Joseph Chee Chang

PhD Student
Computer Science
Carnegie Mellon University

I am interested in how people explore, structure, and **make sense of new information in complex decision-making scenarios** such as exploratory search and structuring data. For this, I apply **crowdsourcing, NLP, and ML** techniques to research and building **intelligent information systems with novel interfaces** to augment human cognition to enhance learning, knowledge production, and scientific discovery.

Contact

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Technical

Frontend
ReactJS • ES7 • HTML5 • D3

Backend
MeteorJS • Flask • Rails • SQL

NLP
Hadoop • Python • NLTK • Theano

Mobile
ObjC/iOS • Java/Android

Crowdsourcing
real-time systems
interactive workflows
human-in-the-loop ML

Others
R • LaTeX • Unix Admin

Education

2015 -	**PhD+MS, Computer Science - HCI+ML focus**	*Carnegie Mellon U*
2013 - 2015	CHI best paper honorable mentions x2. Advisor: Aniket Kittur	
	Won course competitions for *Algorithms for NLP* and *Language&Stats*.	
2010 - 2012	**MS, Computer Science - NLP focus**	*NTHU (Taiwan)*
	Thesis work published in ACL 2012 (20%). Advisor: Roger Jang	
2006 - 2010	**BS, Computer Science - EDA focus**	*YZU (Taiwan)*
	Independent Study: FPGA technology mapping.	

Experience (selected)

May-August 2016	**Microsoft PhD Research Intern**	*Microsoft Research*
	Crowdsourcing and Machine Learning. Published at ACM SIGCHI 2017. Mentors: Saleema Amershi and Ece Kamar.	
Summer '14,'15,'17	**REU Ineternship Program Research Mentor**	*HCI Institute, CMU*
	Mentored a total of 8 research interns over three Summers.	
April-July 2013	**Yahoo! Search Engineer** (fulltime)	*Yahoo*
	Yahoo Knowledge Graph and search log mining using Hadoop.	
Fall 2012	**Teaching Assistant - Intro to NLP**	*NTHU (Taiwan)*
	Recitations and Lab Sessions with 4+ hours of teaching per week.	
2009-2011	**Research Assistant**	*Academia Sinica*
	EM-based algorithm on Hadoop for cross-lingual ontology mapping.	

Awards and Honors (selected)

2016	**HCOMP Invited Encore Talk**	*AAAI HCOMP*
	Alloy: Clustering with Crowds and Computation	
2016	**Best Paper Honorable Mention 🏆 x2**	*ACM SIGCHI*
	Alloy: Clustering with Crowds and Computation	
	The Knowledge Accelerator: Big Picture Thinking in Small Pieces	
2016	**NSF AIR-TT Grant - co-wrote**	*PI: Aniket Kittur*
	Supporting Complex Sensemaking on Mobile Phones	
2015	**Google Faculty Research Award - co-wrote**	*PI: Aniket Kittur*
	Modeling and Augmenting Sensemaking and Exploratory Search	
2015	**Yahoo! InMind Project - co-wrote**	*PI: Aniket Kittur*
	From Search Results to Search Landscapes	
2011	**First Place, Fun Taipei App Competition 🏆**	*Taipei City Gov.*
	170 teams. Developed a city tour guide app for iOS and Android.	

Publications (selected)

Joseph Chee Chang, Saleema Amershi, and Ece Kamar. Revolt: Collaborative crowdsourcing for labeling machine learning datasets. In *ACM SIGCHI (25%)*, 2017.

Joseph Chee Chang, Aniket Kittur, and Nathan Hahn. Alloy: Clustering with crowds and computation. In *SIGCHI (23%, **Best Paper Honorable Mention 🏆**)*, 2016.

Nathan Hahn, Joseph Chee Chang, Ji Eun Kim, and Aniket Kittur. The knowledge accelerator: Big picture thinking in small pieces. In *ACM SIGCHI (23%, **Best Paper Honorable Mention 🏆**)*, 2016.

Joseph Chee Chang, Nathan Hahn, and Aniket Kittur. Supporting mobile sensemaking through intentionally uncertain highlighting. In *ACM UIST (20.6%)*, 2016.

Joseph Chang, Jason S. Chang, and Roger Jyh-Shing Jang. Learning to find translations and transliterations on the web. In *Annual Meeting of the ACL (20%)*, 2012.

Awards and Honors (extended)

Third Award	**IC/CAD Programming Contest** 🏆	*Ministry of Education (Taiwan)*
	160 teams (<10%). Developed a 3D-IC partitioning algorithm (3000+ lines of C++ code) to compete on runtime speed and circuit optimization performance.	
Best Student Project	**Mobile Hero UI Contest** 🏆	*Ministry of Economic Affairs, Taiwan*
	Paper Piano: an augmented reality virtual instrument for Android.	
Second Place	**The 11th TM Programming Contest** 🏆	*Trend Micro Inc.*
	67 teams. Mobile application development competition.	
Presentation attendance:1200	**Conference for Open Source Coders, Users and Promoters**	*COSCUP*
	Presented an open source project at the largest OSS conference in Asia.	

Publications (extended)

Ting-Hao Kenneth Huang, Joseph Chee Chang, Jeffrey P. Bigham, and Saiganesh Swaminathan. Evorus: A crowd-powered conversational assistant that automates itself over time. In *ACM Symposium on User Interface Software and Technology (UIST, poster)*, 2017.

Joseph Chee Change and Chu-Cheng Lin. Recurrent-neural-network for language detection on Twitter code-switching corpus. *arXiv preprint arXiv:1412.4314*, 2014.

Joseph Chee Chang, Jason S Chang, and Jyh-Shing Roger Jang. Learning to find translations and transliterations on the web based on conditional random fields. *Journal: Computational Linguistics & Chinese Language Processing*, 2013.

Jian-Cheng Wu, Joseph Chang, Yi-Chun Chen, Shih-Ting Huang, Mei-Hua Chen, and Jason S. Chang. NTHU NLPLAB system description. In *NAACL 7th Workshop on Building Educational Applications Using NLP*. North American Chapter of the Association for Computational Linguistics (NAACL workshop), 2012.

Joseph Z Chang and Jason S Chang. Word root finder: a morphological segmentor based on crf. In *COLING (Demos)*, pages 51–58, 2012.

Joseph Chang, Richard Tzong-Han Tsai, and Jason S. Chang. Wikisense: Supersense tagging of wikipedia named entities based wordnet. In *Proc. of Pacific Asia Conference on Language, Information and Computation (PACLIC, 25%)*, 2009.

Joseph Chang, Tzu-Hsi Yen, and Tzong-Han Tsai. Minimally supervised question classification and answering based on wordnet and wikipedia. In *Proc. of the 21st Conference on Computational Linguistics and Speech Processing*, 2009.

Experience (extended)

April-June 2012	**Contractor Developer**	*OpenMoko (startup)*
	Developed an Android client for an online social network.	
May-Sept. 2010	**Software Engineer Intern**	*0xLab (startup)*
	An open source Android benchmarking tools used by major smartphone companies and shipped with Texas Instrument's products.	

Engineering Projects (full list: http://joseph.nlpweb.org/portfolio/)

KerKerInput: I co-wrote the first ever Chinese input method for the Android platform. It supports smart word ranking and next-word prediction. (2010. Java, Android. https://github.com/josephcc/KerKerInput)

0xBench: An open source Android benchmarking tool used by developers and major companies worldwide (including Samsung, LG, and Linaro). Texas Instrument shipped 0xBench with its development boards. (2011. Java, C, Android)

TaipeiFever: A tour guide app written for the Taipei City Government. Its prototype won first place (<0.6%) at a developer competition. (2011. iOS, Android, WindowsPhone. https://speakerdeck.com/josephcc/taipeifever)

SideKick: An iPhone app that automatically solves the (once) popular game Draw Something by scanning in-game screenshots. (2012. ObjC, iOS. https://www.youtube.com/watch?v=g3_TMp7IJB0)

RePhrase An context-aware thesaurus designed to help writers find alternative expressions for a given phrase. Includes 8,810,629 phrases and 53,575 examples mined from the Web. (2011. iOS)

Gensim Contributor to the open source Python NLP library.