

Haotian Li

Ph.D Candidate, VisLab HKUST

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EDUCATION

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

EXPERIENCE

July 2023 January 2023	Visiting Student Researcher, University of California, Berkeley, United States <ul style="list-style-type: none">➤ Research on large language model (LLM) operations and applications➤ Supervised by Prof. Aditya Parameswaran and Prof. Alvin Cheung, EECS, UC Berkeley
September 2022 June 2022	Research Intern, Microsoft Research Asia, Beijing, China <ul style="list-style-type: none">➤ Research on intelligent tools for bridging data exploration and data communication➤ Supervised by Dr. Yun Wang, Data, Knowledge, and Intelligence Group, MSRA
September 2021 March 2021	Visiting Research Student, Singapore Management University, Singapore <ul style="list-style-type: none">➤ Research on visualization recommendation and retrieval➤ Participate in research projects on crowdfunding and sea freight➤ Supervised by Prof. Yong Wang, School of Computing and Information Systems, SMU
August 2020 August 2019	Research Assistant, The Hong Kong University of Science and Technology, Hong Kong, China <ul style="list-style-type: none">➤ Research on advanced algorithms in analysis of students' performance on E-Learning platforms➤ Supervised by Prof. Huamin Qu, Department of Computer Science and Engineering, HKUST
August 2019 June 2019	Application Developer, Wealth Management Cube Limited, Hong Kong, China <ul style="list-style-type: none">➤ Design and develop an internal production system➤ Develop the web-based platform offered to the wealth management industry

REFEREED PUBLICATION

- [17] **Haotian Li**, Yun Wang, and Huamin Qu. 2024. Where Are We So Far? Understanding Data Storytelling Tools from the Perspective of Human-AI Collaboration. *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI '24)*. 🏆 **Best Paper Honorable Mention**.
- [16] Lu Ying, Aoyu Wu, **Haotian Li**, Zikun Deng, Ji Lan, Jiang Wu, Yong Wang, Huamin Qu, Dazhen Deng, and Yingcai Wu. 2024. VAID : Indexing View Designs in Visual Analytics System. *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI '24)*.
- [15] Jiayi Zhou, Renzhong Li, Junxiu Tang, Tan Tang, **Haotian Li**, Weiwei Cui, and Yingcai Wu. 2024. Understanding Nonlinear Collaboration between Human and AI Agents : A Co-design Framework for Creative Design. *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI '24)*.
- [14] Fengjie Wang, Yanna Lin, Leni Yang, **Haotian Li**, Mingyang Gu, Min Zhu, and Huamin Qu. 2024. OutlineSpark : Igniting AI-powered Presentation Slides Creation from Computational Notebooks through Outlines. *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI '24)*.
- [13] Lu Ying, Yun Wang, **Haotian Li**, Shuguang Dou, Haidong Zhang, Xinyang Jiang, Huamin Qu, and Yingcai Wu. 2024. Reviving Static Charts into Live Charts. *IEEE Transactions on Visualization and Computer Graphics*.

- [12] **Haotian Li**, Lu Ying, Haidong Zhang, Yingcai Wu, Huamin Qu, and Yun Wang. 2023. Notable : On-the-fly Assistant for Data Storytelling in Computational Notebooks. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23)*.
- [11] Yanna Lin, **Haotian Li**, Leni Yang, Aoyu Wu, and Huamin Qu. 2023. InkSight : Leveraging Sketch Interaction for Documenting Chart Findings in Computational Notebooks. *IEEE Transactions on Visualization and Computer Graphics (Proceedings of VIS '23)*.
- [10] Songheng Zhang, **Haotian Li**, Huamin Qu, and Yong Wang. 2023. AdaVis : Adaptive and Explainable Visualization Recommendation for Tabular Data. *IEEE Transactions on Visualization and Computer Graphics*.
- [9] Yanna Lin, **Haotian Li**, Aoyu Wu, Yong Wang, and Huamin Qu. 2023. DMiner : Dashboard Design Mining and Recommendation. *IEEE Transactions on Visualization and Computer Graphics*.
- [8] **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**.
- [7] 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)*.
- [6] **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**.
- [5] **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)*.
- [4] 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*.
- [3] **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)*.
- [2] 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)*.
- [1] 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)*.

JURIED PUBLICATION

- [8] Rui Sheng, Leni Yang, **Haotian Li**, Yan Luo, Ziyang Xu, Zhilan Zhou, David Gotz, and Huamin Qu. 2023. Knowledge Compass : A Question Answering System Guiding Students with Follow-Up Question Recommendations. In *Adjunct Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology (UIST '23) (Demo)*.
- [7] Fanchao Chen, Dixin Tang, **Haotian Li**, and Aditya G. Parameswaran. 2023. Visualizing Spreadsheet Formula Graphs Compactly. In *Proceedings of the VLDB Endowment (VLDB '23) (Demo)*.
- [6] Ka Yan Fung, Zikai Alex Wen, **Haotian Li**, Xingbo Wang, Shenghui Song, and Huamin Qu. 2022. Designing a Data Visualization Dashboard for Pre-Screening Hong Kong Students with Specific Learning Disabilities. In *Proceedings of the 24th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '22) (Poster)*.
- [5] 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)*.
- [4] 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)*.
- [3] 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)
- [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**.

PRE-PRINT

- [2] Shreya Shankar, **Haotian Li**, Parth Asawa, Madelon Hulsebos, Yiming Lin, J.D. Zamfirescu-Pereira, Harrison Chase, Will Fu-Hinthorn, Aditya G. Parameswaran, and Eugene Wu. 2024. SPADE : Synthesizing Assertions for Large Language Model Pipelines. *arXiv:2401.03038*.
- [1] **Haotian Li**, Yun Wang, Vera Q. Liao and Huamin Qu. 2023. Why is AI not a Panacea for Data Workers? An Interview Study on Human-AI Collaboration in Data Storytelling. *arXiv:2304.08366*.

PATENT

- [2] **Haotian Li**, Min Xu, Huan Wei, Huamin Qu, and Yong Wang. 2024. Visual Analytics Tool for Proctoring Online Exams. *US Patent US11961302B2*.
- [1] **Haotian Li**, Huan Wei, Yong Wang, and Huamin Qu. 2024. Peer-inspired Student Performance Prediction in Interactive Online Question Pools with Graph Neural Network. *US Patent App. 17/343,769. China Patent ZL202110676427.3*.

PROJECT

- AI-Powered, Personalized Analysis and Feedback for K-12 Education in Computational Thinking Skills** 2022-Present
 - Aim to build a closed loop containing teachers and parents to analyze student behavior and guide students to improve their computational thinking skills with advanced AI techniques
 - Receive an HKD 900K grant from Trumpteck Education and Hong Kong Innovation and Technology Fund
 - Lead the project, coordinate with the industrial collaborator, and prepare the proposal
- Extracting and Utilizing Information from Data Visualizations in Digital Documents** 2022-Present
 - Aim to build an ecosystem to interpret, retrieve, and analyze existing visualizations
 - Receive an HKD 1M grant from Hong Kong Research Grants Council
 - Coordinate the project and participate in the proposal preparation
- Data-Driven Data Visualization Design** 2020-2022
 - Design and implement a state-of-the-art similar visualization retrieval approach leveraging the structural information
 - 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
 - Build the minimum viable product (MVP) of a commercialized anti-cheating system based on the paper "A Visual Analytics Approach to Facilitate the Proctoring of Online Exams" with an HKD 500K 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

AWARD

- 2024 Best Paper Honorable Mention, ACM CHI
- 2024 Research Travel Grant, HKUST
- 2023 Style3D Graduate Fellowship, Style3D
- 2023 Research Travel Grant (for two times), HKUST
- 2023 Overseas Research Award, HKUST
- 2022-2023 RedBird Academic Excellence Award, HKUST
- 2022-2023 Postgraduate Studentship, HKUST
- 2022 Microsoft Research Asia Fellowship (Microsoft Research PhD Fellowship in Asia-Pacific area), Microsoft
- 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

TEACHING

Fall 2023	Teaching Assistant , COMP 2711 - Discrete Mathematical Tools for Computer Science, HKUST
Fall 2022	Teaching Assistant , COMP 4462 - Data Visualization, HKUST
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

MENTORSHIP

Yunfan Zhou	Visiting Student from Zhejiang University, 2023-2024
Yan Luo	Research Assistant in HKUST, 2023-2024
Raoyi Huang	Visiting Student from Carnegie Mellon University, 2023
Fengjie Wang	Visiting Student from Sichuan University, 2023
Xiaolong Chen	Research Assistant and Master Student in HKUST, 2021-2022
Sean Tsung	Visiting Student from the University of California, Berkeley, 2021-2022

SERVICE

2024	Associate Chair : ACM CHI Late-Breaking Work
2024	Program Committee Member : IEEE BigData
2024	Session Chair : ACM CHI
2024	Reviewer : ACM CHI, IEEE VIS, EuroVis, Behaviour & Information Technology, ChinaVis
2023	Associate Chair : ACM CHI Late-Breaking Work
2023	Program Committee Member : CIKM
2023	Session Chair : ACM CHI
2023	Reviewer : ACM CHI, ACM TiiS, ACM CSCW, IEEE TVCG, IEEE VIS (with a Special Recognition), EuroVis, ChinaVis
2023	Student Volunteer : IEEE VIS
2022	Program Committee Member : CIKM
2022	Reviewer : ACM CHI (with a Special Recognition), IEEE TKDE, ChinaVis
2022	Student Volunteer : IEEE VIS
2021	Program Committee Member : CIKM
2021	Reviewer : IEEE VIS, ChinaVis
2021	Student Volunteer : IEEE VIS

TALK

May 2024	Bridging Data Analysis and Communication with Human-AI Collaboration, GAMES Webinar No. 325, CCF Technical Committee on CAD&CG
May 2024	Where Are We So Far? Understanding Data Storytelling Tools from the Perspective of Human-AI Collaboration, CHI '24, ACM SIGCHI

May 2024 Bridging Data Analysis and Communication with Human-AI Collaboration, Guest Lecture, HKUST
April 2024 Where Are We So Far? Understanding Data Storytelling Tools from the Perspective of Human-AI Collaboration, Pre-CHI 2024, Greater Bay Area HCI Forum
January 2024 SPADE : Synthesizing Assertions for Large Language Model Pipelines, Amazon AWS AI
August 2023 Bridging Data Analysis and Communication with Human-AI Collaboration, Interactive Data Group, Zhejiang University
August 2023 Bridging Data Analysis and Communication with Human-AI Collaboration, Style3D Open Day
May 2023 Bridging Data Analysis and Communication with Human-AI Collaboration, Rising Young Scholars in Visualization, CSIG Technical Committee on Visualization and Visual Analytics (CSIG-VIS)
April 2023 Notable : On-the-fly Assistant for Data Storytelling in Computational Notebooks, CHI '23, ACM SIGCHI
April 2023 Towards Natural Interactions with Data, EPIC Data Lab Retreat, University of California, Berkeley
March 2023 What may AI Help Student Teaching Assistants?, What, Why & How AI in Education, The Chinese University of Hong Kong
June 2022 Towards User-Centered Intelligent Visual Analysis, Guest Lecture, Shandong University
May 2022 Structure-aware Visualization Retrieval, CHI '22, ACM SIGCHI
April 2022 Structure-aware Visualization Retrieval, Pre-CHI Sharing, Singapore HCI Group
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