“What’s conversational AI?”
with MIT App Inventor and Amazon Alexa
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Abstract
This work aims to democratize conversational AI technology. Currently, MIT App Inventor’s block-based coding tools empower anyone to develop their own mobile apps. Soon, users will also be able to program their own Alexa skills, conversational AI, and neural networks using blocks. Through middle school workshops, research questions, such as “Can students learn about the capabilities, limitations and implications of AI through developing conversational AI mobile apps?”, will be explored.

Background
MIT App Inventor
- Tool for anyone to develop mobile apps
- Block-based coding, a visual way to program

Conversational AI
- Rule-based AI (e.g., question/answer)
  - Control blocks (e.g., IF statement block)
  - Generative AI (e.g., deep learning)
  - Machine learning blocks (e.g., LSTM block)

Amazon Alexa skills
- Voice User Interface defines user interaction
- JSON on Alexa Developer Console
- Endpoint function defines backend action
- Node.js JavaScript on AWS Lambda

Conversational AI Blocks

Machine Learning Blocks
Long Short-Term Memory (LSTM) Extension
- Generative AI using text as input
  - E.g., Nietzsche-esque text generation
  - What dream the will to the origin of the self-diver in the love the sees and an according to the self

“Look” Extension
- Visual classification network with MobileNet
- Give Alexa “eyes”

Curriculum
- Incredible growth in AI over the past 10 years
  - What will the next 10 years look like?
  - How can we prepare students for this future?
- Teach skills for the future of work
  - What is AI?
  - What are AI’s limits and capabilities?
  - How can we use AI to do good?
- Teach high-level AI concepts
  - What is rule-based AI?
  - What is machine learning?
  - What is generative AI?
- Explore research questions
  - With reasonable abstraction, can students develop conversational AI applications?
  - Can students learn about the capabilities and implications of conversational AI through conversational AI app development?