I am excited about artificial intelligence; specifically, natural language understanding. Natural language understanding is especially interesting to me because of the problem of how to demonstrate understanding.

Artificial intelligence is the most important field in computer science right now. I look at computers as tools, machines that help myself and others achieve their goals. That might be learning how to play piano, or memorizing vocabulary for a second language, or finding a good dinner recipe for tonight. And for those goals, we have made amazing improvements compared to pre-computer options. But for goals like driving a car, or summarizing the state of the world economy, or translating a menu from Chinese to French, traditional software is lacking. Artificial intelligence techniques are the most feasible solutions for these problems (and others like it).

More specifically than all of artifical intelligence, I am fascinated by natural language processing, and more specifically still, natural language understanding. Natural language is so unbelieveably important to development of more and more useful computers. We as humans communicate through natural language, we record our history in natural language and we think in natural language, sometimes in a different language than we speak. Ordinary language is arguably one of the reasons humankind has been so successful as a species to date: our ability to communicate our intents clearly with complete strangers has allowed us to spread and work together like no other animal (thumbs clearly helped out too).

But computers, perhaps our most powerful tool as a tool-based species, don't understand natural language. They can't reason about sentences the same way we can. When I talk about computers understanding ordinary language, I explain it to my friends as HAL 9000 or Siri. When I think to myself about computers understanding ordinary language, I think about computers working as therapists, medical researchers, politicians and teachers. Current cancer research is published as long-form text, but the compute warehouses around the world are unable to take advantage of this information and create new insights while we sleep. Congressmen and women might aim to improve the lives of their constituents, but they can't account for everyone. A computer than understands language could listen to every voter's call and read every economics paper published and propose laws unlike anything ever conceived of.

Alexa is not the end-game for artificial intelligence. The benefits of computers understanding natural language are staggering. I want to be part of development of computers that understand natural language.

Most importantly, I love the research process. I have been working on my undergraduate thesis in natural language understanding for over 8 months, while taking classes, then while working over the summer. I am using creating a distantly-supervised dataset of academic writing from arxiv.org to train a model for the Automated Evaluation of Scientific Writing task, which is to predict whether a sentence needs further editing. I've had to take graduate courses, read textbooks on my own time, and squeeze GPU compute time from friends' gaming PCs, all with the goal of producing something new for someone else to read and gain a little bit of inspiration for their next project.

I'm a computer science student who interned at GE Digital and Microsoft. I created a mobile app with friends to sell student football tickets, which transferred $165K worth of tickets between 7K students. I love software engineering, but only when it's supporting something important, like bettering humanity by teaching computers to understand natural language.

I lived in Switzerland for nearly 3 years, learning a second language (German) when I was 14. I continued that study with a German minor because languages fascinate me: the differences in grammar, the history of vocabulary, the nuances of slang and how a language changes over time is all so interesting to me. My passion for language lends itself well to understanding music as well: rap lyrics need to tell a story while rhyming, and having a consistent rhythm, and using vocabulary that makes the rapper a concrete person, rather than a voice on a speaker. Seeing how lyricists change English (or German) grammar to fit their stories into these constraints is another component of language that interests me.

Gathering information about a topic and compiling it down until it's easily understood, then taking that new kernel of information and expanding it until it's valuable is amazing. I feel incredibly lucky to have the opportunity to work on natural language understanding research, and I want to continue that at Carnegie Mellon.