Raymond Fok

Human-AI Interaction Researcher, Software Developer
Human-Computer Interaction (HCI), Natural Language Processing (NLP), AI, Explainable AI

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Education

Ph.D., Computer Science & Engineering • University of Washington, Seattle — 2019 – Present
Thesis: *Designing Human-AI Systems for Augmenting Information-Driven Knowledge Work* — *(Expected June 2025)*
Advisor: *Daniel S. Weld* • Committee: *Amy X. Zhang, Andrew Head, James Fogarty*

B.S., Computer Science, Minor in Mathematics • University of Michigan, Ann Arbor — 2016 – 2019

Experience

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

- Authored and presented **10+ research papers** at top-tier human-computer interaction conferences (CHI, UIST, IUI, EMNLP, AI Mag).
- Developed and evaluated **novel interaction and AI mechanisms** for furthering **human-AI interaction** research.
- Led and coordinated research efforts with teams of graduate students, faculty, engineers, designers, and stakeholders.

Allen Institute for Artificial Intelligence (Ai2) — Seattle, WA
Semantic Scholar – Research Intern — Mar 2023 – Jun 2023

- Implemented an interactive system for concept of fluid scholarly literature, built on a novel interaction paradigm of *recursively expandable summaries* and powered using **retrieval-augmented LLMs**. Conducted technical and user evaluations, and published paper (UIST '24).

Semantic Scholar – Research Intern — Jun 2021 – Sep 2021

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

Semantic Scholar – Research Intern — Sep 2020 – Dec 2020

- Developed and evaluated **decision-theoretic models** for **analyzing error recovery paths** in interactive AI-infused UIs.

Adobe Research — San Jose, CA
Document Intelligence – Research Intern — 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
Android (Gboard) – Research Intern — Sep 2021 – Dec 2021

- Implemented and evaluated **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.

Central Accessibility – Software Engineering Intern — 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 (Selected)

(See Google Scholar for full list of publications • Citations: 1,160)

- **Scholarly Communication:** Developed **interactive, AI-powered systems** for faceted exploration (IUI '23, TiiS '24), in-context information retrieval (UIST '24, EMNLP '23), and structured synthesis (UIST '25, EMNLP '24) of research literature, using methods from fine-tuning language models (LMs) to retrieval-augmented generation (RAG) with LLMs.
- **Sensemaking:** Developed a **retrieval-augmented LLM-enabled computational notebook** for collection-level exploration over business documents, and evaluated with technical and user studies (CHI '24, CHI '25).
- **Explainable AI:** Conducted studies to **characterize the impact of explainable AI on decision-making** via large-scale crowdsourced experiments (CHI '21) and developed a theoretical framework from comprehensive lit review (AI Mag '24).

Skills

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

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

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

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