QIUCHI LI

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EDUCATION

University of Padua *October 2017 - October 2020*
Ph.D in Engineering
Department of Information Engineering

Tsinghua University *September 2011 - July 2015*
Bachelor of Engineering
Department of Electronic Engineering

PROFESSIONAL APPOINTMENTS

University of Copenhagen *January 2023 -*
Assistant Professor
Department of Computer Science

University of Copenhagen *January 2021 - December 2022*
Postdoc
Department of Computer Science

RESEARCH INTERESTS

My general research interests are Information Retrieval (IR) and Natural Language Processing (NLP). My primary interests are within the interdisciplinary field of quantum computing and natural language processing. I am working on building quantum-theoretic frameworks for language representation and understanding, with application to IR and NLP tasks by complex-valued neural networks or tensor networks. In the meantime, I am keen on addressing NLP and IR problems with models that could be implemented on quantum devices.

RESEARCH PROJECTS

Search at Speed of Light (SearchLight) *January 2023 -*

- Role: Researcher, primarily involved in development of computational models and algorithms for efficient search based on the photonic chips

Machine Learning for Personalized and Persuasive Job Recommendation (JobMatch) *January 2021 -*

- Role: Researcher, primarily involved in scientific development

Quantum Information Access and Retrieval Theory (QUARTZ) *October 2017 - September 2020*

- Supported by the European Union's Horizon 2020 research and innovation programme under the Marie Skodowska-Curie grant agreement No. 721321.

- Role: Early-stage Researcher (ESR)

Quantum Information Access and Retrieval Theory and Applications *April 2018 - January 2021*

- Intergovernmental Cooperation and Innovation Program supported by the China Innovation Funding 2017YFE0111900.
- Role: Researcher

Retrieving New Vulnerability Information from Evolving Software Development *October 2015 - October 2017*

- Funded by the department of Computing & Communications, Open University
- Role: Researcher

RESEARCH EXPERIENCES

Visiting Researcher, University of Montreal, Canada *January 2020 - April 2020*

- Quantum-inspired models for multimodal sentiment analysis
- Advisor: Prof. Jian-yun Nie

Visiting Researcher, University of Copenhagen, Denmark *August 2019 - December 2019*

- Quantum-inspired models for multimodal sentiment analysis
- Advisor: Prof. Christina Lioma

Visiting Researcher, Beijing Institute of Technology, China *January 2019 - March 2019*

- Quantum-inspired models for sentiment analysis
- Advisor: Prof. Dawei Song

Early-stage Researcher (ESR), University of Padua, Italy *October 2017 - Present*

- Investigation of quantum-theoretic frameworks for accessing and retrieving multimodal data.
- Advisor: Prof. Massimo Melucci

Research Student, Tsinghua University, China *October 2014 - July 2015*

- Opinion mining and sentiment analysis on micro-blog data.
- Advisor: Prof. Ji Wu

TEACHING

Quantum NLU summer course *July 2021*

- Online English summer course on quantum theory and natural language understanding for master students at Beijing Institute of Technology (BIT).
- I gave a lecture on Introduction to Information Retrieval and Sentiment Analysis

Radiometer Data Science course *May 2021 - June 2021*

- Theory and exercise lectures on basic data science, for employees at Radiometer Medical (Radiometer Medical ApS)
- I gave exercise lectures, which contains an introduction to TensorFlow or Pytorch, Neural networks (backpropagation), Deep Learning, and a bit of CNNs with focus on time series analysis (RNNs, LSTMs).

Python Programming and Data Science *Nov 2022 - Jan 2023*

- Introduction to Python programming basics and its applications to data science. Targeted for undergraduate students from department of Health and Bioinformatics, University of Copenhagen.

- I gave a 3-hour lecture on Python programming basics and 6 3-hour lectures on data science stories.

SELECTED PUBLICATIONS

- **Qiuchi Li**, Dimitris Gkoumas, Alessandro Sordoni, Jianyun Nie, and Massimo Melucci. "Quantum-inspired Neural Network for Conversational Emotion Recognition, " *Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI)*, 2021.

- Dimitris Gkoumas, **Qiuchi Li***, Massimo Melucci, Yijun Yu, and Dawei Song*. "Quantum-inspired Neural Network for Conversational Emotion Recognition, " *Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI)*, 2021.(*Corresponding Author)

- **Qiuchi Li**, Dimitris Gkoumas, Christina Lioma, Massimo Melucci. "Quantum-inspired Multimodal Fusion for Video Sentiment Analysis, " *Information Fusion* (Impact Factor: 13.669), 2020.

- Benyou Wang, Donghao Zhao, Christina Lioma, **Qiuchi Li**, Peng Zhang, and Jakob Grue Simonsen. "Encoding Word Order in Complex Embeddings,"*International Conference on Learning Representations (ICLR)*, 2020.

- **Qiuchi Li***, Benyou Wang*, and Massimo Melucci. "CNM: An Interpretable Complex-Valued Network for Matching." *The North American Chapter of the Association for Computational Linguistics (NAACL)*, 2019. (*Equal Contribution) **(Best Explainable NLP Paper)**

- Chen Zhang, **Qiuchi Li**, and Dawei Song. "Syntax-Aware Aspect-Level Sentiment Classification with Proximity-Weighted Convolution Network," *International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR)*, 2019.

- **Qiuchi Li**, Jingfei Li, Peng Zhang, and Dawei Song. "Modeling Multi-Query Retrieval Tasks Using Density Matrix Transformation," *International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR)*, 2015.

- Yaochen Liu, Yazhou Zhang, **Qiuchi Li**, Benyou Wang, and Dawei Song. "What Does Your Smile Mean? Jointly Detecting Multi-Modal Sarcasm and Sentiment Using Quantum Probability." *Findings of the Association for Computational Linguistics: EMNLP*, 2021.

- Cheng Zhang, **Qiuchi Li**, Lingyu Hua, Dawei Song. "How does Attention Affect the Model?" *Findings of Association for Computational Linguistics* , 2021.

AWARDS AND HONOURS

- **Best Explainable NLP Paper Award** of the 2019 Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL) *June 2019*

- **The paper "Quantum-inspired Multimodal Fusion for Video Sentiment Analysis" has been reported by TechXplore at** this webpage

- **Proceedings co-chair** of Italian Information Retrieval Workshop (IIR) *September 2019*

- **Proceedings co-chair** of ACM SIGIR International Conference on the Theory of Information Retrieval (ICTIR) *September 2018*

- **Second Prize** in the 15th "Challenge Cup" science and technology innovation competition for college students *April 2013*

- **Outstanding Student Scholarship** of Tsinghua University *November 2012*

SKILLS

- **Languages:** Mandarin/English

- **Toolbox/Software:** PyTorch, TensorFlow, Keras, CUDA, cuDNN, LATEX

- **Programming Languages:** Python, MATLAB, R, C/C++, Java, Verilog

EXTRA-CURRICULUM ACTIVITIES

- **GO:** Second-class athlete of China, European Go Foundation (EGF) placement 12, Co-Champion of the 43rd London Open Go Tournament

- **Jianzi (Shuttlecock):** Finalist of the 8th National Traditional Sports Games in Beijing, Champion & Record Setter of Tsinghua University Freshmen Sports Meeting

- **Bridge:** 10th place in the Bridge Championship for High School Students, Beijing, China