Disseminating knowledge and empowering students are the two elements I find most fulfilling in my role as an educator. My teaching and mentoring philosophy is informed by my experience as a student and teaching assistant at four different institutions, and by my conviction that education should be accessible to everyone.

Teaching

I am qualified to teach the following traditional courses:

- Introductory courses on programming, data science, and artificial intelligence (AI);
- Courses related to natural language processing (NLP) and human-AI interaction;
- Research methods course, covering literature review, research design, experiment, and scientific writing.

Related to my research, I would love to offer or co-develop the following courses if the opportunity arises:

- ***Design Studio for Interactive AI Systems:*** In this studio course, students ideate and rapidly prototype AI-powered applications in the first half, and critique and improve the applications in the second half. Homework consists of structured brainstorming and teamwork on design and implementation projects. At the end of the course, students showcase their applications to the public in a demo session. This course will incorporate insights from my current and future research, along with my learnings as a teaching assistant handling final projects for a 500-student NLP course at Stanford.
- ***Large Language Models (or Foundation Models):*** This graduate-level course aims to explore the latest research on large language models, or foundation models [Bommasani et al., 2021]. Modeled after *Large Language Models (CS324)* at Stanford, students will learn the fundamentals about the modeling, ethics, and systems aspects of large language models, evaluate and build large language models via mini-projects, and discuss the latest papers on this topic. Students will gain a strong understanding of the opportunities and risks of large language models, as well as a skillset to build and critique large language models. Being a co-author of Bommasani et al. (2021), I am well-positioned to teach this course.
- ***Writing with AI:*** This interdisciplinary course probes topics in writing and key techniques in NLP to investigate the opportunities and risks of AI-assisted writing. Students will get hands-on experience with a wide range of AI-powered writing assistants like CoAuthor [Lee et al., 2022] to write various types of text, understand how these systems work, analyze when and how these systems succeed and fail, and consider the implications for society. Given that I am a member of the academic community focusing on the emerging and rapidly evolving research area of AI-assisted writing [In2Writing, 2022], I am uniquely qualified to deliver this modern course.

Experience. I participated in the Preparing Future Professors program at Stanford, which pairs Ph.D. students with faculty at nearby teaching-oriented community colleges. Through this program, I shadowed Professor Eric Reed at Foothill College during lectures, office hours, department meetings, and other service work-related meetings. By giving a lecture in one of his classes, *Foundations of Computer Programming (CS49)*, I learned how to effectively introduce programming concepts through concrete examples and analogies (e.g., syntax errors are just like spelling errors) for introductory classes. Moreover, it was a formative experience to **give a lecture to a small class with ten students of diverse backgrounds** (e.g., high school students, professional chefs, and grocery store managers) and to cater to their needs.

At Stanford University, I served as a **teaching assistant** for *Natural Language Processing with Deep Learning (CS224N)* with **more than 500 students**. The class had two options for the final project—default (students tackle a predefined task) and custom (students choose their own project). I oversaw the implementation of the default project (done by 200+ students) while **supervising 13 student teams** for the custom project. Each team consisted of one to three undergraduate or Master's students, and I worked closely with each team on their problem formulation, experiment, and presentation for three months.

In the past two years, I gave multiple **guest lectures** on the topic of *Writing with AI*, as part of *AI Summer School* at Seoul National University (SNU), *Human-AI Interaction Design Research (INFO4940)* at Cornell University, *Special Topics in Machine Learning (AI599)* at Korea Advanced Institute of Science & Technology (KAIST). In these lectures, I prioritized delivering concepts in digestible ways, by connecting to students' experiences, demonstrating with examples, and engaging with participation and discussion. I also shared the limitations of current technology and the ethical considerations of AI-assisted writing. Several students reached out to me after the lecture to further discuss research ideas, and I am currently advising one of them on their projects.

Philosophy.   Here, I summarize my three principles and explain how I plan to incorporate them into the proposed courses. First, I use **hands-on experiences** to facilitate critical thinking. I want students to pay attention to what they observe and form hypotheses based on their observations. In the *Writing with AI* class, students interact with various AI-assisted writing assistants and discuss their pros and cons and potential implications. Second, I encourage **student research** through class projects. Students learn best by doing, and working on research projects gives them first-hand experience with the scientific process. Therefore, through classes like the *Design Studio for Interactive AI Systems*, I hope to immerse students into an intensive development process. Third, I always seek **creative ways** to foster student learning and engagement. For example, for the *Large Language Models* class, I will use a flipped classroom format, where students read and view lectures outside of class, and then come to class to discuss the material. In the *Writing with AI* class, I will encourage students to participate in a writing competition (e.g., Reedsy Prompts Weekly Writing Contests) to boost student engagement.

Mentoring

Experience.   During my Ph.D., I mentored students via group and one-on-one mentoring. For group mentoring, I mentored **15 Postdocs, Ph.D. students, and Master's students** on my project as a team lead, where I supervised and supported the overall design and experiment of the project for a year, which led to a flagship paper from Stanford Center for Research on Foundation Models. For one-on-one mentoring, I mentored **4 students**:

- **Yewon Kim** (*Master's student*, KAIST): I have been mentoring Yewon for half a year on her project on AI writing assistants for non-native English speakers, guiding the design of the project and experiments.
- **Tianyi Zhang** (*Ph.D. student*, Stanford): I mentored Tianyi on his project on template-based generative models, supervising the human evaluation portion of the project. The preprint of the paper is on arXiv.
- **Alexander Iyabor** (*Undergraduate student*, Stanford): I hired Alexander through the Stanford CS Summer Undergraduate Research Program. I guided him in building baselines for contextual thesaurus systems, leading us to co-author a paper published at NAACL.
- **WenXin Dong** (*Undergraduate student*, Stanford): I mentored WenXin's class project for three months and continued mentoring her and provided career advice in the following year. I also participated in the Ph.D. Information Session by Stanford Women in CS as a panelist, upon WenXin's request.

Through these experiences, I learned the importance of setting explicit expectations, communicating clearly with students, and tailoring my interactions to each student based on their needs, abilities, and backgrounds.

Philosophy.   First and foremost, I prioritize the **long-term growth** and **well-being** of students. I encourage students to work on their weaknesses even though it might not be the fastest way to get results in the short term. Second, I believe that each student has the **potential to become a great researcher**. I consistently encourage students to think independently and guide them to form more polished ideas. Lastly, I provide **constructive feedback tailored to each student**. By providing detailed, personalized, and organized feedback that is easily digestible, I strive to show care for their growth and reinforce the positive changes they make.

References

[Bommasani et al., 2021] Rishi Bommasani and 113 others, including **<u>Mina Lee</u>** (§2.5 Interaction: Joon Sung Park, Chris Donahue, **<u>Mina Lee</u>**, Siddharth Karamcheti, Dorsa Sadigh, and Michael Bernstein; §5.5 Economics: Zanele Munyikwa, **<u>Mina Lee</u>**, and Erik Brynjolfsson). On the Opportunities and Risks of Foundation Models. *Preprint.*

[Lee et al., 2022] **<u>Mina Lee</u>**, Percy Liang, and Qian Yang. CoAuthor: Designing a Human-AI Collaborative Writing Dataset for Exploring Language Model Capabilities. In *Conference on Human Factors in Computing Systems (CHI) 2022.*

[In2Writing, 2022] Ting-Hao 'Kenneth' Huang, Vipul Raheja, Dongyeop Kang, John Joon Young Chung, Daniel Gissin, **<u>Mina Lee</u>**, and Katy Ilonka Gero. The First Workshop on Intelligent and Interactive Writing Assistants (In2Writing). In *Association for Computational Linguistics (ACL) 2022.*