Practicing conversation strategies with student customizable Neural-Network AI conversation partners

•••

Andria Lorentzen & Euan Bonner
Kanda University of International Studies

神田外語大学
Kanda University of International Studies

Andria Lorentzen
Senior Lecturer @
English Language Institute
@ Kanda University of
International Studies

Euan Bonner
Technology Researcher @
Center for Learning and
Teaching Innovation (LTI)
@ Kanda University of
International Studies

神田外語大学
Kanda University of International Studies

Contents

- Overview of the project
- What is neural-network artificial intelligence?
- How our AI conversation partner works
- Quick demonstration
- Share student creations
- Takeaways

Project Overview

- Activity for university freshman EFL students
  - Freshman English course (communication focused)
- Using a powerful Artificial Intelligence called OpenAI
- Activity where students could:
  - Create their own custom AI conversation partner
  - Speak with it to practice their communication skills and conversation strategies
- Evaluate for possible use in English Practice Area in the future

Common AI Conversation Agents

Online Chat-bots & AI voice assistants typically:

- Use stock hand-written responses to inquiries
- Ask questions then repeat the user's answer when asked same question by another user
- modify set phrases with specific requested information

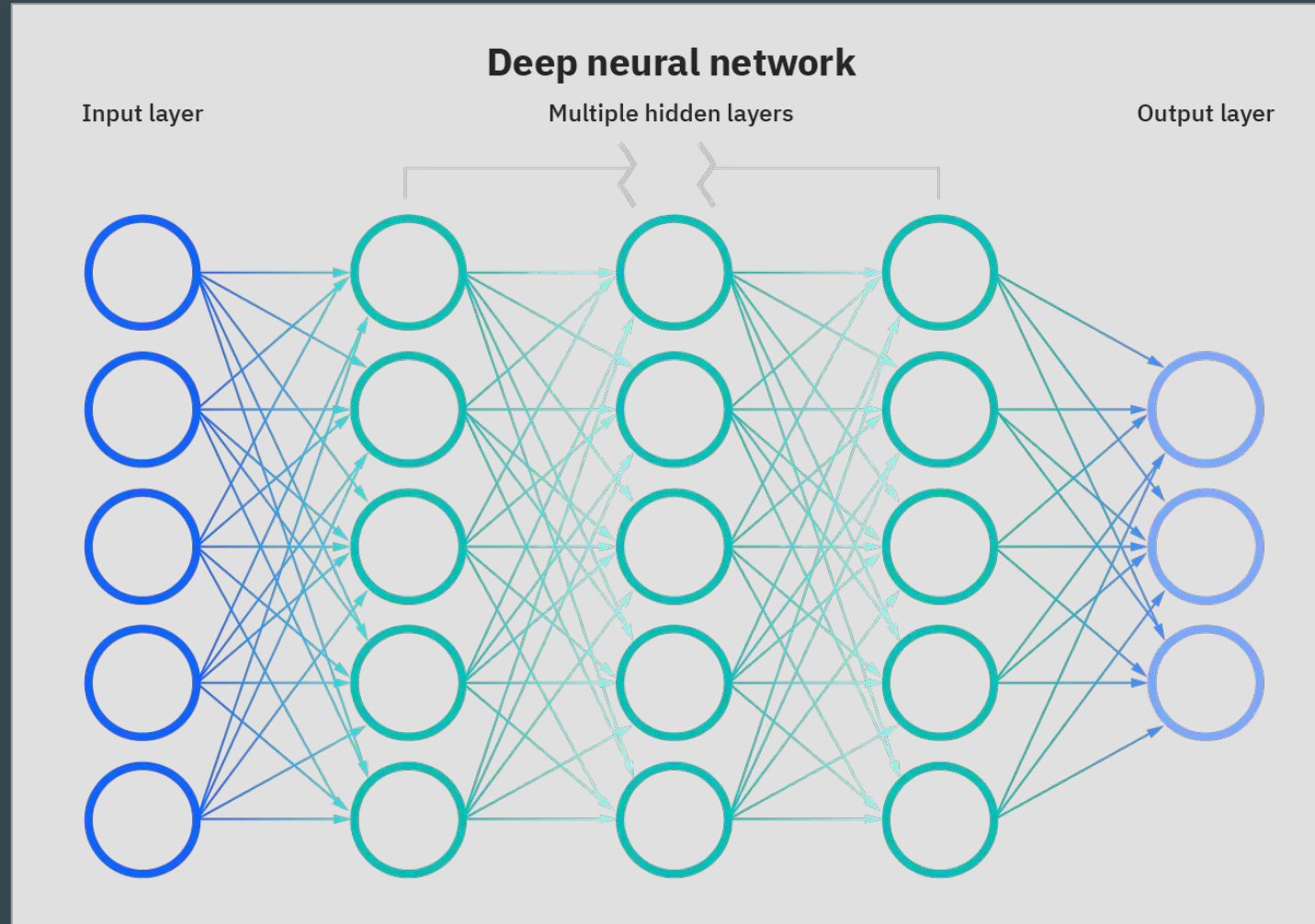Small Talk Customization Progress

📁 About agent

QUESTION	Who are you?
ANSWER	1 Enter a Answer

QUESTION	How old are you?
ANSWER	1 I don't know, never really checked.
	2 Enter a Answer variant

Neural Network AI

Neural Networks operate differently. OpenAI, a GPT3 AI:

- Has a massive repository of data that it draws from:
  - 8 years of (filtered) web crawling
  - millions of books
  - Every Reddit post with 3+ upvotes
  - English Wikipedia pages
- Context connections are formed between all the words much like a human brain

Deep neural network

Input layer

Multiple hidden layers

Output layer

OpenAI Text Completion Examples

Playground   Load a preset...

Write a unique story about the relationship between a peach and a cactus.

The two unlikely friends met one day when the peach rolled off the tree and landed next to the cactus. The cactus didn't think much of the peach at first, but the peach was determined to become friends. The peach tried to give the cactus a hug, but

- Green highlighted text = AI generated text completion

Text Completion Examples

Playground   Load a preset...   Save

This is a conversation between an old British man and an young American woman. The American woman loves to give detailed answers.
British man: Do you like cheese?
American woman: Oh, I love cheese! I could eat it all day long. There are so many different types of cheese, and they all have their own unique flavor. I especially love sharp cheddar and Gouda.

British man: Wow, you really know your cheese! I'm impressed.

- Green highlighted text = AI generated text completion

Our AI Conversation Partner

- Self-developed application using OpenAI as the 'brain'
- 101 avatar choices
- Male/Female voices
  - US, UK, Australian & Indian accents
- Fully customizable:
  - Name
  - Gender
  - Nationality
  - Appearance
  - Occupation
  - Life History
  - Hobbies
  - & Other Information

How it works

- Student holds down button while speaking →
- Speech sent to Google "speech-to-text" server →
- Google returns text →
- Send text + AI personality to OpenAI server →
- OpenAI returns AI response text →
- OpenAI text + accent & gender information sent to Google "text-to-speech" server →
- Google returns sound file →
- Play sound file + display text on screen + tell avatar to play "speaking" animation
- Whole process between 2-3 seconds, but depends on speech length and connection speed

What it can and can't do well

- Good at answering questions and maintaining a conversation about a specific topic
- However, it prefers to give an answer that is creative rather than truthful
- Great with general conversation
- Has a memory limit of only ten interactions due to expense
  - OpenAI + Google Cloud = Around $5 per activity
- Sometimes it goes "off-script" and describes processes and information that are not relevant.

Brenda

Enter your student

Search

Create a

Debug

Hello, I'm Brenda.

Demonstration

Name: Brenda

Gender: Female

Accent: Australian

Avatar: metalhead

Occupation: student

Life History: She was born in London in 2003. She moved to Japan in 2020 to study Japanese at Kanda University of International Studies in Chiba. She lives in Makuhari in a small apartment near the train station. She wants to be a translator when she graduates from university next year.

Hobbies/Interests: cooking, fishing and hiking

Other Information: She's a friendly person who asks a lot of questions. She's smart and only says positive things. She doesn't like to say negative things about her university.

Demonstration

Name: Craig

Gender: Male

Accent: Australian

Avatar: mummy

Occupation: ancient evil monster

Life History: He feasts upon the souls of the damned. He is immortal. He is bound by a fleshly frame, but his eternal soul burns for release. He enjoys tormenting mortals.

Hobbies/Interests: He thinks kittens are cute.

Other Information: He cares not for your pitiful, insignificant concerns. He loves the anguished screams of his victims. His home is a realm of madness and eternal torment.

Our Classroom Activity

Purpose: give students a novel way to practice speaking and listening in class, using artificial intelligence

- Give students the opportunity to create their own unique conversation partner
- If positive response consider adding to English Practice Area for students to practice with outside of class

Procedure: 3 day activity.

- Day 1: Orientation and AI personality creation (in pairs),
- Day 2+3: Conversation practice (in pairs)

Our Classroom Activity: Day 1

Teacher demonstrated

In pairs, create conversation partner using worksheet

- What is your conversation partner's occupation?
- Write 4 sentences about their life so far.
- What are your conversation partner's hobbies?
- etc.

(we checked, and edited, prepared for use in the next class)

	Example	Your Answer
Who is in your team?	Andria, Euan	Aika, Maaya
Team number?	2	1
What is the name of your conversation partner?	Grib	Emily
Is your conversation partner male or female?	Male	Female
What nationality is your conversation partner? *Please choose from the following:* Australian, British, American, Indian	Australian	American
Choose one of the following avatars: actionhero, astronaut, basketball_player, boxer, business, carpenter, casual, chef, claus, clown, construction_worker, cyclist, dentist, doctor, eskimo, explorer, farm, fire, hazard, judge, lumberjack, mechanic, metalhead, mummy, naval_officer, ninja, paramedic, pilot, pirate, plumber, police, post, prehistoric, reporter, scientist, skate, soldier, sumo, superhero, swimsuit, tennis, viking, weightlifter, yeti, zombie	construction_worker	business

What is your conversation partner's occupation? *Note: "student" can also be an occupation*	Garbage collector	Marketing
Write four sentences about their life so far. *Please write in full sentences, 3rd person.* E.g. When and where was your conversation partner born? Where has he/she traveled? Where/what did/does he/she study? Relationships? Family? Where does he/she live now? What does he/she want to do in the future?	He was born in Australia in 2000. He went to Japan once on homestay and studied Japanese in Osaka in 2016. Now he studies at the University of Sydney. His major is economics. He has a girlfriend. He wants to start his own business.	She was born in Chicago in 1998. She moved to France to do some work on fashion. She loves fashion. She has a French boyfriend. She is in trouble communicating with French people.
What are your conversation partner's hobbies? *Please write at least 2.*	surfing, making YouTube videos	take pictures. Upload to Instagram. Hang out with her friends.
What kind of person is your conversation partner? (I.e. Personality) *Please write in full sentences, 3rd person.*	He's talkative and funny and is very cool.	She is smart and friendly.
Please choose a question and copy the question into the box? How are you? What did you do yesterday? What will you have for dinner?	What did you do yesterday?	What did you do yesterday?

Our Classroom Activity: Days 2 + 3

- Each pair had 10 minutes to chat with their AI conversation partner
- Unstructured, free conversation
- Practice conversation strategies from class:
  - ask questions
  - avoid silence
  - change the topic
  - etc.
- Practice speaking skills in a novel way

Three application windows side by side, each titled "AI Conversation Partner".

Ash

5

Search   Create a character...

Debug   Teacher Mode

Do you like anime?

Bob

7

Search   Create a character...

Debug   Teacher Mode

What's your favorite animal?

Lily

8

Search   Create a character...

Debug   Teacher Mode

What's your favorite food?

Our Classroom Activity: Examples

Moona

- Superhero
- Loves eating, sleeping, singing, cleaning the earth, taking pictures
- She is kind, cute, and powerful.

Ella

- Professional figure skater
- Loves skating, fashion, dancing, anime
- Cheerful and kind.

Lily

- Japanese food chef
- Loves watching Japanese animations, cooking, walking and eating
- She is brave, passionate, and charming.

Project Takeaways

- Activity went well: students understood activity concept and how to create personality.
- Activity needs tweaking:
  - Some students nervous, didn't know what to ask
    - Students need to prep conversation topics and questions.
  - AI needs to become a more proactive listener and ask more questions too
- Students want to test the limits of the system and try to break it with impossible questions
- Key takeaway:
  - Students need a clear conversation goal and how to achieve it

Conclusion

- Customisable AI is becoming more and more accessible
- This is just one of the ways Neural Network AI can be used in language education
- AI isn't just something to be interacted with, it can also be created and customised to our classroom needs, often by the students themselves.

THANK YOU

ResearchGate link for more CALL projects

Bonus student example

Name: Keiko Supreme Thunderstorm Thunderbolt Skywalker Elizabeth Takeda

Gender: Female

Accent: British

Avatar: superhero

Example Question: What will you have for dinner?

Example Answer: I want to eat Cheese Dak-Galbi with my son Koyo.

Occupation: carrot seller

Life History: She was born in Indonesia in 1456. She can fly. She went to Britain. She has been fighting to protect British citizens from corrupted politicians. She has a boyfriend who is called Shoki.

Hobbies/Interests: Egosurfing, killing evil politicians

Other Information: She doesn't like communication. She is always calm.

Keiko Supreme Thunderstorm Thunderbolt Skywalker Elizabeth Takeda

Redo   Push and hold   Reset Memory

12

Debug   Search   Create a character...

Hello, I'm Keiko Supreme Thunderstorm Thunderbolt Skywalker Elizabeth Takeda.