PAUL G. ALLEN SCHOOL
OF COMPUTER SCIENCE & ENGINEERING

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Faculty Hiring Committee
The Department of Computer Science,
University of Chicago

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Dear members of the Faculty Hiring Committee,

I am writing to apply for a tenure-track faculty position in the Department of Computer Science at the University of Chicago. I am currently a Doctoral Candidate at the Paul G. Allen School of Computer Science & Engineering at the University of Washington, on track to graduate in the Spring of 2023.

My research focuses on **natural language processing**, **machine learning**, and **artificial intelligence**. The ultimate aim of my work is to develop models and algorithms that can generate text and other media with human-level quality and coherence, while enabling fine-grained control of content and style. Current generative models produce uncannily human output, but are limited by our inability to direct precisely what they generate or consistently avoid hard-to-predict error cases. By introducing new methods of analysis for generative models I have introduced a range of modeling and inference advances, including: generating coherent text from unsupervised models, using generative models for question answering, reliably measuring what information models use and what they ignore, and even using models for the evaluation of other models without human annotators.

I have published at top-tier conferences in the field, and also won the first Amazon Alexa Prize, a yearly competition run by Amazon with the goal of building a system that can discuss arbitrary subjects with a diverse user base. These experiences provide a foundation for **future work** on controlling generative models with natural language, predicting failure modes of generative models before they happen, decomposing neural model behavior into human-understandable components, and developing new methods to provide test-time guarantees about model behavior. I would be excited to teach courses on natural language processing, machine learning, artificial intelligence, probability, and discrete math. I could also introduce **new more specialized courses** in generative modeling, black-box analysis of neural models, and the philosophy of science in the age of machine learning.

With generative models advancing at breakneck speed, the importance of thoughtful and timely scholarship addressing **how models work** and **how we can control them** has magnified. I believe the University of Chicago would be an ideal place to contribute to the local and broader academic community's investigation.

I look forward to your response. Thank you.

Sincerely,

Ari Holtzman