VICTOR JUNQIU WEI

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Room 2538, 2/F, Academic Building, The Hong Kong University of Science and Technology, Hong Kong

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EDUCATION

Hong Kong University of Science and Technology, Hong Kong *August 2013 - August 2018*
PhD of Engineering, Advisor: Raymond Chi-Wing Wong
Department of Computer Science and Engineering

University of Maryland, MD, USA *March 2018 - May 2018*
Visiting Scholar, Advisor: Hanan Samet and David Mount
Department of Computer Science

Nanjing University, Nanjing, China *September 2009 - June 2013*
Bachelor of Engineering, Major in Information Engineering. Ranking: 8/186
School of Electronic Science and Engineering

WORK EXPERIENCE

Hong Kong University of Science and Technology Mar. 2023 - Present
Research Assistant Professor, Department of Computer Science and Engineering *Hong Kong*

Hong Kong Polytechnic University Nov. 2021 - Mar. 2023
Research Assistant Professor, Department of Computing *Hong Kong*

Speech and Language Processing Group, Noah's Ark Lab, Huawei Oct. 2018 - Nov. 2021
AI Researcher *Hong Kong*

AI Group, WeBank Co., Ltd. Jul. 2018 - Aug. 2018
Research Intern *Shenzhen, China*

Natural Language Processing Group, Baidu Dec. 2017 - Mar. 2018
Research Intern *Shenzhen, China*

RESEARCH INTERESTS

Database Management, Data Analytics, AI for Database, Natural Language Processing

SELECTED PUBLICATIONS

Victor Junqiu Wei, Raymond Chi-Wing Wong, Cheng Long, David M. Mount, Hanan Samet, **On Efficient Shortest Path Computation on Terrain Surface: A Direction-Oriented Approach**, *IEEE Transaction on Knowledge and Data Engineering (TKDE), 2024*

Yan Ge, Victor Junqiu Wei, Yuanfeng Song, Jason Chen Zhang, Raymond Chi-Wing Wong, **Automatic Data Visualization Generation from Chinese Natural Language Questions**, *The Joint International Conference on Computational Linguistics, Language Resources and Evaluation (LREC-COLING), 2024*

Bo Huang, Victor Junqiu Wei (Corresponding Author), Raymond Chi-Wing Wong, Bo Tang, **EAR-Oracle: On Efficient Indexing for Distance Queries between Arbitrary Points on Terrain Surface**, *ACM Conference on Management of Data (SIGMOD), Seattle, USA, 2023*

Weibin Wu, Jianping Zhang, Victor Junqiu Wei, Xixian Chen, Zibin Zheng, Irwin King, Michael Lyu, **Practical and Efficient Model Extraction of Sentiment Analysis APIs**, *45th IEEE/ACM International Conference on Software Engineering (ICSE), 2023.*

Dandan Lin, Victor Junqiu Wei (Corresponding Author) and Raymond Chi-Wing Wong, **Effective and Scalable Manifold Ranking-based Image Retrieval with Output Bound** *ACM Transactions on Knowledge Discovery from Data, 2023 (TKDD), 2023*

Sunzhu li, Peng Zhang, Guobing Gan, Xiuqing Lv, Benyou Wang, Junqiu Wei and Xin Jiang, **Hypoformer: Hybrid Decomposition Transformer for Edge-friendly Neural Machine Translation** *The 2022 Conference on Empirical Methods in Natural Language Processing (EMNLP), 2022*

Victor Junqiu Wei, Raymond Chi-Wing Wong, Cheng Long, David M. Mount, Hanan Samet, **Proximity Queries on Terrain Surface**, *ACM Transactions on Database System (TODS), 2022*

Ningning Wang, Guobing Gan, Peng Zhang, Shuai Zhang, Junqiu Wei, Qun Liu, Xin Jiang, **ClusterFormer: Neural Clustering Attention for Efficient and Effective Transformer**, *The 60th Annual Meeting of the Association for Computational Linguistics (ACL), 2022*

Jing Zhang, Peng Zhang, Baiwen Kong, Junqiu Wei, Xin Jiang, **Continuous Self-Attention Models with Neural ODE Networks**, *The Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI), 2021*

Dandan Lin, Raymond Chi-Wing Wong, Min Xie, Victor Junqiu Wei, **Index-Free Approach with Theoretical Guarantee for Efficient Random Walk with Restart Query**, *36th IEEE International Conference on Data Engineering, (ICDE), 2020*

Victor Junqiu Wei, Raymond Chi-Wing Wong, Chong Long, Pan Hui, **On Nearby-Fit Spatial Keyword Queries (Extended Abstract)**, *36th IEEE International Conference on Data Engineering, 2020 (ICDE)*

Victor Junqiu Wei, Raymond Chi-Wing Wong, Cheng Long, **Architecture-Intact Oracle for Fastest Path and Time Queries on Dynamic Spatial Networks**, *ACM Conference on Management of Data (SIGMOD), Portland, USA, 2020,* (***Nominee of the Best Paper Award***)

Victor Junqiu Wei, Raymond Chi-Wing Wong, Cheng Long, Pan Hui, **On Nearby-fit Spatial Keyword Query**, *IEEE Transaction on Knowledge and Data Engineering (TKDE), 2020*

Dandan Lin, Victor Junqiu Wei and Raymond Chi-Wing Wong, **First Index-Free Manifold Ranking-based Image Retrieval with Output Bound**, *IEEE International Conference on Data Mining (ICDM), Beijing, China, 2019*

Cheng Long, Raymond Chi-Wing Wong, Victor Junqiu Wei, **Profit Maximization with Sufficient Customer Satisfactions**, *ACM Transaction on Knowledge Discovery from Database (TKDD), 2018*

Victor Junqiu Wei, Raymond Chi-Wing Wong, Cheng Long, David M. Mount, **Distance Oracle on Terrain Surface**, *ACM Conference on Management of Data (SIGMOD), Chicago, USA, 2017*

RESEARCH GRANTS

Principle Investigator (PI), HKUST & WeBank Joint Laboratory Project
"Natural Language Interface for the Database Query Processing: Pretraining, Interactive Search and Beyond", *Project No.: WEB24EG01-A, Feb. 2024 - Feb. 2025 (500,000 HKD)*

Principle Investigator (PI), General Program, Guangdong Natural Science Foundation
"On Boosting Personalized PageRank with Statistical Learning Theory-Inspired Progressive Sampling Method", *Approved (150,000 RMB)*

Principle Investigator (PI), Internal Fund, Hong Kong Polytechnic University
"Online Trajectory Compression with Deep Reinforcement Learning" (250,000 HKD),
Grant No.: 1-BD47, Project No.: P0039657, Feb. 2022 - Feb. 2023 (250,000 HKD)

PATENTS

Peng Zhang, Ningning Wang, Guobing Gan, <u>Junqiu Wei</u>. **A Method for Word Representation Learning Based on Self-Attention Mechanism.** *Patent Number: CN113761934B, Chinese Patent (Granted)*

Pan Hui, <u>Junqiu Wei</u>, Christoph Peylo. **System and method for mobile augmented reality task scheduling.** *Patent Number: 10360073, US Patent (Granted)*

Qimei Chen, Chao Xiao, <u>Junqiu Wei</u>, Bo Li, Xiangjun Chen, Yaduan Ruan. **Map-Based Traffic Surveillance System on Vehicular Networks.** *Patent Number: 201210309274.X, Chinese Patent (Granted)*

Yaduan Ruan, <u>Junqiu Wei</u>, Chao Xiao,Bo Li, Qimei Chen ,Xiangjun Chen. **Virtual Terminal on Vehicular Networks based on Dynamic Map.** *Patent Number: 2012103127683, Chinese Patent (Granted)*

Peng Zhang, Jing Zhang, <u>Junqiu Wei</u>. **A Method and Apparatus for Natural Language Processing.** *Patent Number: CN112883149A, Chinese Patent (Pending)*

Peng Zhang, Shuai Zhang, Xindian Ma, <u>Junqiu Wei</u>. **A Method and Apparatus for Text Processing and Neural Networks.** *Patent Number: CN111797589A, Chinese Patent (Pending)*

<u>Junqiu Wei</u>, Yi Liao, Xin Jiang, Qun Liu, Li Qian. **A Method and Apparatus for Data Processing.** *Patent Number: CN115292439A, Chinese Patent (Pending)*

SELECTED HONORS AND AWARDS

Potentially High Value Patent Award, Huawei Technologies., Aug. 2021
Star of Huawei 2012 Lab (i.e., Huawei Research Department), Apr. & Dec. 2020 (Twice)
<u>**Nominee of the Best Paper Award of SIGMOD 2020**</u>, Apr. 2020
Future Star of Huawei Technologies., Nov. 2020
Gold Team Medal of Huawei Technologies., Jan. 2020
ORK Star of Huawei Noah's Ark Lab (Top 1% per season), Nov. 2019
Overseas Research Awards of HKUST, Nov. 2017
Research Travel Grant of HKUST, Jun. 2017
Student Travel Award of SIGMOD, Apr. 2017
Postgraduate Studentship of HKUST, 2013 - 2018
Outstanding Undergraduate Thesis of Nanjing University, Jun. 2013
2nd Prize in International Embedded System Design Invitational Contest, Jul. 2012
Renmin Schoolarship, 3rd Prize, Oct. 2012
Renmin Schoolarship, 2nd Prize, Oct. 2011
Renmin Schoolarship, 1st Prize, Oct. 2010
Excellent Undergraduate Student of Nanjing University, Oct. 2010
2nd Prize Provincial, Chinese Physics Olympiad, Oct. 2008

TEACHING

"Introduction to Natural Language Processing" (COMP 4221, Spring 2024),
Hong Kong University of Science and Technology

"Database Systems" (COMP 2411, Fall 2022),
Hong Kong Polytechnic University

"Wireless Networks and Mobile Computing" (COMP 5327, Spring 2022),
Hong Kong Polytechnic University

"Knowledge and Data Management" (COMP 4135, Spring 2022),
Hong Kong Polytechnic University

PROFESSIONAL SERVICES

Conference PC Member: KDD (2023, 2024), ACL (2021, 2022, 2023, 2024), ICDE (2021, 2022, 2024), EMNLP (2021, 2022, 2023), CIKM (2021, 2022, 2023), NAACL (2021, 2022), COLM (2024), COLING (2018, 2020), PAKDD (2020, 2021), SSTD (2021), BigData (2019, 2020)

Journal Reviewer: Pattern Recognition Letter (2021), IEEE Transactions on Artificial Intelligence (2021), IEEE Transactions on Knowledge and Data Engineering (2021), ACM Computing Surveys (2023), IEEE Access (2024)

INVITED TALKS

"Distance Oracle on Terrain Surface", SIGMOD, May 2017

"Random Walk-based Sampling on Graphs", Baidu Natural Language Processing Group, Jan. 2018

"Experience Sharing on Job Hunting", PhD Forum, MDM 2019

"Pre-trained Language Model Technologies and Applications in Huawei", AICon 2019

"On Nearby-Fit Spatial Keyword Queries", ICDE, April 2020

"Architecture-Intact Oracle for Fastest Path and Time Queries on Dynamic Spatial Networks", SIGMOD, June 2020

"Word Representation Learning on Natural Language Processing", AI in "X" Workshop, IEEE Computer Intelligence Hong Kong Chapter, Dec 2020

"On Boosting Spatial Data Management with Efficient Indexing Structures", Departmental Seminar of Computer Science and Engineering, Hong Kong University of Science and Technology, Jan. 2022

"Key Techniques in Pre-trained Language Models", Shenzhen Institute of Computing Sciences, Aug. 2022

REFEREES

Prof. Raymond Chi-Wing WONG   *Professor and Associate Head*
Department of Computer Science and Engineering,   *Email: raywong@cse.ust.hk*
The Hong Kong University of Science and Technology, *Hong Kong*

Prof. David M. MOUNT   *Professor*
Department of Computer Science and UMIACS   *Email: mount@umd.edu*
The University of Maryland, *College Park, Maryland, USA*
ACM Fellow *(Awarded in 2022)*

Prof. Cheng LONG   *Associate Professor*
School of Computer Science and Engineering,   *Email: c.long@ntu.edu.sg*
Nanyang Technological University, *Singapore*