

# Shaolun RUAN

*Residence:* 80 Stamford Rd, Singapore

*E-mail:* slruan.2021@phdcs.smu.edu.sg \* *Telephone number:* +86-86153821

*Personal homepage:* <https://shaolun-ruan.com/>

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## Research Area

To enhance the human ability to read and understand big data, I develop novel graphical representations that enable a more effective and smoother analysis using machines. My work focuses on improving the accessibility of complex and abstract domain concepts, leveraging the methods from **Data Visualization**, **Human-computer Interaction**, and **Quantum Computing**. Our authoring tools and designs are appreciated and used by data enthusiasts, developers, and practitioners from different domains.

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## Education

<b>Ph.D. candidate in Singapore Management University</b> School of Computing and Information System Advised by Prof. Yong Wang, Member of VIDA Lab	Singapore 2021.01 - present
<b>B.S. in University of Electronic Science and Technology of China</b> School of Computing Science and Engineering Member of Big Data Research Center	Chengdu, China 2015.09 - 2019.07

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## Notable Awards

<b>SMU Presidential Doctoral Fellowship</b> Awarded for PhD students who have consistently shown exceptional research achievements selected from the top 10% of PhD students.	2023
<b>UESTC SCSE Outstanding Student Award</b> Awarded to students with an outstanding performance during the bachelor period.	2019

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## Publications

**Shaolun Ruan**, Qiang Guan, Paul Griffin, Ying Mao, Yong Wang.  
QuantumEyes: Towards Better Interpretability of Quantum Circuits.  
*IEEE Transactions on Visualization & Computer Graphics* (2023): 1-13. <https://doi.org/10.1109/TVCG.2023.3332999>

**Shaolun Ruan**, Zhiding Liang, Qiang Guan, Paul Griffin, Xiaolin Wen, Yanna Lin, and Yong Wang.  
VIOLET: Visual Analytics for Explainable Quantum Neural Networks.  
*IEEE Transactions on Visualization & Computer Graphics* (2023). To Appear.

**Shaolun Ruan**, Yong Wang, Weiwen Jiang, Ying Mao, Qiang Guan.  
VACSEN: A Visualization Approach for Noise Awareness in Quantum Computing.  
*IEEE Transactions on Visualization & Computer Graphics* 29.01 (2023): 462-472. <https://doi.org/10.1109/TVCG.2022.3209455>

**Shaolun Ruan**, Ribo Yuan, Qiang Guan, Yanna Lin, Ying Mao, Weiwen Jiang, Zhepeng Wang, Wei Xu, Yong Wang.  
VENUS: A Geometrical Representation for Quantum State Visualization.  
*Eurographics EuroVis 2023*. 42-Issue 3. <https://doi.org/10.1111/cgf.14827>

**Shaolun Ruan**, Yong Wang, and Qiang Guan.  
Intercept Graph: An Interactive Radial Visualization for Comparison of State Changes.  
*2021 IEEE Visualization Conference (VIS)*. IEEE, 2021: 111-115. <https://doi.org/10.1109/VIS49827.2021.9623307>

**Shaolun Ruan**, Yong Wang, Hailong Jiang, Weijia Xu, Qiang Guan.

BatchLens: A Visualization Approach for Analyzing Batch Jobs in Cloud Systems.

*2022 Design, Automation & Test in Europe Conference & Exhibition (DATE)*. IEEE, 2022: 108-111. <https://doi.org/10.23919/DAT5411.2022.9774668>

Hailong Jiang\*, **Shaolun Ruan\***, Bo Fang, Yong Wang, Qiang Guan.

Visilience: An Interactive Visualization Framework for Resilience Analysis using Control-Flow Graph.

*Proceedings of IEEE PRDC 2023*. DOI: 10.1109/PRDC59308.2023.00041

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### *Positions*

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**Kent State University**

Research Assistant, member of Guan's Lab

Ohio, U.S.

2019.07 - 2021.09

**Chengdu Guangchen Technology Co., Ltd.**

Intern and Developer, member of front-end development team

Chengdu, China.

2016.04 - 06, 2017.01 - 03

**University of Melbourne**

Visiting student

Melbourne, Australia

2016.07 - 2016.08

**University of Auckland**

Visiting student, studying in the Academic Language Center

Auckland, New Zealand

2016.08

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### *Invited Talks*

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**VIS meets Quantum Computing, HKUST**

Invited Talk on Enhancing the Transparency of Quantum Computing using Visualization.

2023.11

**VAST Panel, HKUST**

Invited Speaker in the VisLab HAI Seminar.

2023.12

**Towards Making Your VIS Paper Writing Better, UESTC, China**

Invited Talk About the Sharing of Academic Writing.

2024.01

**VIS meets Quantum Computing, Sichuan University, China**

Invited Talk on Enhancing the Transparency of Quantum Computing using Visualization.

2024.01

**Stepping Into the Era of Interpretable Quantum Computing, University of Notre Dame**

Invited Lecture in QuCS Lecture Series.

2024.02