

# Joseph Chee Chang

## Ph.D.

Language Technologies Institute  
School of Computer Science  
Carnegie Mellon University

I am graduating and currently looking for industry research opportunities.

I am interested in how people **explore and synthesize unfamiliar information** in complex decision-making scenarios such as exploratory search and data analysis. For this, I apply **machine learning and interaction techniques** to build and study **end-user and crowd-sourcing systems with novel interfaces**.

My research is supported by Google, Bosch, Yahoo, ONR, and NSF.

## Contact

📞 1 (412) 980 8551  
🌐 <http://joe.cat>  
✉ [josephcc@cs.cmu.edu](mailto:josephcc@cs.cmu.edu)  
in </in/josephcheechang/>  
🔗 [josephcc](#)

### Mobile

ObjC/iOS • Java/Android

### Frontend

ReactJS • ES7/TypeScript • HTML5 • D3

### Backend

MeteorJS • Flask • Rails • SQL • Firebase

### ML/NLP/Stats

Hadoop • Python • NLTK • Theano • R

### Crowdsourcing

real-time systems  
human-in-the-loop ML

## Education

- 2013 - 2020 **PhD+MS, Computer Science - HCI focus** *Carnegie Mellon U*  
🏆 CHI best paper honorable mentions x3 Advisor: [Aniket Kittur](#)
- 2010 - 2012 **MS, Computer Science - NLP focus** *NTHU (Taiwan)*  
Thesis work presented in top NLP conf (ACL) Advisor: [Roger Jang](#)
- 2006 - 2010 **BS, Computer Science - EDA focus** *YZU (Taiwan)*  
Won in a national 3D IC partitioning algorithm competition

## Experience

- Summer 2016 **Microsoft PhD Research Intern** *Microsoft Research*  
Focused on crowdsourcing and machine learning. Work presented at a top-tier conference. Mentors: [Saleema Amershi](#) and [Ece Kamar](#)
- Summer '14,'15,'17 **REU Internship Program Research Mentor** *HCI Institute, CMU*  
Mentored a total of 8 research interns over three Summers.
- April-July 2013 **Full-time Search Engineer** *Yahoo!*  
Knowledge Graph and search log analysis using Hadoop.
- Fall 2012 **Teaching Assistant - Intro to NLP** *NTHU (Taiwan)*  
Recitations and Lab sessions. 4+ hours of teaching/week.
- 2009-2011 **Research Assistant** *Academia Sinica*  
EM-based algorithm on Hadoop for cross-lingual ontology mapping.

## Grants (co-wrote with PI Aniket Kittur)

- 2020 **Office of Naval Research Grant**  
*Externalizing and Aggregating Structured Mental Representations*
- 2017 **NSF AIR-TT Grant**  
*Supporting Complex Sensemaking on Mobile Phones*
- 2016, 2018 **Google Faculty Research Award**  
2019 *Modeling and Augmenting Sensemaking and Exploratory Search Supporting Complex Sensemaking on Mobile Phones*
- 2015 **Yahoo! InMind Project**  
*From Search Results to Search Landscapes*

## Awards and Honors

- 2016 **AAAI HCOMP Invited Talk** *Encore Track*
- 2015 **Fellowship of the InMind Projects at CMU** *Yahoo!*
- 2015 **Government Scholarship for Studying Abroad** *Taiwan*
- 2011 **First Place, Fun Taipei App Competition** *Taipei City Gov.*  
1/170 teams. Developed a city tour guide app for iOS and Android.
- 2010 **Third Award, National IC/CAD Contest** *Dept. of Education, Taiwan*  
10% in 160 teams. Developed a 3D-IC partitioning algorithm (3000 lines of C++) to compete on speed and circuit optimization.
- 2010 **Second Place, Trend Micro Programming Contest** *Trend Micro*  
2/67 teams. Mobile application development competition.
- 2009 **Conference for Open Source Coders, Users and Promoters(COSCUP)**  
Presented an Android benchmarking project at the largest OSS conference in Asia.

## Selected Peer-Reviewed Papers

Joseph Chee Chang, Nathan Hahn, Yongsung Kim, Julina Coupland, Bradley Breneisen, Hannah S Kim, John Hwong, and Aniket Kittur. 2021. When the Tab Comes Due: Challenges in the Cost Structure of Browser Tab Usage. In *Proceedings of the CHI Conference on Human Factors in Computing Systems (ACM CHI)*. Association for Computing Machinery, 15 pages. DOI:<http://dx.doi.org/10.1145/3411764.3445585>

Joseph Chee Chang, Nathan Hahn, and Aniket Kittur. 2020. Mesh: Scaffolding Comparison Tables for Online Decision Making. In *Proceedings of the 33rd Annual Symposium on User Interface Software and Technology (ACM UIST)*. Association for Computing Machinery, 14 pages. <https://doi.org/10.1145/2984511.2984538>

Joseph Chee Chang, Nathan Hahn, Adam Perer, and Aniket Kittur. 2019. SearchLens: Composing and Capturing Complex User Interests for Exploratory Search. In *Proceedings of the 24th International Conference on Intelligent User Interfaces (ACM IUI. 25%)*. Association for Computing Machinery, 12 pages. <https://doi.org/10.1145/3301275.3302321>

Joel Chan, Joseph Chee Chang, Tom Hope, Dafna Shahaf, and Aniket Kittur. 2018. SOLVENT: A Mixed Initiative System for Finding Analogies between Research Papers. *Proceedings of the ACM Human-Computer Interaction CSCW*, Article 31 (Nov. 2018), 21 pages. DOI:<http://dx.doi.org/10.1145/3274300>

Nathan Hahn, Joseph Chee Chang, and Aniket Kittur. 2018. Bento Browser: Complex Mobile Search Without Tabs. In *Proceedings of the CHI Conference on Human Factors in Computing Systems (ACM CHI. 25%)*. Association for Computing Machinery, 12 pages. <https://doi.org/10.1145/3173574.3173825>

Ting-Hao Huang, Joseph Chee Chang, and Jeffrey P. Bigham. 2018. Evorus: A Crowd-Powered Conversational Assistant Built to Automate Itself Over Time. In *Proceedings of the CHI Conference on Human Factors in Computing Systems (ACM CHI. 25% **Best Paper Honorable Mention Award** 🏆)*. Association for Computing Machinery, 13 pages. <https://doi.org/10.1145/3173574.3173869>

Joseph Chee Chang, Saleema Amershi, and Ece Kamar. 2017. Revolt: Collaborative Crowdsourcing for Labeling Machine Learning Datasets. In *Proceedings of the CHI Conference on Human Factors in Computing Systems (ACM CHI. 25%)*. Association for Computing Machinery, 13 pages. <https://doi.org/10.1145/3025453.3026044>

Joseph Chee Chang, Aniket Kittur, and Nathan Hahn. 2016. Alloy: Clustering with Crowds and Computation. In *Proceedings of the CHI Conference on Human Factors in Computing Systems (ACM CHI. 23%, **Best Paper Honorable Mention Award** 🏆)*. Association for Computing Machinery, 12 pages. <https://doi.org/10.1145/2858036.2858411>

Nathan Hahn, Joseph Chang, Ji Eun Kim, and Aniket Kittur. 2016. The Knowledge Accelerator: Big Picture Thinking in Small Pieces. In *Proceedings of the CHI Conference on Human Factors in Computing Systems (ACM CHI. 23%, **Best Paper Honorable Mention Award** 🏆)*. Association for Computing Machinery, 13 pages. <https://doi.org/10.1145/2858036.2858364>

Joseph Chee Chang, Nathan Hahn, and Aniket Kittur. 2016. Supporting Mobile Sensemaking Through Intentionally Uncertain Highlighting. In *Proceedings of the 29th Annual Symposium on User Interface Software and Technology (ACM UIST. 20.6%)*. Association for Computing Machinery, 8 pages. <https://doi.org/10.1145/2984511.2984538>

Joseph Chang, Jason S. Chang, and Roger Jyh-Shing Jang. 2012. Learning to Find Translations and Transliterations on the Web. In *Proceedings of the 50th Annual Meeting of the Association for Computational Linguistics (ACL. 20%)*. <https://www.aclweb.org/anthology/P12-2026>