

Qianwen Wang

DATA VISUALIZATION + MACHINE LEARNING

✉ qianwen_wang@hms.harvard.edu | 🏠 <https://qianwen.info/> | 🎓 Google Scholar | 🔗
wangqianwen0418 | in LinkedIn | 🐦 @WangQianwenToo

Education

PhD, Electronic and Computer Engineering **HKUST**
Supervisor: Prof. Huamin Qu, VIS Lab 2015 - 2020

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

Experience

Havard University MA, USA
PostDoc Researcher, Department of Biomedical Informatics Jul 2020 -

Oxford University Oxford, UK
Research Visiting Student Aug 2019 - Dec 2019

HKUST HongKong, China
Graduate Research Assistant, Explainable AI group Oct 2018 - 2019

Microsoft Research Beijing, China
Research Intern Jun 2017 - Jan 2018

Research Interest

I am studying **Interactive Data Visual Analytics** within the broad context of Human-Computer Interaction, envisioning interactive visualization as an effective approach for hypothesis formalization and knowledge communication. My work strives to promote the application of **Machine Learning** in various domains through creating interactive visual analysis systems, with a special interest in solving **biomedical challenges** via **Human-AI collaboration**.

Awards and Funds

Best Paper Honorable Mention, IEEE VIS 2022

Postdoctoral Fellows Research Fund, Harvard Data Science Institute 2022
Highly Competitive, selected from postdoctoral researchers in Harvard University

Best Long Abstract Award, ISMB BioVis COSI 2022
Top 1 out of all submissions

Best Paper Award, IMLH@ICML 2021
Top 2 out of 39 accepted papers

Best Abstract Award, ISMB BioVis COSI 2021
Top 1 out of all submissions

SENG Academic Award, HKUST 2019
From more than 200 PhD students in the School of Engineering

IEEE VIS Doctoral Colloquium, IEEE VIS 2019

Oversea Research Award, HKUST 2019

Award of Excellence, Microsoft Research Internship Program 2018

Award of Most Feasibility, Microsoft One Week Hackathon 2017

Outstanding Graduates Xi'an Jiao Tong University 2015

Educational Scholarship, Xi'an Jiao Tong University 2012-2014

Professional Service

Organizing Committee

Poster Chair , IEEE Pacific Visualization Symposium	2023
Abstract Chair , International Conference on Intelligent Systems for Molecular Biology	2022
Organizer , Visualization in Biomedical AI Workshop @ IEEE VIS	2022
Organizer , Tutorial @ ISMB Building Interactive Visualizations of Genomics Data with Gosling	2022

Program Committee

ACM Conference on Intelligent User Interfaces	2023
IEEE Pacific Vis 2022 Visualization Meets AI Workshop	2022
ChinaVis Conference	2022

Conference Paper Review

IEEE VIS Conference	2018-2022
ACM CHI Conference on Human Factors in Computing Systems	2019-2022
ACM Conference on Intelligent User Interfaces	2020-2021
ACM Conference on Intelligent User Interfaces	2020-2021
EuroVis Conference	2019-2020
ChinaVis Conference	2019-2021
IEEE Pacific Visualization Symposium	2020-2021

Invited Journal Review

IEEE Transactions on Visualization and Computer Graphics	2019-2022
Journal of Visualization	2021-2022
IEEE Computer Graphics and Applications	2021-2022
Visual Informatics	2020-2022
Oxford Bioinformatics	2022
IEEE Transactions on Big Data	2020
ACM Transactions on Interactive Intelligent Systems	2020, 2022

Publications

Peer-reviewed Conference and Journal Publications

- J.1 [TVCG] **Qianwen Wang**, Kexin Huang, Payal Chandak, Marinka Zitnik, Nils Gehlenborg.
“Extending the Nested Model for User-Centric XAI: A Design Study on GNN-based Drug Repurposing.”
to appear on IEEE Transactions on Visualization and Computer Graphics (VIS’22).
Honorable Mention Award as IEEE VIS 2022
- J.2 [TVCG] Furui Cheng, Mark Keller, Huamin Qu, Nils Gehlenborg, **Qianwen Wang**.
“Polyphony: an Interactive Transfer Learning Framework for Single-Cell Data Analysis.”
to appear on IEEE Transactions on Visualization and Computer Graphics (VIS’22).
Best Long Abstract Award as BioVis@ISMB 2022
- J.3 [TVCG] Aditeya Pandey, Sehi L’Yi, **Qianwen Wang**, Michelle Borkin, Nils Gehlenborg.
“GenoREC: A Recommendation System for Interactive Genomics Data Visualization.”
to appear on IEEE Transactions on Visualization and Computer Graphics (VIS’22).
- J.4 [TVCG] Zhihua Jin, Yong Wang, **Qianwen Wang**, Yao Ming, Tengfei Ma, Huamin Qu.
“GNNLens: A Visual Analytics Approach for Prediction Error Diagnosis of Graph Neural Networks.”
IEEE Transactions on Visualization and Computer Graphics 2022

- J.5 [TVCG] Sehi L’Yi, **Qianwen Wang**, Fritz Lekschas, Nils Gehlenborg.
“Gosling: A Grammar-based Toolkit for Scalable and Interactive Genomics Data Visualization.”
 IEEE Transactions on Visualization and Computer Graphics (VIS’21) Jan; 28(1):140-150.
Best Abstract Award as BioVis@ISMB 2021
- J.6 [TVCG] **Qianwen Wang**, Tali Mazor, Theresa A Harbig, Ethan Cerami, Nils Gehlenborg.
“ThreadStates: State-based Visual Analysis of Disease Progression.”
 IEEE Transactions on Visualization and Computer Graphics (VIS’21) 28.1 (2021): 238-247.
- J.7 [TVCG] **Qianwen Wang**, Zhenhua Xu, Zhutian Chen, Yong Wang, Shixia Liu, Huamin Qu.
“Visual Analysis of Algorithmic Discrimination.”
 IEEE Transactions on Visualization and Computer Graphics (VIS’20), vol. 27, no. 2, pp. 1470-1480, Feb. 2021
- J.8 [Bioinformatics] Theresa Harbig, Sabrina Nusrat, Tali Mazor, **Qianwen Wang**, Alexander Thomson, Hans Bitter, Ethan Cerami, Nils Gehlenborg. Bioinformatics 37.Supp 1 (2021): i59-i66.
“OncoThreads: Visualization of Large Scale Longitudinal Cancer Molecular Data.”
- J.9 [TVCG] **Qianwen Wang**, William Alexander, Jack Pegg, Huamin Qu, Min Chen.
“HypoML: Visual analysis for hypothesis-based evaluation of machine learning models.”
 IEEE Transactions on Visualization and Computer Graphics (VIS’20), vol. 27, no. 2, pp. 1417-1426, Feb. 2021
- J.10 [TVCG] **Qianwen Wang**, Zhutian Chen, Yong Wang, Huamin Qu.
“A Survey on ML4VIS: Applying Machine Learning Advances to Data Visualization.”
 IEEE Transactions on Visualization and Computer Graphics, 2021
- J.11 [TVCG] **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, vol. 26, no. 11, pp. 3340-3352, 1 Nov. 2020.
- J.12 [TVCG] Chuan Bu, Qianjie Zhang, **Qianwen Wang**, Jian Zhang, Michael Sedlmair, Oliver Deussen, Yunhai Wang. *“SineStream: Improving the readability of streamgraphs by minimizing sine illusion effects.”*
 IEEE Transactions on Visualization and Computer Graphics, vol. 27, no. 2, pp. 1634-1643, Feb. 2021 (VIS’20)
- J.13 [CHI] Zhutian Chen, Wai Tong, **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 (CHI’20).
- J.14 [CHI] **Qianwen Wang**, Yao Ming, Zhihua Jin, Qiaomu Shen, Dongyu Liu, Micah J. Smith, Kalyan Veeramachaneni, and Huamin Qu. *“ATMSeer: Increasing Transparency and Controllability in Automated Machine Learning”.*
 In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI’19).
- J.15 [TVCG] Zhutian Chen, Yun Wang, **Qianwen Wang**, Yong Wang, Huamin Qu.
“Towards automated infographic design: Deep learning-based auto-extraction of extensible timeline.”
 IEEE Transactions on Visualization and Computer Graphics vol. 26, no. 1, pp. 917-926, Jan 2020 (VIS’19)
- J.16 [TVCG] Yong Wang, Zhihua Jin, **Qianwen Wang**, Weiwei Cui, Tengfei Ma, Huamin Qu.
“DeepDrawing: A Deep Learning Approach to Graph Drawing.”
 IEEE Transactions on Visualization and Computer Graphics, vol. 26, no. 1, pp. 676-686, Jan 2020 (VIS’19)
- J.17 [TVCG] **Qianwen Wang**, Zhen Li, Siwei Fu, Weiwei Cui, Huamin Qu.
“Narvis: Authoring narrative slideshows for introducing data visualization designs.”
 IEEE Transactions on Visualization and Computer Graphics, vol. 25, no. 1, pp. 779-788, Jan. 2019 (VIS’18)

Workshop Papers and Posters

- W.1 **Qianwen Wang**, Nils Gehlenborg.
“Interactive Exploration of Tissues and Cells Guided by Visual Pattern Mining”
 International Conference on Intelligent Systems for Molecular Biology (ISMB 2022)
- W.2 **Qianwen Wang**, Sehi L’Yi, Nils Gehlenborg.
“Improving the Utility and Usability of Visualization in AI-driven Scientific Discovery”
 DOE ASCR’s Workshop on “Data Visualization for Scientific Discovery, Decision Making and Communication”
- W.3 **Qianwen Wang**, Kexin Huang, Payal Chandak, Marinka Zitnik, Nils Gehlenborg.
“Interactive Visual Explanations for Deep Drug Repurposing ”
 Interpretable Machine Learning for Healthcare Workshop @ICML 2021 (**Best Paper Award**)
- W.4 **Qianwen Wang**, VIS 2019 Doctoral Consortium.
“Towards Better Application of Machine Learning Models: A Data Visualization Perspective”

Invited Talks

Panel on AI+VIS, ChinaVis

Bridge the Capabilities of AI with the Needs of Human Users

Jun 2022

Invited Talk at Zhejiang University Visualization Summer School

Bridge the Capabilities of AI with the Needs of Human Users

Jun 2022

Invited Talk at UC Davis AI+VIS Seminar

Applying Machine Learning to Data Visualization: What, Why, When, and How

Feb, 2022

Keynote Presentation at PacificVis 2021 VIS meets AI

From Data to Decisions, a Mixed Path of Data Visualization and Machine Learning

Apr, 2021

Invited Talk at Zhijing Lab

Visualization to Guide the Application of Machine Learning

Jul, 2019

Teaching Experience

Course Specialist, Data Visualization for Biomedical Applications

Master-level Class with more than 20 students

Harvard

2021-2023

Teaching Assistant, Probability Theory and Stochastic Processes

Undergraduate class with more 50 students

HKUST

2017, 2018

Teaching Assistant, Signals and Systems

Undergraduate class with more 50 students

HKUST

2016, 2017

Student Mentoring (Selected)

Furui Cheng (visiting PhD student at Harvard)

Interactive Transfer Learning Framework for Single-Cell Data Analysis

2022

published at IEEE TVCG, won the Best Abstract Award at BioVis@ISMB

Erica Stutz (undergraduate student at Harvard Summer Intern program)

2022

An edge bundling package for Genomic Visualization, deployed online [↗](#)

Aditeya Pandey (visiting PhD student at Harvard)

Recommendation System for Interactive Genomics Data Visualization

2022

published at IEEE TVCG

Cynthia Rosas (undergraduate student at Harvard Summer Intern Program)

2021

A theme library for Gosling Visualization, deployed online [↗](#)

Chuan Bu (master student at Shandong University)

Improving the readability of streamgraphs by minimizing sine illusion effects,

2021

published at IEEE TVCG

Zhihua Jin (PhD student at HKUST)

I first mentored Zhihua when he was a undergraduate visiting students from Zhejiang

2020

University. He later became a PhD student at HKUST and worked with me for another two projects. All the three projects we worked have been published at IEEE TVCG.

Zhenhua Xu (PhD student at HKUST)

2019

Visual Analysis of Algorithmic Discrimination, published at IEEE TVCG

Jun Yuan (Undergraduate student at Tsinghua University)

2018

Visual Analysis of Algorithmic Discrimination, published at IEEE TVCG

Jun is currently pursuing a PhD degree at Tsinghua University

Media Coverage

Nature Technology Feature, A graphics toolkit for visualizing genome data [↗](#)

MIT News, Cracking open the black box of automated machine learning [↗](#)

DeepTech, ATMSeer [↗](#)