

# Haotian Li

Ph.D Candidate, VisLab HKUST

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## EDUCATION


Present September 2020	<b>Ph.D Candidate, The Hong Kong University of Science and Technology, Hong Kong, China</b> <ul style="list-style-type: none"><li>➤ Research interest : Data Visualization, Visual Analytics, Human-Computer Interaction, E-learning</li><li>➤ Supervised by Prof. Huamin Qu, Department of Computer Science and Engineering, HKUST</li></ul>
June 2019 September 2015	<b>B.Eng (First Class Honors), The Hong Kong University of Science and Technology, Hong Kong, China</b> <ul style="list-style-type: none"><li>➤ Major in Computer Engineering</li><li>➤ Minors in Business and Big Data Technology</li></ul>
Spring 2018	<b>Exchange Student, The University of British Columbia, Vancouver, Canada</b>
July 2017	<b>Exchange Student, Peking University, Beijing, China</b>

## EXPERIENCE

September 2021 March 2021	<b>Visiting Research Student, Singapore Management University, Singapore</b> <ul style="list-style-type: none"><li>➤ Research on visualization recommendation and retrieval</li><li>➤ Participate in research projects on crowdfunding and sea freight</li><li>➤ Supervised by Prof. Yong Wang, School of Computing and Information Systems, SMU</li></ul>
August 2020 August 2019	<b>Research Assistant, The Hong Kong University of Science and Technology, Hong Kong, China</b> <ul style="list-style-type: none"><li>➤ Research on advanced algorithms in analysis of students' performance on E-Learning platforms</li><li>➤ Supervised by Prof. Huamin Qu, Department of Computer Science and Engineering, HKUST</li></ul>
August 2019 June 2019	<b>Application Developer, Wealth Management Cube Limited, Hong Kong, China</b> <ul style="list-style-type: none"><li>➤ Design and develop an internal production system</li><li>➤ Develop the web-based platform offered to the wealth management industry</li></ul>

## PUBLICATION

- [13] **Haotian Li**, Yong Wang, Aoyu Wu, Huan Wei, and Huamin Qu. 2022. Structure-aware Visualization Retrieval. In *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems (CHI '22)*. 🏆 **Best Paper Honorable Mention**.
- [12] Aoyu Wu, Wai Tong, **Haotian Li**, Dominik Moritz, Yong Wang, and Huamin Qu. 2022. ComputableViz : Mathematical Operators as a Formalism for Visualisation Processing and Analysis. In *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems (CHI '22)*.
- [11] Songheng Zhang, Yong Wang, **Haotian Li**, and Wanyu Zhang. 2022. Who Will Support My Project? Interactive Search of Potential Crowdfunding Investors Through inSearch. In *Extended Abstracts of the 2022 CHI Conference on Human Factors in Computing Systems (CHI '22) (Late-Breaking Work)*.
- [10] Sean Tsung, Huan Wei, **Haotian Li**, Yong Wang, Meng Xia, and Huamin Qu. 2022. BlockLens : Visual Analytics of Student Coding Behaviors in Block-Based Programming Environments. In *Proceedings of the 9th ACM Conference on Learning @ Scale (L@S '22)(Work-in-Progress)*.
- [9] Wai Tong\*, **Haotian Li**\*, Huan Wei\*, Liwenhan Xie\*, Yanna Lin\*, and Huamin Qu. 2022. Let Every Seat Be Perfect! A Case Study on Combining BIM and VR for Room Planning. In *Proceedings of the 2022 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VR '22) (Poster)*. (\* : equal contribution)
- [8] **Haotian Li**, Yong Wang, Songheng Zhang, Yangqiu Song, and Huamin Qu. 2021. KG4Vis : A Knowledge Graph-Based Approach for Visualization Recommendation. *IEEE Transactions on Visualization and Computer Graphics (Proceedings of VIS '21)*. 🏆 **Best Paper Honorable Mention**.
- [7] **Haotian Li**, Min Xu, Yong Wang, Huan Wei, and Huamin Qu. 2021. A Visual Analytics Approach to Facilitate the Proctoring of Online Exams. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21)*.
- [6] Lin-Ping Yuan, Wei Zeng, Siwei Fu, Zhiliang Zeng, **Haotian Li**, Chi-Wing Fu, and Huamin Qu. 2021. Deep Colormap Extraction from Visualizations. *IEEE Transactions on Visualization and Computer Graphics*.
- [5] **Haotian Li**, Huan Wei, Yong Wang, Yangqiu Song, and Huamin Qu. 2020. Peer-inspired Student Performance Prediction in Interactive Online Question Pools with Graph Neural Network. In *Proceedings of the 29th ACM International Conference on Information and Knowledge Management (CIKM '20)*.

- [4] Zezheng Feng, **Haotian Li**, Wei Zeng, Shuang-Hua Yang, and Huamin Qu. 2020. Topology Density Map for Urban Data Visualization and Analysis. *IEEE Transactions on Visualization and Computer Graphics (Proceedings of VAST '20)*.
- [3] Huan Wei, **Haotian Li**, Meng Xia, Yong Wang, and Huamin Qu. 2020. Predicting Student Performance in Interactive Online Question Pools Using Mouse Interaction Features. In *Proceedings of the 10th International Conference on Learning Analytics & Knowledge (LAK '20)*.
- [2] Ka Wing Tsang, **Haotian Li**, Fuk Ming Lam, Yifan Mu, Yong Wang, and Huamin Qu. 2020. TradAO : A Visual Analytics System for Trading Algorithm Optimization. In *Proceedings of the 2020 IEEE Visualization Conference (VIS '20) (Short Paper)*.
- [1] Qiao Gu, Hang Yin, Lian Chen, **Haotian Li**, Chengzhong Liu, Xuanwu Yue, and Huamin Qu. PreserVis, a Visual Analytic System for Traffic and Pollution Patterns - Multi-Challenge Award for Compelling Synthesis of Information. 2017. In *Proceedings of the 2017 IEEE Conference on Visual Analytics Science and Technology (VAST '17) (VAST Challenge)*.  **VAST Challenge Multi-Challenge Award**.

## PATENT

- [2] **Haotian Li**, Min Xu, Huan Wei, Huamin Qu, and Yong Wang. 2022. Visual Analytics Tool for Proctoring Online Exams. *US Patent App. 17/724,732*.
- [1] **Haotian Li**, Huan Wei, Yong Wang, and Huamin Qu. 2021. Peer-inspired Student Performance Prediction in Interactive Online Question Pools with Graph Neural Network. *US Patent App. 17/343,769*.

## PROJECT

- AI-Powered Data Visualization Design** 2020-2022
- Design and implement a state-of-the-art similar visualization retrieval approach by considering the structural information in visualizations
  - Design and implement KG4Vis, an explainable and data-driven approach for visualization recommendation
  - Publish two first-author papers at IEEE VIS '21 and ACM CHI '22 and received two best paper honorable mention awards
- Anti-Cheating Application for Online Examinations** 2021-2022
- Aim to build a commercialized anti-cheating system based on the paper "A Visual Analytics Approach to Facilitate the Proctoring of Online Exams" with an HKD 500,000 fund from HKUST
  - Design and implement the algorithms of the system with AWS services
- Jockey Club Self-Directed Learning in STEM** 2020-2021
- Design and build the prototype of the visualizations for learning analytics in the collaboration with HKU CITE
  - Create and manage the testing environment of the learning analytics system
- Personalized Online Learning Path Recommendation** 2020-2021
- Design the workflow of personalized learning path recommendation with Trumpteck Education
  - Deploy the student performance prediction model based on the paper "Peer-inspired Student Performance Prediction in Interactive Online Question Pools with Graph Neural Network"
- An Open Learning Design, Data Analytics and Visualization Framework for E-Learning** 2019-2020
- Design and implement interactive visual analytics systems for analyzing students' mouse movements and head poses
  - Build state-of-the-art student performance prediction methods with students' interaction data and graph neural network

## TEACHING

Fall 2021	Teaching Assistant, COMP 2711 - Discrete Mathematical Tools for Computer Science, HKUST
Spring 2021	Teaching Assistant, COMP 6311E - High Dimensional Data Management and Analytics, HKUST
Spring 2021	Teaching Assistant, MSBD 6000J - Spatial and Multimedia Databases, HKUST

## AWARD

2022	Best Paper Honorable Mention, ACM CHI
2021-2022	RedBird Academic Excellence Award, HKUST
2021-2022	Postgraduate Studentship, HKUST
2021	Best Paper Honorable Mention, IEEE VIS
2020-2021	Postgraduate Studentship, HKUST
2020	Student Travel Grant, ACM SIGIR
2019	Young Talent Award, BOCHK Hackathon
2018-2019	University's Scholarship Scheme for Continuing Undergraduate Students, HKUST

**2018-2019** Dean's List, HKUST  
**2017-2018** Overseas Learning Experience Scholarship, HKUST  
**2017-2018** University's Scholarship Scheme for Continuing Undergraduate Students, HKUST  
**2017** Multi-Challenge Award, IEEE VAST Challenge  
**2017** Students' Academic Excellence, HKUST  
**2016-2017** University's Scholarship Scheme for Continuing Undergraduate Students, HKUST  
**2015-2016** Dean's List, HKUST  
**2015-2016** University Scholarship, HKUST  
**2014** Second Award, National Physics Olympics

## SERVICE

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**2022** Program Committee Member : CIKM  
**2022** Reviewer : ACM CHI, ChinaVis  
**2021** Program Committee Member : CIKM  
**2021** Reviewer : IEEE VIS, ChinaVis  
**2021** Student Volunteer : IEEE VIS

## TALK

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**May 2022** Structure-aware Visualization Retrieval, CHI '22, ACM SIGCHI  
**October 2021** KG4Vis : A Knowledge Graph-Based Approach for Visualization Recommendation, IEEE VIS '21, IEEE VGTC  
**October 2021** KG4Vis : A Knowledge Graph-Based Approach for Visualization Recommendation, IEEE VIS 2021 Pre-conference, CCF Technical Committee on CAD&CG  
**June 2021** A Visual Analytics Approach to Facilitate the Proctoring of Online Exams, Best of CHI2021, Mumbai ACM SIGCHI Chapter & IIT Bombay ACM SIGCHI Student Chapter  
**May 2021** A Visual Analytics Approach to Facilitate the Proctoring of Online Exams, CHI '21, ACM SIGCHI  
**October 2020** Peer-inspired Student Performance Prediction in Interactive Online Question Pools with Graph Neural Network, CIKM '20, ACM SIGIR & SIGWEB