

Huichao Xue

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Staff AI Engineer

Apr, 2017 - Present



Sunnyvale, CA

I work on *Jobs You May be Interested In* ([linkedin.com/jobs](https://www.linkedin.com/jobs)), a service that help people apply for 10^6 jobs every day. My cumulative effort had increased users' job applications on this service by $\approx 40\%$. I also came up with an algorithm that improved the system's speed by 2x.

- I enabled machine learning for the system's retrieval layer (details published in CIKM 2020).
- I leveraged the system's speed improvements to drop heavy-weight system components. We particularly dropped (1) nightly pre-computations (2) one ranking layer.
- Currently working on unifying the retrieval system for *job search* and *jobs you may be interested in*.
- Also volunteered in building developer tooling for the team
 - Built a model templating engine that manages 600 retrieval/ranking models in the past 3 years.
 - Built a query replaying tool that computes recall metrics for retrieval algorithms.

Software Engineer, Tools and Infrastructure

Oct, 2014 - Apr, 2017



Mountain View, CA

I maintained the testing framework for Google's ContentAds frontend web-server. On an average day, my work means 10^6 quicker/stable tests, or 10^2 happier developers.

- 24% faster regression tests for a heavily utilized service.
- iRegtest – 5 times faster test development time, by keeping the test environment up. Also mentored intern to extend it to Selenium tests.
- I've also implemented various tools
 - Fuzz-tester – a tool that generates unexpected server input from users and/or backend servers. I built an AI scorer for the effectiveness of generated inputs.
 - Load-tester – tools and metrics to calibrate server's performance under heavy traffic. This tool gates our releases.

Software engineering as a hobby

<https://github.com/xuehuichao/freemind-latex>: If you find Beamer too verbose when preparing slides, this software allows you to skip all the markups. It uses *mindmaps*, then compile into \LaTeX , and then PDF.

www.crowdgrammar.com: A proof-reading website (which came from my struggling during thesis writing). The website asks mechanical turkers to proof-read articles sentence by sentence. For \$20, you get a 100-page long PhD dissertation proof-read in 3 days, getting at least one correction per sentence.

Education

Ph.D. in Computer Science, 2008-2015, University of Pittsburgh, PA, USA



- *Advisor*: Prof. Rebecca Hwa GPA: 3.94/4
- *Research Area*: Natural Language Processing, Machine Learning
- *Dissertation*: *Computational Models of Problems with Writing of English as a Second Language (ESL) Learners*
 - Detecting redundancies (e.g. ...I believe that **if**...)
 - Auto-completing tutor feedbacks (demo at www.xuehuichao.com)
 - Detecting preposition errors (e.g. ...need **of**for speed).

B.S. in Computer Science, 2004-2008, Fudan University, Shanghai, China



- Awards: Rank: 3rd/143, GPA: 3.66/4
 - *OOCL Scholarship* – Nov 2006: highest GPA among our class
 - *2nd class People's Scholarship* – Nov 2007 and Nov 2005: top 10% GPA
- *Bachelor Thesis*: Cross-document Coreference Resolution and Named Entity Recognition (supervised by Prof. Yaqian Zhou and Prof. Xuanjing Huang)

Publications

JOURNAL ARTICLES

Martin Birks, Daniel Cole, Stanley P. Y. Fung, and **Huichao Xue** Online algorithms for maximizing weighted throughput of unit jobs with temperature constraints. In *Journal of Combinatorial Optimization* 26(2), pages 237-250, 2013

CONFERENCE PAPERS

Huichao Xue. Ranking User Attributes for Fast Candidate Selection in Recommendation Systems. In *Proceedings of the 29th ACM International Conference on Information & Knowledge Management (CIKM applied research track)*, pages 2869–2876, 2020

Huichao Xue and Rebecca Hwa. Improved correction detection in revised ESL sentences. In *Proceedings of The 52nd Annual Meeting of the Association for Computational Linguistics (ACL short)*, Baltimore, USA, 2014. Association for Computational Linguistics, 2014

Suma Bhat, **Huichao Xue**, and Su-Youn Yoon. Shallow Analysis-Based Assessment of Grammatical Competence for Automated Speech Scoring In *Proceedings of The 52nd Annual Meeting of the Association for Computational Linguistics (ACL)*, Baltimore, USA, 2014. Association for Computational Linguistics, 2014

Huichao Xue and Rebecca Hwa. Redundancy Detection in ESL Writings. In *Proceedings of the 14th Conference of the European Chapter of the Association for Computational Linguistics (EACL)*, Gothenburg, Sweden, 2014. Association for Computational Linguistics, 2014

Huichao Xue and Rebecca Hwa. Modeling ESL word choice similarities by representing word intensions and extensions. In *Proceedings of the 24th International Conference on Computational Linguistics (COLING)*, Mumbai, India, 2012. Association for Computational Linguistics, 2012

Martin Birks, Daniel Cole, Stanley P. Y. Fung, and **Huichao Xue**. Online algorithms for maximizing weighted throughput of unit jobs with temperature constraints. In *FAW-AAIM*, pages 319–329, 2011

Huichao Xue and Rebecca Hwa. Syntax-driven machine translation as a model of ESL revision. In

Proceedings of the 23rd International Conference on Computational Linguistics (COLING): Posters, pages 1373–1381. Association for Computational Linguistics, 2010

PATENTS

Dhruv Arya and **Huichao Xue** and Kevin Kao. Recommending relevant positions. US Patent No. 10.789.312, Sep 29, 2020

Huichao Xue. Classifying job search queries for improved precision. (*Filed, pending*), Nov, 2020

Qing Duan and Junrui Xu and **Huichao Xue** and Jianqiang Shen. (*Filed, pending*), Apr, 2020

Search optimization based on relevant-parameter selection (*Filed, pending*), Aug, 2019

Junrui Xu and Meng Meng and Girish Kathalagiri Somashekaria and **Huichao Xue** and Varun Mithal and Ada Yu. Title Transition based Candidate Selection for Job Recommendations. (*Filed, pending*), Dec, 2018

Huichao Xue and Girish Kathalagiri Somashekaria and Vivian Yuan and Varun Mithal and Junrui Xu and Ada Yu. Filtering content using generalized linear mixed models. (*Filed, pending*), Dec, 2018

Vivian Yuan and Girish Kathalagiri Somashekaria and **Huichao Xue** and Varun Mithal and Ada Yu and Junrui Xu. System user attribute disambiguation based on cohort. (*Filed, pending*), Mar, 2019

Huichao Xue and Vivian Yuan and Girish Kathalagiri Somashekaria and Ada Yu. Ranking job recommendations based on title preferences. (*Filed, pending*), Nov, 2018

Vivian Yuan and Girish Kathalagiri Somashekaria and **Huichao Xue** and Ada Yu. Activity-based inference of title preferences. (*Filed, pending*), Nov, 2018

Girish Kathalagiri Somashekaria and **Huichao Xue** and Vivian Yuan and Meng Meng and Ada Yu. Selecting recommendations based on title transition embeddings. (*Filed, pending*), Mar, 2019

Huichao Xue and Dhruv Arya and Nadia Fawaz and Liang Zhang. Recommending relevant positions. US Patent Application No. 15/850483, (*filed, pending*), Dec 21, 2017

Technical Skills

<u>Programming languages:</u>	Python, Golang, C/C++, Javascript, Java, Bash.
<u>Scientific computing:</u>	tensorflow, scipy/numpy, Spark, sklearn, Matlab/Octave
<u>Data collection:</u>	Amazon Mechanical Turk, jQuery
<u>Software development:</u>	GNU Linux, Emacs, Google/Azure/AWS cloud, angularjs, MySQL/Sqlite, L ^A T _E X, version control softwares
<u>Programming contests:</u>	Before I entered college, I won 1st prize in China's regional programming contest – top 4 in Hebei Province (NOIP 2003).