Raymond Fok

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I am a **human-AI interaction** researcher with expertise in **designing, developing, and evaluating LLM-powered, interactive systems** that support and enhance human cognitive abilities to understand and make sense of complex information, with a proven track record of collaborations with industry leaders.

Education

Ph.D., Computer Science & Engineering • University of Washington, Seattle — Sep 2019 – Jul 2025 (*expected*)
Thesis: *Principles of Human-AI Interactive Systems for Scholarly Knowledge Synthesis*
Advisor: *Daniel S. Weld* • Committee: *Amy X. Zhang, Andrew Head, James Fogarty*

Relevant Coursework**:** Natural Language Processing, Machine Learning, Deep Learning, Data Mining, Information Retrieval, Complex Analysis, Algorithms, Data Visualization, Advanced Topics in Human-Computer Interaction

B.S., Computer Science, Minor in Mathematics • University of Michigan, Ann Arbor • *GPA*: 3.91 / 4.0 — Sep 2016 – Jun 2019

Experience

University of Washington — Seattle, WA
Graduate Research Assistant — Sep 2019 – Present

- Led development and evaluation of **intelligent, interactive systems** leveraging generative AI for exploring **human-AI interaction**.
- Authored and presented **10+ research papers** at top-tier HCI and AI conferences (CHI, UIST, IUI, EMNLP, AI Magazine).

Allen Institute for Artificial Intelligence (Ai2) — Seattle, WA
Research Intern and External Collaborator (Semantic Scholar) – Mentors: Joseph Chee Chang, Dan Weld — Mar 2023 – Present

- Built LLM workflows for automated and human-AI synthesis of scientific literature. Contributed to post-training and evaluation of open-source LLMs for scholarly literature understanding and synthesis tasks (EMNLP '24, CHI '25, In Sub.).
- Implemented an interactive system for a novel interaction paradigm of *recursively expandable summaries*, using **retrieval-augmented LLMs**. Conducted technical and user evaluations, and published papers (UIST '24, EMNLP '23).

Research Intern (Semantic Scholar) – Mentors: Luca Soldaini, Andrew Head, Dan Weld — Jun 2021 – Sep 2021

- Developed **interactive system with AI-powered, faceted highlights** to support skimming of research papers (IUI '23, TiiS '24).
- Implemented and evaluated NLP model by collecting a dataset of salient faceted sentences from domain experts, using **weakly supervised learning** methods, and **fine-tuning LMs** (BERT, RoBERTa).
- T**ransferred research prototype into production** (*skimming highlights*; Oct 2023) in Semantic Scholar's Semantic Reader with 7M+ MAUs.

Adobe Research — San Jose, CA
Research Intern (Document Intelligence) – Mentors: Alexa Siu, Nedim Lipka, Tong Sun — May 2023 – Sep 2023

- Developed an **LLM-enabled computational notebook** for accelerating business tasks, focused on *collection-centric* **information extraction, question answering, and synthesis**. Ideas served to **inform multi-document functionality in Acrobat AI Assistant** (CHI '24).

Google Research — Mountain View, CA
Research Intern (Gboard) – Mentors: Jiawei Chen, Shumin Zhai — Sep 2021 – Dec 2021

- Experimented with **multi-modal models** for gesture typing recognition (TensorFlow, Keras), combining LSTMs for gesture trace data with language modeling over prior phrase context, improving word prediction accuracy by 5% over existing approaches.

Software Engineering Intern (Central Accessibility) – Mentors: Brinko Kobrin, Casey Burkhardt — Jun 2020 – Sep 2020

- Designed, prototyped, and implemented (Java) an **interactive color correction mechanism** for the Android Accessibility Scanner.
- Released productized feature into the Accessibility Scanner app with 1M+ downloads on Google Play store.

Academic Publications

[C1] **Raymond Fok**, Joseph Chee Chang, Marissa Radensky, Pao Siangliulue, Jonathan Bragg, Amy X. Zhang, Daniel S. Weld **Facets, Taxonomies, and Syntheses: Navigating Structured Representations in LLM-Assisted Literature Review**. (arXiv)

[C2] **Raymond Fok**, Alexa Siu, and Daniel S. Weld. **Toward Living Narrative Reviews: An Empirical Study of the Processes and Challenges in Updating Survey Articles in Computing Research**. (CHI '25)

[C3] Benjamin Newman, Yoonjoo Lee, Aakanksha Naik, Pao Siangliulue, **Raymond Fok**, Juho Kim, Daniel S Weld, Joseph Chee Chang, and Kyle Lo. **ArxivDIGESTables: Synthesizing Scientific Literature into Tables using Language Models**. (EMNLP '24)

[C4] **Raymond Fok**, Joseph Chee Chang, Tal August, Amy X. Zhang, and Daniel S. Weld. **Qlarify: Bridging Scholarly Abstracts and Papers with Recursively Expandable Summaries**. (UIST '24)

[C5] **Raymond Fok**, Nedim Lipka, Tong Sun, and Alexa Siu. **Marco: Supporting Business Document Workflows via Collection-Centric Information Foraging with Large Language Models**. (CHI '24)

[C6] **Raymond Fok** and Daniel S. Weld. **In Search of Verifiability: Explanations Rarely Enable Complementary Performance in AI-Advised Decision Making**. (AI Magazine '24)

[C7] Kyle Lo, Joseph Chee Chang, (+51 authors incl. **Raymond Fok**), Marti A. Hearst, and Daniel S. Weld. **The Semantic Reader Project: Augmenting Scholarly Documents through AI-Powered Interactive Reading Interfaces.** (CACM '24)

[C8] Benjamin Newman, Luca Soldaini, **Raymond Fok**, Arman Cohan, and Kyle Lo. **A Controllable QA-based Framework for Decontextualization**. (EMNLP '23)

[C9] **Raymond Fok**, Hita Kambhamettu, Luca Soldaini, Jonathan Bragg, Kyle Lo, Marti A. Hearst, Andrew Head, and Daniel S. Weld. **Scim: Intelligent Skimming Support for Scientific Papers**. (IUI '23)

[C10] **Raymond Fok**, Mingyuan Zhong, Anne Spencer Ross, James Fogarty, and Jacob O. Wobbrock. **A Large-Scale Longitudinal Analysis of Missing Label Accessibility Failures in Android Apps**. (CHI '22)

[C11] Andrew Head, Kyle Lo, Dongyeop Kang, **Raymond Fok**, Sam Skjonsberg, Daniel S. Weld, and Marti A. Hearst. **Augmenting Scientific Papers with Just-in-Time, Position-Sensitive Definitions of Terms and Symbols**. (CHI '21)

[C12] Gagan Bansal*, Tongshuang Wu*, Joyce Zhou†, **Raymond Fok†**, Besmira Nushi, Ece Kamar, Marco Tulio Ribeiro, and Daniel S. Weld. **Does the Whole Exceed its Parts? The Effect of AI Explanations on Complementary Team Performance**. (CHI '21)

[C13] Jean Y. Song, **Raymond Fok**, Juho Kim, and Walter S. Lasecki. **FourEyes: Leveraging Tool Diversity as a Means to Improve Aggregate Accuracy in Crowdsourcing**. (TiiS '19)

[C14] **Raymond Fok**, Harmanpreet Kaur, Skanda Palani, Martez E. Mott, and Walter S. Lasecki. **Towards More Robust Speech Interactions for Deaf and Hard of Hearing Users**. (ASSETS '18)

[C15] Jean Y. Song, **Raymond Fok**, Alan Lundgard, Fan Yang, Juho Kim, and Walter S. Lasecki. **Two Tools are Better Than One: Tool Diversity as a Means of Improving Aggregate Crowd Performance**. (IUI '18) Best paper honorable mention.

[C16] Saiganesh Swaminathan, **Raymond Fok**, Fanglin Chen, Ting-Hao (Kenneth) Huang, Irene Lin, Rohan Jadvani, Walter S. Lasecki, and Jeffrey P. Bigham. **WearMail: On-the-Go Access to Information in Your Email with a Privacy-Preserving Human Computation Workflow**. (UIST '17)

Skills

Programming Languages: Python, TypeScript, HTML/CSS, SQL

Platforms/Tools: Flask, React, LangChain, PyTorch, TensorFlow, Keras, Transformers, NumPy, Scikit-learn, Faiss

Research Methods: Mixed-methods experimentation, Quantitative analysis and statistical modeling, Qualitative analysis, Usability testing, Contextual inquiry, Deployment studies, Diary studies, Prototyping