Qiao Jin

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Education

- **Tsinghua University** — Beijing, China
  Bachelor of Science, Doctor of Clinical Medicine; GPA Rank: 1/32 — *Aug. 2014 - Aug. 2022 (Expected)*

Experiences

- **School of Medicine, Tsinghua University** — Beijing, China
  B.S. (pre-Med) — *Aug. 2014 - Aug. 2017*
  Supervisor: Prof. Xuegong Zhang (Tsinghua)

  - **A novel TTN mutation related to dilated cardiomyopathy:** We reported a case of DCM where genetic testing identified a novel familial truncating mutation in the TTN gene. [A3]
  - **SuvCas9:** We constructed a suvCas9 system in *Saccharomyces cerevisiae* to function as the monitor of genomic sequence. The system has the potential to prevent carcinogenesis by killing all the mutated cells. We won a gold medal for this project at iGEM. [A2]
  - **Surgical Robot:** We built a robot with visual servo system that can perform fracture restoration surgery. I was in the computer vision team. [P1][A3]
  - **Class President:** I served as the president of class Bio47 from 2015 to 2016. During my term, our class was awarded several decent honors by the university.

- **Department of Biomedical Informatics, University of Pittsburgh** — Pittsburgh, USA
  Visiting Research Scholar — *Aug. 2017 - Jun. 2019*
  Supervisor: Prof. William W. Cohen (CMU) and Prof. Xinghua Lu (Pitt)

  Deep Learning on Electronic Medical Records

  - **BioBank Disease Challenge** We used a semi-supervised learning method for computational phenotyping of four diseases, and presented a reinforcement learning algorithm to learn better treatments for migraine headache. We won the (tied) first place in the BioBank Disease Challenge. [A4]

  Large-scale Text Mining from Biomedical Literature

  - **PubMedQA** We introduced PubMedQA, a novel dataset for biomedical research question answering. [C6]
  - **DECBAE** We presented a method for DEep Contextualized Biomedical Abbrevaition Expansion. [C5]
  - **BioELMo** We presented BioELMo, which is a domain specific version of ELMo trained on 10M PubMed abstracts. We used probing tasks, visualizaiton and nearest neighbor analysis to characterize BioELMo. [C4]
  - **EIR:** We used deep reinforcement learning to build a reliable genetic association database. [C3]
  - **AttentionMeSH:** We proposed a novel model, AttentionMeSH, which utilizes deep learning and attention mechanism to index MeSH terms to biomedical texts and provide interpretability at word level. [C2]

  Deep Learning for Natural Language Processing

  - **Coref-GRU:** We presented a recurrent layer which is biased towards coreferent dependencies. [C1]

- **Yidu Cloud AI Lab** — Beijing, China
  Research Intern — *Jun. 2019 - Aug. 2019*

  - **Evidence Inference** We achieved state-of-the-art performance (F1: 0.797 v.s. 0.530 of the dataset baseline) on the evidence inference dataset by a pipelined BioBERT model. We are applying for a patent on this algorithm.
  - **Automatic ICD Encoding** I assisted the implementation of an automatic ICD encoding model in clinical setting, whose architecture is similar to that of AttentionMeSH [C2].

- **Peking Union Medical College Hospital** — Beijing, China
  M.D. candidate — *Aug. 2019 - Aug. 2022 (Expected)*
  Supervisor: Prof. Sheng Yu (Tsinghua) and Acad. Jiahong Dong (Changgung Hospital)

Publications and Patents

- [C6] ***PubMedQA: A Dataset for Biomedical Research Question Answering***
  Qiao Jin, Bhuwan Dhingra, Zhengping Liu, William W. Cohen, Xinghua Lu
  EMNLP 2019
- [C5] ***Deep Contextualized Biomedical Abbreviation Expansion***
  Qiao Jin, Jinling Liu, Xinghua Lu
  ACL 2019 BioNLP
- [C4] ***Probing Biomedical Embeddings from Language Models***
  Qiao Jin, Bhuwan Dhingra, William W. Cohen, Xinghua Lu
  NAACL 2019 RepEval
- [C3] ***Automatic Human-like Mining and Constructing Reliable Genetic Association Database with Deep Reinforcement Learning***
  Haohan Wang, Xiang Liu, Yifeng Tao, Wenting Ye, **Qiao Jin**, William W. Cohen and Eric P. Xing
  PSB 2019
- [C2] ***AttentionMeSH: Simple, Effective and Interpretable Automatic MeSH Indexer***
  Qiao Jin, Bhuwan Dhingra, William W. Cohen, Xinghua Lu
  EMNLP 2018 BioASQ
- [C1] ***Neural Models for Reasoning over Multiple Mentions using Coreference***
  Bhuwan Dhingra, **Qiao Jin**, Zhilin Yang, William W. Cohen, Ruslan Salakhutdinov
  NAACL 2018
- [P1] ***Visual Servo Control Method of Multi-Task Surgical Robot***
  Shijie Zhu, Yu Chen, Bicong Zhang, Yitong Chen, **Qiao Jin**, Jiawei Sun, Boyuan Deng, Liyuan Jiang, Gangtie Zheng, Yongwei Pan, Zhe Zhao, Jiuzheng Deng
  Patent filed in China, 2017

Scholarships and Awards

- [S1] **National Scholarship** *2015* — Ministry of Education of China
- [S2] **Xuetang Scholarship** *2016, 2017* — Tsinghua University
- [S3] **Scholarship for Comprehensive Excellence** *2016, 2017* — Tsinghua University
- [S4] **Scholarship for Academic Excellence** *2015, 2016, 2018, 2019* — Tsinghua University
- [S5] **Scholarship for Science and Technology Innovation** *2016* — Tsinghua University
- [S6] **Friend of Tsinghua - Wuliangye Technology Jiujiu Scholarship** *2016* — Tsinghua University
- [S7] **Friend of Tsinghua - Dalian Yejian Scholarship** *2017, 2018, 2019* — Tsinghua University
- [A1] **CChO Gold Medal** *2013* — Chinese Chemical Society
- [A2] **iGEM Gold Medal** *2015* — iGEM Foundation
- [A3] **Second Prize SRT Project** *2017(2)* — Tsinghua University
- [A4] **First place at BioBank Disease Challenge (*$12,500*)** *2018* — Partners Healthcare

Professional Activities

Journal reviewer: I reviewed papers for BMC Bioinformatics, IEEE Transactions on Knowledge and Data Engineering (TKDE).

Conference reviewer: I reviewed papers for Machine Learning for Health workshop of NeurIPS 2019.