

# Qianwen Wang

DATA VISUALIZATION MEETS ML

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## Education

### Hong Kong University of Science & Technology

PhD Candidate, VIS Lab

Supervisor: Prof. Huamin Qu

Hong Kong, China

Sep 2015 - Now

### University of Oxford

Research Visiting Student

Supervisor: Prof. Min Chen

Oxford, UK

Aug 2019 - Dec 2019

### Xi'an Jiao Tong University

BEng., Electronic Engineering

Xi'an, China

Aug 2011 - 2015

## Interest & Skills

### Interest

Data Visualization for ML, Human-Machine Collaboration, Narrative Visualization

### Programming

Python, JavaScript, Typescript, Matlab, HTML, CSS

### Frameworks

React, Vue, D3, Flask, WebGL

## Featured Research

### Visual Analysis of Algorithmic Discrimination

HKUST & Tsinghua University

- An interactive visualization tool that facilitates a better understanding and analysis of algorithmic discrimination.
- A novel set visualization that combines an extended Euler diagram with a matrix-based set visualization.

Dec 2018 -

### Increasing Transparency and Controllability in AutoML

HKUST & MIT

- A multi-granularity visualization is proposed to enable users to monitor the AutoML process, analyze the searched models, and refine the search space in real time.
- <https://github.com/HDI-Project/ATMSeer/>

May 2018 - Feb 2019

### Visual Genealogy of Deep Neural Networks

HKUST & Tsinghua University

- A web-based interactive visualization tool that enables users to understand and compare typical DNN architectures, as well as to explore the evolutionary relationships among them.

Jan 2018 - Nov 2018

### Authoring Narrative Slideshows for Introducing Data Visualization Designs

HKUST & Microsoft Research Asia

- A slideshow authoring tool that assists users in introducing data visualizations to non-experts.
- An approach to hierarchically decompose a visualization design and introduce its compositions progressively.

Jan 2017 - Oct 2017

## Experience

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### Paper Reviewer

- ACM CHI Conference, 2020
- IEEE Visual Analytics Science and Technology (VAST), 2018 & 2019
- China Visualization and Visual Analytics Conference (China VIS), 2019

### Research Assistant

Huawei XAI Project, Project Leader

**HKUST**  
Oct 2018 -

- 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

HSBC Air Pollution Project

**HKUST**  
May 2018 - Jul 2018

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

### Research Intern

Systems and Networking Research Group  
Mentor: Lintao Zhang

**Microsoft Research Asia**

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

### Teaching Assistant

Teaching Assistant in Undergraduate Course

**HKUST**  
Feb 2016 - Dec 2018

- Probability and Random Processes
- Signals and Systems

## Awards

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### 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

## Media Coverage

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- **MIT News** Cracking open the black box of automated machine learning [↗](#)
- **DeepTech** ATMSeer 拯救工程师发际线 [↗](#)

## Publication List

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- **[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
- **[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
- **[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**)
- **[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**). doi: 10.1109/TVCG.2019.2892415
- **[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**
- **[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**

## Talks

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### Visual Genealogy of Deep Neural Networks

Conference Presentation at **IEEE VAST 2019**

Vancouver, Canada

Oct 2019

### Visualization for DL Diagnosis: A Practice in Screen Testing

Invited Talk at **Huawei 2012 Lab**

Shenzhen, China

Aug 2019

### Visualization to Guide the Application of Machine Learning

Invited Talk at **Zhejiang Lab**

Zhejiang, China

Jul 2019

### ATMSeer: Increasing Transparency and Controllability in Automated Machine Learning

Conference Presentation at **ACM CHI 2019**

Glasgow, UK

May 2019

### Visualization in AI Product Life Cycle

Invited Talk at **Huawei 2012 Lab**

Shenzhen, China

Nov 2018

### Narvis: Authoring Narrative Slideshows for Introducing Data Visualization Designs

Conference Presentation at **IEEE InfoVis 2018**

Berlin, Germany

Oct 2018