

Qianwen Wang

DATA VISUALIZATION + MACHINE LEARNING

✉ qianwen.april.wang@gmail.com | 🏠 <https://qianwen.info/> | 🎓 Google Scholar | 🌐 wangqianwen0418
| in LinkedIn | 🐦 @WangQianwenToo

Education

PhD, Electronic and Computer Engineering

Supervisor: Prof. Huamin Qu, VIS Lab

HKUST

Sep 2015 - Jan 2020

BEng., Electronic Science& Technology

Xi'an Jiao Tong University

Aug 2011 - 2015

Experience

Havard University

PostDoc Researcher, Department of Bioinformatics

MA, USA

Apr 2020 -

Oxford University

Research Visiting Student

Oxford, UK

Aug 2019 - Dec 2019

HKUST

Graduate Research Assistant, Explainable AI group

HongKong, China

Oct 2018 - 2019

Microsoft Research

Research Intern

Beijing, China

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**.

Professional Service

Organizing Committee

Poster Chair, IEEE Pacific VIS

2023

Abstract Chair, 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

ChinaVis

2019-2021

EuroVis Conference

2019-2020

Invited Journal Review

IEEE Transactions on Visualization and Computer Graphics	2019-2022
Journal of Visualization	2021-2022
IEEE Computer Graphics and Applications	2021-2022

Awards

Postdoctoral Fellows Research Fund Award, Harvard Data Science Institute	2022
Best Long Abstract Award, ISMB BioVis COSI	2022
Best Paper Award, IMLH@ICML	2021
Best Abstract Award, ISMB BioVis COSI	2021
SENG Academic Award, HKUST	2019
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

Publications

Human-AI Collaboration for Bio-Medicine

- [TVCG] **Qianwen Wang**, Kexin Huang, Payal Chandak, Nils Gehlenborg, Marinka Zitnik.
“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).
- [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).
- [TVCG] **Qianwen Wang**, Tali Mazon, 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.
- [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).
- [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.
- [Bioinformatics] Theresa Harbig, Sabrina Nusrat, Tali Mazon, **Qianwen Wang**, Alexander Thomson, Hans Bitter, Ethan Cerami, Nils Gehlenborg.
“OncoThreads: Visualization of Large Scale Longitudinal Cancer Molecular Data.”
Bioinformatics 37.Supp 1 (2021): i59-i66.

Visual Analysis of Machine Learning Models

- [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
- [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

- [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.
- [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).
- [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

Intelligent and AI-Powered Visualization

- [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
- [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)
- [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)
- [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).
- [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)
- [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)

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

Data Visualization for Biomedical Applications

Course Specialist, Harvard University

2021, 2022

Probability Theory and Stochastic Processes

Teaching Assistant, HKUST

2017, 2018

Signals and Systems

Teaching Assistant, HKUST

2016, 2017

Student Mentoring

Furui Cheng (visiting PhD student at Harvard) Interactive Transfer Learning Framework for Single-Cell Data Analysis published at IEEE TVCG, won the Best Abstract Award at BioVis@ISMB	2022
Erica Stutz (undergraduate student at Harvard Summer Intern program) An edge bundling package for Genomic Visualization, deployed online	2022
Aditeya Pandey (visiting PhD student at Harvard) Recommendation System for Interactive Genomics Data Visualization published at IEEE TVCG	2022
Cynthia Rosas (undergraduate student at Harvard Summer Intern program) A theme library for Gosling Visualization, deployed online	2021
Zhihua Jin (PhD student at HKUST) Visual Analytics Approach for Prediction Error Diagnosis of Graph Neural Networks, published at IEEE TVCG	2020
Zhenhua Xu (PhD student at HKUST) Visual Analysis of Algorithmic Discrimination, published at IEEE TVCG	2019

Media Coverage

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

Reference

Nils Gehlenborg (PostDoc advisor)	nils@hms.harvard.edu, Harvard University
Huamin Qu (PhD advisor)	huamin@ust.hk, Hong Kong University of Science and Technology
Marinka Zitnik	marinka@hms.harvard.edu, Harvard University