Wesley Wei Qian

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Education

University of Illinois at Urbana-Champaign AUG 2017-MAY 2022

Doctor of Philosophy in **Computer Science: Machine Learning & Comp. Biology/Chemistry**

GPA: **4.00** / 4.00

Awards: **University Fellowship, Richard T. Cheng Endowed Fellowship**

Brandeis University SEP 2013-MAY 2017

Bachelor of Science in **Computer Science** and **Neuroscience** (Summa Cum Laude)

GPA: **3.96** / 4.00 (Overall) **4.00** / 4.00 (CS)

Awards: **Phi Beta Kappa (Junior), Schiff Fellowship, Collaborative Research Grant**

Experience

Research Assistant | UIUC AUG 2017-PRESENT

- I work with my advisor, Prof. Jian Peng, on various problems in computational biology and chemistry with machine learning and data driven approaches. I really enjoy the science aspect our research.
- My research topics include **protein** sequence/structure modeling and design, **graph based neural network** for molecule property prediction and reaction prediction, de-novo **molecule design**.

Student Researcher | Google MAY 2018-PRESENT

- I spend part of my time working with the talented folks from Google Brain and Accelerated Science.
- In 2018, we leveraged the Generative Adversarial Network (**GAN**), and created a generative model to mediate the **batch effect** in **high content cell imaging**. The model implementations are contributed to the TensorFlow open source effort, and the work is later published in Bioinformatics.
- In 2019, we proposed a combinatorial formulation for **structural variant calling**, and developed an efficient (x100) algorithm to improve the precision of existing callers. This project is still in the work.
- Currently, we are working on **drug-target interactions** and transfer learning for **odorant molecule**.

Software Engineering Intern | Uber SUMMER 2017&2018

- In 2017, I designed and created a **web application** for internal mobile developer to investigate UI test failures that synchronize the test logs and videos timestamp reduce the debug time by 50%.
- In 2018, I developed a variant of **conditional random fields** to infer key events during Uber Eats delivery with **mobile sensor,** and identified data quality issue causing performance issue in previous efforts. The effort also won **the first prize** for Uber's first internal machine learning poster session.

Publication

- **Qian, W.W.**, Xia, C., Venugopalan, S., Narayanaswamy, A., Dimon, M., Ashdown, G., Baum, J. Peng, J., Ando, D.M. (2020). Batch Equalization with a Generative Adversarial Network. *Bioinformatics*.
- **Qian, W. W.**, Russell, N. T., Simons, C. L., Luo, Y., Burke, M. D., & Peng, J. (2020). Integrating Deep Neural Networks and Symbolic Inference for Organic Reactivity Prediction. *ChemRxiv*.
- Luo, Y., Vo, L., Ding, H., Su, Y., Liu, Y., **Qian, W.W.**, Zhao, H., & Peng, J. (2020). Evolutionary context-integrated deep sequence modeling for protein engineering. *RECOMB2020*.
- Sanchez-Lengeling, B., Wei, J., Lee, B., Reif, E., Wang, P., **Qian, W.W.**, McCloskey, K., Colwell, L., & Wiltschko, A. (2020). Attribution for Graph Neural Network. *Under Review*.

Service

- **Program Committee** for ICML - ML Interpretability for Scientific Discovery Workshop 2020
- **Reviewer** for Intelligent Systems for Molecular Biology (ISMB) 2019/2020