## Getting Started with Large Language Models for the CS Curriculum<sup>\*</sup>

Conference Workshop

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With the introduction of ChatGPT in late 2022, popular interest in languagebased Artificial Intelligence has exploded. Employers are looking to hire computer scientists who can leverage large language models (LLMs) [2], and student demand for learning about them at many higher education institutions has followed. This one-hour workshop will help computer science educators respond to this demand by introducing the Python *transformers* library and its associated LLM ecosystem [1]. We will discuss how LLMs can be integrated into college computer science curricula from CS 1 through advanced courses in Artificial Intelligence, Machine Learning, or Natural Language Processing. Specific topics include

- Using the *transformers* library with pre-trained models for inference tasks like sentiment analysis, text classification, summarization, translation, and question answering in *only a few lines of code*
- Searching for and using hundreds of thousands of different pre-trained language models hosted by Hugging Face along with datasets that they can be tested on
- Utilizing conversational models to build chat bots

Furthermore, we will briefly discuss the process for fine-tuning LLMs on new data sets and share the following resources:

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- Example code for fine-tuning LLMs on new data sets suitable for using with upper-level CS courses
- A repository with code and presentation materials for an undergraduate Natural Language Processing course that utilizes the tools discussed in this workshop
- Additional resources for continued learning about LLMs.

All code for the workshop can be run using free, cloud-based tools, so attendees need not prepare anything other than bringing an Internet-connected laptop.

## References

- Hugging Face. Transformers. Accessed: December 12, 2023. URL: https: //huggingface.co/docs/transformers/index.
- [2] Chloe Taylor. Gen Z is set to capitalize on AI skills gap as workers want to learn, but businesses aren't teaching, finds new report. *Fortune*, May 2023. Accessed: December 12, 2023. URL: https://fortune.com/2023/09/05/ai-skills-gap -randstad-research-gen-z-chatgpt-bard-training-llm-generative-ai-s alary-jobs/.