Joseph Chee Chang

PhD Candidate
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 data analysis. For this, I apply **crowdsourcing, NLP, and ML** techniques to research and build **intelligent information systems with novel interfaces** that augment human cognition to enhance learning, knowledge production, and scientific discovery. My research is supported by Google, Bosch, Yahoo, and the NSF.

Contact

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Technical

Mobile
ObjC/iOS • Java/Android

Frontend
ReactJS • ES7 • HTML5 • D3

Backend
MeteorJS • Flask • Rails • SQL • Firebase

ML/NLP/Stats
Hadoop • Python • NLTK • Theano • R

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

Education

2015 - 2020 **MS+PhD, Computer Science - HCI+ML focus** *Carnegie Mellon U*
2013 - 2015 CHI best paper honorable mentions x3. Advisor: Aniket Kittur

2010 - 2012 **MS, Computer Science - NLP focus** *NTHU (Taiwan)*
Thesis work presented in top-tier conf (ACL'12). Advisor: Roger Jang

2006 - 2010 **BS, Computer Science - EDA focus** *YZU (Taiwan)*
Independent Study: FPGA technology mapping.

Experience

Summer 2016 **Microsoft PhD Research Intern** *Microsoft Research*
Crowdsourcing and machine learning. Work presented at top-tier conference (CHI'17) 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 **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.

April-June 2012 **Contractor Developer** *OpenMoko (startup)*
Developed an Android client for an online social network.

May-Sept. 2010 **Software Engineer Intern** *OxLab (startup)*
An open source Android benchmark tools used by major smartphone companies and shipped with Texas Instrument's products.

Awards and Honors

2016 **HCOMP Invited Encore Talk** *AAAI HCOMP*
Alloy: Clustering with Crowds and Computation

2011 **First Place, Fun Taipei App Competition** *Taipei City Gov.*
170 teams. Developed a city tour guide app for iOS and Android.

2010 **Third Award, EDA Programming Contest** *Dept. of Education, Taiwan*
160 teams (<10%). Developed a 3D-IC partitioning algorithm (3000 lines of C++) to compete on speed and circuit optimization.

2010 **Best Student Project, Mobile UI Contest** *Dept. of Economics, Taiwan*
Paper Piano: an Android augmented reality piano.

2010 **Second Place, Trend Micro Programming Contest** *Trend Micro*
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.

Grants

2016 **NSF AIR-TT Grant - co-wrote** *PI: Aniket Kittur*
Supporting Complex Sensemaking on Mobile Phones

2015, 2018 - 2019 **Google Faculty Research Award x3 - co-wrote** *PI: Aniket Kittur*
Supporting Complex Sensemaking on Mobile Phones
Modeling and Augmenting Sensemaking and Exploratory Search

2015 **Yahoo! InMind Project - co-wrote** *PI: Aniket Kittur*
From Search Results to Search Landscapes

Publications (selected)

Chang, J. C., Hahn, N., Perer, A., and Kittur, A. 2019. Searchlens: Composing and capturing complex user interests for exploratory search. In *Proc. the 24th International Conference on Intelligent User Interfaces (ACM IUI, 25%)*.

Huang, T.-H. K., Chang, J. C., and Bigham, J. P. 2018. Evorus: A crowd-powered conversational assistant built to automate itself over time. In *ACM SIGCHI (25%, **Best Paper Honorable Mention Award**🏆)*.

Hahn, N., Chang, J. C., and Kittur, A. 2018. Bento Browser: Navigating with search. In *ACM SIGCHI (25%)*.

Chan, J., Chang, J. C. Hope, T., Shahaf, D., and Kittur, A. 2018. Solvent: A mixed initiative system for finding analogies between research papers. In *ACM CSCW*.

Chang, J. C., Amershi, S., and Kamar, E. 2017. Revolt: Collaborative crowdsourcing for labeling machine learning datasets. In *ACM SIGCHI (25%)*.

Chang, J. C., Hahn, N., and Kittur, A. 2016. Supporting mobile sensemaking through intentionally uncertain highlighting. In *ACM UIST (20.6%)*.

Hahn, N., Chang, J. C., Kim, J. E., and Kittur, A. 2016. Knowledge accelerator: Big picture thinking in small pieces. In *ACM SIGCHI (23%, **Best Paper Honorable Mention Award**🏆)*.

Chang, J. C., Kittur, A., and Hahn, N. 2016. Alloy: Clustering with crowds and computation. In *ACM SIGCHI (23%, **Best Paper Honorable Mention Award**🏆)*.

Chang, J., Chang, J. S., and Jang, R. J.-S. 2012. Learning to find translations and transliterations on the web. In *Annual Meeting of the ACL (20%)*.