intelligent Systems (ELLIS) AutoML Seminars May 2021
3. NeurIPS 4th Workshop on Meta-learning Dec 2020
4. Amazon Machine Learning Community Tech Talk Jun 2019
5. ICML Workshop on Theoretical Foundations and Applications of Deep Generative Models Jul 2018