Qianwen Wang

DATA VISUALIZATION MEETS ML

qianwen_wang@hms.harvard.edu | https://qianwen.info/ | wangqianwen0418

Education

Hong Kong University of Science & Technology — Hong Kong, China
PhD in Electronic and Computer Engineering, VIS Lab — *Sep 2015 - Jan 2020*
Supervisor: Prof. Huamin Qu

Xi'an Jiao Tong University — Xi'an, China
BEng., Electronic Science& Technology — *Aug 2011 - 2015*

Interest & Skills

Interest	**Data Visualization for Machine Learning, Human-Machine Collaboration, Information Visualization, Visualization in Biomedical AI**
Programming	Python, JavaScript, Typescript, Matlab, HTML, css
Frameworks	React, Vue, D3, Flask, WebGL

Experience

PostDoc Researcher — **Harvard University**
Advisor: Prof. Nils Gehlenborg — *Apr 2020 -*

Research Visiting Student — **Oxford University**
Advisor: Prof. Min Chen — *Aug 2019 - Dec 2019*

Service

- Abstract Chair, BioVis@ISMB 2022
- Program Committee, PacificVis 2022 Visualization Meets AI workshop
- Paper Review, IEEE VIS, 2018-2021
- Paper Review, EuroVis, 2020
- Paper Review, ACM CHI, 2020-2022
- Paper Review,ChinaVIS, 2021

Research Assistant — **HKUST**
Explainable AI, Project Leader — *Oct 2018 - 2019*

- Write the report: Visualization in AI Product Life Cycle
- Develop a visualization tool to diagnose the deep learning model used in screen testing

Research Assistant — **HKUST**
Machine Learning for Air Pollution Control — *May 2018 - Jul 2018*

- Develop deep learning models to predict air pollution metrics in Hong Kong

Research Intern — **Microsoft Research**
Mentor: Lintao Zhang — *Jun 2017 - Jan 2018*

- Develop visualization tools to building DL models through drag and drop
- Build visualization tool to manage GPU resources
- Interactive machine learning through visualization

Awards

Best Paper Awards, ICML2021 IMLH workshop 2021
Interactive Visual Explanations for Deep Drug Repurposing

Best Abstract Award, BioVis@ISMB 2021 2021
Gosling: A Grammar-based Toolkit for Scalable and Interactive Genomics Data Visualization

SENG Academic Award, HKUST 2018-2019
a prize of HK$20,000 for students with good academic performance and research accomplishment

IEEE VIS Doctoral Colloquium 2019
fund the travel, conference registration, and lodging

- an invitation-only event that co-located with IEEE VIS
- Ph.D. students present their work and receive feedback from leading senior visualization researchers

Oversea Research Award, HKUST 2019
10,000 HKD per month for an overseas research

Award of Excellence, MSRA Internship Program 2018

Award of Most Feasibility, Microsoft One Week Hackathon 2017

Outstanding Graduates, Xi'an Jiao Tong University 2015
Top 10% Graduates

Educational Scholarship, Xi'an Jiao Tong University 2012, 2013, 2014
Top 5% Students

Outstanding Students, Xi'an Jiao Tong University 2012, 2013, 2014
Top 10% Students

Publication List

1. **[C, J] Qianwen Wang**, Tali Mazor, Theresa A Harbig, Ethan Cerami, Nils Gehlenborg, "ThreadStates: State-based Visual Analysis of Disease Progression", in IEEE Transactions on Visualization and Computer Graphics (**IEEE TVCG**), Volume: 28, Issue: 1, Jan. 2022.
2. **[C, J]**Sehi L'Yi, **Qianwen Wang**, Fritz Lekschas, Nils Gehlenborg, "Gosling: A Grammar-based Toolkit for Scalable and Interactive Genomics Data Visualization", in IEEE Transactions on Visualization and Computer Graphics (**IEEE TVCG**), Volume: 28, Issue: 1, Jan. 2022.
3. **[C, J]** Theresa A Harbig, Sabrina Nusrat, Tali Mazor, **Qianwen Wang**, Alexander Thomson, Hans Bitter, Ethan Cerami, Nils Gehlenborg, "OncoThreads: Visualization of Large Scale Longitudinal Cancer Molecular Data", Bioinformatics (Proc. ISMB 2021)
4. **[C, J] Qianwen Wang**, Zhutian Chen, Yong Wang, and Huamin Qu, "A Survey on ML4VIS: Applying Machine Learning Advances to Data Visualization", in IEEE Transactions on Visualization and Computer Graphics (**IEEE TVCG**)
5. **[C, J] Qianwen Wang**, William Alexander, Jack Pegg, Huamin Qu and Min Chen, "HypoML: Visual Analysis for Hypothesis-based Evaluation of Machine Learning Models", in IEEE Transactions on Visualization and Computer Graphics (**IEEE TVCG**), vol. 27, no. 2, pp. 1417-1426, Feb. 2021.
6. **[C, J] Qianwen Wang**, Zhenhua Xu, Zhutian Chen, Yong Wang, Shixia Liu, Huamin Qu, "Visual Analysis of Algorithmic Discrimination, in IEEE Transactions on Visualization and Computer Graphics", **IEEE TVCG**, vol. 27, no. 2, pp. 1470-1480, Feb. 2021.
7. **[C] Qianwen Wang**, Yao Ming, Zhihua Jin, Qiaomu Shen, Dongyu Liu, Micah J. Smith, Kalyan Veeramachaneni, and Huamin Qu. 2019. "ATMSeer: Increasing Transparency and Controllability in Automated Machine Learning".

In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (**ACM CHI '19**). ACM, New York, NY, USA, Paper 681, 12 pages

8. **[J] Qianwen Wang**, Jun Yuan, Shuxin Chen, Hang Su, Huamin Qu, and Shixia Liu. "Visual Genealogy of Deep Neural Networks." IEEE Transactions on Visualization and Computer Graphics (**IEEE TVCG**) doi: 10.1109/TVCG.2019.2921323
9. **[C, J] Qianwen Wang**, Zhen Li, Siwei Fu, Weiwei Cui, and Huamin Qu. "Narvis: Authoring Narrative Slideshows for Introducing Data Visualization Designs." IEEE Transactions on Visualization and Computer Graphics 25, no. 1 (2018): 779-788, (**IEEE InfoVis 2018**)
10. **[C, J]** Chuan Bu, Quanjie Zhang, **Qianwen Wang**, Jian Zhang, Michael Sedlmair, Oliver Deussen, Yunhai Wang, "SineStream: Improving the Readability of Streamgraphs by Minimizing Sine Illusion Effects", in IEEE Transactions on Visualization and Computer Graphics **TVCG**, vol. 27, no. 2, pp. 1634-1643, Feb. 2021.
11. **[C]** Zhutian Chen, Tong Wai, **Qianwen Wang**, Benjamin Bach, Huamin Qu, Augmenting Static Visualizations with PapARVis Designer, in Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (**ACM CHI '20**)
12. **[J]** Chen, Zhutian, Yijia Su, Yifang Wang, **Qianwen Wang**, Huamin Qu, and Yingcai Wu, "MARVisT: Authoring Glyph-based Visualization in Mobile Augmented Reality," in IEEE Transactions on Visualization and Computer Graphics (**IEEE TVCG**).
13. **[C, J]** Yong Wang, Zhihua Jin, **Qianwen Wang**, Weiwei Cui, Tengfei Ma, Huamin Qu, "DeepDrawing: A Deep Learning Approach to Graph Drawing", **IEEE InfoVis 2019**
14. **[C, J]** Zhutian Chen, Yun Wang, **Qianwen Wang**, Yong Wang, Huamin Qu, "Towards Automated Infographic Design: Deep Learning-based Auto-Generation of Extensible Timeline", **IEEE InfoVis 2019**

Media Coverage

- MIT News Cracking open the black box of automated machine learning
- DeepTech ATMSeer 拯救工程师发际线

Talks

From Data to Decisions: a mixed path of visualization and machine learning — **Tianjin, China**
Invited Keynotes at **PacificVis2021 Visualization Meets AI workshop** — *Apr 2021*

Applying Machine Learning Advances to Data Visualization — **UC Davis, USA**
Invited lecture at **AI+VIS seminar** — *Feb 2022*

Visual Genealogy of Deep Neural Networks — **Vancouver, Canada**
Conference Presentation at **IEEE VAST 2019** — *Oct 2019*

Visualization to Guide the Application of Machine Learning — **Zhejiang, China**
Invited Talk at **Zhijiang Lab** — *Jul 2019*

ATMSeer: Increasing Transparency and Controllability in Automated Machine Learning — **Glasgow, UK**
Conference Presentation at **ACM CHI 2019** — *May 2019*

Narvis: Authoring Narrative Slideshows for Introducing Data Visualization Designs — **Berlin, Germany**
Conference Presentation at **IEEE InfoVis 2018** — *Oct 2018*

Reference

Huamin Qu (PhD advisor) huamin@ust.hk, Hong Kong University of Science and Technology
Nils Gehlenborg nils@hms.harvard.edu, Harvard University
Shixia Liu shixia@tsinghua.edu.cn, Tsinghua University
Min Chen min.chen@oerc.ox.ac.uk, University of Oxford