

Joseph Chee Chang

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Education

- 2013–2020 Ph.D., Language Technologies Institute, School of Computer Science, Carnegie Mellon University
Focus: *HCI/AI, Sensemaking, Intelligent Interfaces, Crowdsourcing*
Thesis: *Supporting Global Context under Evolving User Intents during Data Exploration.*
Committee: Aniket Kittur (CMU, Chair), Jeffrey Bigham (CMU), Adam Perer (CMU), and David Karger (MIT)
- 2010–2012 M.S., Information Systems, National Tsing-Hua University
Thesis: *Mining Named-Entity Translation and Transliteration Pairs on the Web.* (ACL 2012 oral) Advisor: Roger Jang
- 2006–2010 B.S., Computer Science, Yuan Ze University
Independent Study: *A 3D Integrated Circuit Partitioning Algorithm.* Advisor: Yi-Yu Liu

Appointments

- 2021– Research Scientist, Semantic Scholar, Allen Institute for Artificial Intelligence (AI2)
- 2020–2021 Postdoctoral Fellow, Center for Knowledge Acceleration, Carnegie Mellon University
Research and commercialization of my thesis work with a startup team of researchers, engineers, designers and product managers.
- 2016 Summer Research Intern, Microsoft Research, Redmond
Focus: Crowdsourcing and Machine Learning (work published in CHI 2017 [6])
Mentors: Saleema Amershi and Ece Kamar.
- 2013 Search Software Engineer, Yahoo Inc.
Search query and click log analysis using Hadoop for the Yahoo Knowledge Graph
- 2009–2011 Research Assistant (part-time), Academia Sinica
An EM-based method for cross-lingual ontology mapping (WordNet and eHowNet)

Awards and Honors

2021	ACM CHI Best Paper Honorable Mentions Award [1]
2018	ACM CHI Best Paper Honorable Mentions Award [5]
2016a	ACM CHI Best Paper Honorable Mentions Award [8]
2016b	ACM CHI Best Paper Honorable Mentions Award [9]
2016	AAAI HCOMP Encore Paper and Invited Talk
2015	Fellowship of the Yahoo InMind Projects at CMU
2015	Taiwan Government Scholarship for Studying Abroad
2011	First Place (1/170), Taipei City Government Mobile App Development Competition
2010	Third Award, National IC/CAD Algorithm Contest, Dept. of Education Taiwan
2010	Second Place (2/67), Trend Micro Programming Contest
2008	Undergraduate Research Thesis Award

Teaching and Mentoring

Teaching Assistant

2018	Data Science Capstone Course	Carnegie Mellon University
2018	Applied Machine Learning	Carnegie Mellon University
2012	Intro to Natural Language Processing	National Tsing-Hua University
2009	Intro to Computer Architecture	Yuan Ze University

Guest Lecture

2020	Advanced User Interface Software	Carnegie Mellon University
2019	HCI Process and Theory	Carnegie Mellon University




Mentoring

2019	A capstone team of the MHCI program	Carnegie Mellon University
2017	REU Summer Internship Program (3 undergrads)	Carnegie Mellon University
2015	REU Summer Internship Program (3 undergrads)	Carnegie Mellon University
2014	REU Summer Internship Program (2 undergrads)	Carnegie Mellon University

Publications

Conference

- [1] Hyeonsu B. Kang, Joseph Chee Chang, Yongsung Kim, Aniket Kittur. 2022. Threddy: An Interactive System for Personalized Thread-based Exploration and Organization of Scientific Literature

- ture. In Proceedings of the 35th Annual Symposium on User Interface Software and Technology (UIST). ACM. 15 pages. <https://doi.org/10.1145/3526113.3545660>
- [2] Andrew Kuznetsov, Joseph Chee Chang, Nathan Hahn, Napol Rachatasumrit, Bradley Breneisen, Julina Coupland, Aniket Kittur. 2022. Fuse: In-Situ Sensemaking Support in the Browser. In Proceedings of the 35th Annual Symposium on User Interface Software and Technology (UIST). ACM. 15 pages. <https://doi.org/10.1145/3526113.3545693>
 - [3] Michael Xieyang Liu, Andrew Kuznetsov, Yongsung Kim, Joseph Chee Chang, Aniket Kittur, Brad A Myers. 2022. Wigglylite: Low-cost Information Collection and Triage. In Proceedings of the 35th Annual Symposium on User Interface Software and Technology (UIST). ACM. 16 pages. <https://doi.org/10.1145/3526113.3545661>
 - [4] Joseph Chee Chang, Yongsung Kim, Victor Miller, Michael Xieyang Liu, Brad Myers, and Aniket Kittur. 2021. Tabs.do: Task-Centric Browser Tab Management. In Proceedings of the 33rd Annual Symposium on User Interface Software and Technology (UIST). ACM. 13 pages.
 -  [5] Joseph Chee Chang, Nathan Hahn, Yongsung Kim, Julina Coupland, Bradley Breneisen, Hannah S Kim, John Hwang and Aniket Kittur. 2021. When the Tab Comes Due: Challenges in the Cost Structure of Tab Usage. Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI). ACM. 15 pages. **(Best Paper Honorable Mentions Award)** <https://doi.org/10.1145/3411764.3445585>
 - [6] 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 (UIST). ACM. 14 pages. <https://doi.org/10.1145/3379337.3415865>
 - [7] 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 (IUI). ACM. 12 pages. <https://doi.org/10.1145/3301275.3302321>
 - [8] Joel Chan, Joseph Chee Chang, Tom Hope, Dafna Shahaf, and Aniket Kittur. 2018. SOLVENT: A Mixed Initiative System for Finding Analogies between Research Papers. In Proceedings of the conference on Computer-Supported Cooperative Work (CSCW). 21 pages. <https://doi.org/10.1145/3274300>
 -  [9] Ting-Hao (Kenneth) 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 (CHI). ACM. 13 pages. **(Best Paper Honorable Mentions Award)** <https://doi.org/10.1145/3173574.3173869>
 - [10] 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 (CHI). ACM. 12. pages. <https://doi.org/10.1145/3173574.3173825>
 - [11] 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 (CHI). ACM. 13 pages. <https://doi.org/10.1145/3025453.3026044>
 -  [12] 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 (CHI). ACM. 12 pages. **(Best Paper Honorable Mentions Award)** <https://doi.org/10.1145/2858036.2858411>



- [13] 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 (CHI). ACM. 13 pages. **(Best Paper Honorable Mentions Award)** <https://doi.org/10.1145/2858036.2858364>
- [14] 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 (UIST). ACM. 8 pages. <https://doi.org/10.1145/2984511.2984538>
- [15] Joseph Chang, Jason Chang, Roger 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 oral presentation). 5 pages. <https://www.aclweb.org/anthology/P12-2026.pdf>
- [16] Chang, J. Z., Tsai, R. T. H., and Chang, J. S. 2009. Wikisense: Supersense tagging of wikipedia named entities based wordnet. In Proceedings of the 23rd Pacific Asia Conference on Language, Information and Computation (PACLIC). 10 pages.
- [17] Chang, J. Z., Yen, T. H., & Tsai, R. T. H. 2009. Minimally supervised question classification and answering based on WordNet and Wikipedia. In Proceedings of the 21st Conference on Computational Linguistics and Speech Processing. 14 pages.

Workshops and Posters

- [1] Ting-Hao Kenneth Huang, Joseph Chee Chang, Saiganesh Swaminathan, and Jeffrey P. Bigham. 2017. Evorus: A Crowd-powered Conversational Assistant That Automates Itself Over Time. In Proceedings of the 30th Annual ACM Symposium on User Interface Software and Technology (UIST Posters). ACM. <https://doi.org/10.1145/3131785.3131823>
- [2] Aniket Kittur, Joseph Chee Chang, Nathan Hahn, Ji Eun Kim. 2016. Bigger Thinking Through Micro-Tasks. In the Workshop on Productivity Decomposed: Getting Big Things Done with Little Microtasks (CHI Workshop). ACM.
- [3] Wu, J. C., Chang, J. Z., Chen, Y., Huang, S. T., Chen, M. H., & Chang, J. S. 2012. Helping our own: NTHU NLPLAB system description. In Proceedings of the Seventh Workshop on Building Educational Applications Using NLP (NAACL Workshop).
- [4] Chang, J. Z., & Chang, J. S. 2012. Word root finder: a morphological segmentor based on CRF. In Proceedings of COLING 2012: Demonstration Papers.

Patent

- [1] Joseph Chee Chang and Aniket Kittur, (2021). U.S. Patent Pending.
- [2] Aniket Kittur, Nathan Hahn, and Joseph Chee Chang Methods of Providing a Search-Ecosystem User Interface For Searching Information Using a Software-Based Search Tool and Software for Same (2019). U.S. Patent Application No. 16/463,068. US20190286683A1.

Grants (Co-wrote with PI Aniket Kittur)

2020	Office of Naval Research Grant <i>“Externalizing and Aggregating Structured Mental Representations”</i>
2019	Google Faculty Research Award <i>“Modeling and Augmenting Sensemaking and Exploratory Search”</i> (renewed)
2018	Google Faculty Research Award <i>“Modeling and Augmenting Sensemaking and Exploratory Search”</i>
2017	National Science Foundation AIR-TT Grant <i>“Supporting Complex Sensemaking on Mobile Phones”</i>
2016	Google Faculty Research Award <i>“Supporting Complex Sensemaking on Mobile Phones”</i>
2015	Yahoo! InMind Projects at CMU <i>“From Search Results to Search Landscapes”</i>

Services

2018-present	ACM CSCW	Reviewer
2018-present	ACM UIST	Reviewer
2018-present	ACM CHI	Reviewer
2019	AAAI	Reviewer
2019	Elsevier FGCS	Reviewer
2016	ACM CHIIR	Student Volunteer

Technical Keywords

⁺ indicates proficient / strong expertise

General Languages	⁺ Python, ⁺ Java, Ruby, C, Objective-C
Web Front-End	⁺ ReactJS, ⁺ D3, ⁺ Modern CSS JavaScript & Typescript, ⁺ Chrome Extensions
Web Back-End	⁺ SQL, ⁺ Firebase/Firestore/Functions, ⁺ MeteorJS/TurkServer, Flask, Rails
Stats, Data, and NLP	R, ⁺ Numpy/Scipy, ⁺ NLTK, TensorflowJS, Hadoop MapReduce, ⁺ Mechanical Turk
Understanding Users	User Studies, Interviews, Surveys, Grounded Theory

References available on request.