

Vocational English IV
(Mesleki Yabancı Dil IV)
Week 2

27.02.2024



Engineering Faculty
Computer Engineering

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INTRODUCTION

WHY ENGLISH?

- Common language in tech
- Unlock global opportunities
 - Job **opportunities** worldwide
 - International **collaboration**
- Access **cutting-edge** knowledge
 - Learn from the best
- Share your ideas worldwide
- What else?

RESEARCH QUESTION!

What does **`lingua franca`** mean?

IMPORTANCE OF COMMUNICATION IN CE

- Communication is **essential** for collaboration and teamwork in computer engineering projects.
- Effective communication can help to **prevent** misunderstandings and errors.
- Clear and concise communication can improve **efficiency** and **productivity**.
- Poor communication can **lead** to negative **consequences** (e.g., project delays, **conflicts**, lost opportunities).

HOW TO LEARN ENGLISH!

5 ways to learn English faster



Listen,
watch, and
speak
English
often!

**Surround yourself
with English**



**Dedicate time
to study**

Study on
your own or
with a
teacher



Be confident

Don't be afraid to
make mistakes!



Think in English



Use the
language
everyday!

Practice

NEWS RESOURCES



Hacker
News



WIRED

webrazzi

ACADEMIC RESOURCES



GRADING DISTRIBUTION

Grading Distribution:

1 Midterm Exam(%30),
1 Presentation(%20),
1 Final Exam(%40),
Attendance(%10-Extra),
Quizzes(%10)

STRUCTURE OF THE CLASS

<https://news.ycombinator.com/>

- QUIZES
- WEEKLY ARTICLE
- PRESENTATIONS BY YOU
- LISTENING

PRESENTATIONS

- 88 Students
- 8 Students per week
- **Find an article that is on top 20 of HackerNews, read it and present it in 5 minutes.**
- <https://news.ycombinator.com/>
- Check out course website for your place.

This is worth %20 percent of the total grade!

EXAMPLE PRESENTATION-1

Fire Red Agent

LLM Plays Pokémon:

Presenter: Zeynel Abidin KAYA

Link/Reference:

LLM plays Pokémon (open sourced) GitHub Link

https://github.com/adenta/fire_red_agent

Hacker News new | past | comments | ask | show | jobs | submit

1. ▲ **TypeScript types can run DOOM [video]** (youtube.com)
611 points by franky47 5 hours ago | hide | 161 comments
2. ▲ **Show HN: LLM plays Pokémon (open sourced)** (github.com/adenta)
72 points by adenta 2 hours ago | hide | 23 comments
3. ▲ **Cross Views** (moultano.wordpress.com)
87 points by moultano 3 hours ago | hide | 78 comments
4. ▲ **Replace OCR with Vision Language Models** (github.com/vlm-run)
65 points by EarlyOom 2 hours ago | hide | 21 comments



The Link to article: https://github.com/adenta/fire_red_agent

EXAMPLE PRESENTATION-2

Introduction



Project Goal

The goal of this project is to utilize a large language model (LLM) to autonomously play Pokémon FireRed. By leveraging the capabilities of AI, we aim to create a system that can navigate the game environment and make decisions just like a human player.



Combining Retro Gaming with Modern AI Techniques

This project represents a unique intersection of retro gaming and modern artificial intelligence techniques, showcasing how traditional gaming experiences can be enhanced through innovative technology.

The Link to article: https://github.com/adenta/fire_red_agent

EXAMPLE PRESENTATION-3

Project Motivation & Vision



Vision Statement

Our vision is to redefine the future of television by producing interactive experiences powered by AI, where viewers can engage with content in a dynamic and immersive way.



Motivation

The motivation behind this project lies in pushing the boundaries of game automation and exploring the immense potential of large language models in gaming contexts. We seek to understand how AI can enhance gameplay experiences.



Context

This project ties into the growing field of AI-driven gaming automation, highlighting the increasing relevance of AI technologies in creating more engaging and responsive gaming environments.

The Link to article: https://github.com/adenta/fire_red_agent

EXAMPLE PRESENTATION-3

AI and LLM Integration

Game Text Parsing

To effectively interact with the game, we capture screenshots and process them using Optical Character Recognition (OCR) to interpret in-game text. This allows the AI to understand the game state and make informed decisions.

LLM Decision Making

The integration with OpenAI's GPT-4o enables the AI to utilize structured game data, including current location, available actions, and memory. By employing frequency and presence penalties, we encourage the model to exhibit varied behavior, making the gameplay more dynamic and engaging.

The Link to article: https://github.com/adenta/fire_red_agent

EXAMPLE PRESENTATION - 4

Technical Architecture

Emulator Integration

The system runs Pokémon FireRed via RetroArch, utilizing OSA Script (AppleScript) for keyboard events. This approach addresses challenges with RetroArch's UDP input, ensuring seamless interaction with the game.

Memory & Data Handling

The game state is stored in a database, functioning as a "diary" of the AI's experiences. The most recent 250 entries are utilized to guide the AI's decision-making process, allowing it to learn from past actions.

Navigation & Pathfinding

To navigate the game world effectively, the AI extracts map data from game memory and employs a pathfinding algorithm to determine walkable paths, ensuring efficient movement throughout the game.

The Link to article: https://github.com/adenta/fire_red_agent

EXAMPLE PRESENTATION-5

Handling In-Game Challenges

Battle Handling

In battles, the AI implements a simple strategy that primarily involves pressing the "A" button. If battles stall, it introduces random inputs to maintain engagement and progress.

NPC Interactions

The AI uses OCR to detect dialogue progression with non-playable characters (NPCs). It decides whether to continue conversations or move on based on the flow of in-game text, enhancing the interactive experience.

Key Technical Hurdle

A significant technical hurdle encountered was the reliance on keyboard-based input via OSA Script, which required the emulator to be in focus. This limitation restricted multitasking capabilities during gameplay.

The Link to article: https://github.com/adenta/fire_red_agent

EXAMPLE PRESENTATION – 6

Reflections & Future Directions

Project Impact

The development process has been a blend of fun and frustration, providing valuable insights into the integration of AI with gaming.

Future Improvements

Looking ahead, potential enhancements include optimizing input control and exploring alternative automation methods to improve gameplay efficiency and responsiveness.

Invitation

We invite contributions and further experimentation to push the boundaries of AI in gaming, encouraging collaboration and innovation within the community.

The Link to article: https://github.com/adenta/fire_red_agent

EXAMPLE PRESENTATION-7

THANK YOU FOR LISTENING MY AMAZING PRESENTATION
Z.A.K.

Harran University Computer Engineering Department

The Link to article: https://github.com/adenta/fire_red_agent
<https://www.linkedin.com/feed/update/urn:li:activity:7300593201092919296/>

CAUTION!

- PLEASE REMEMBER THIS IS JUST AN **EXAMPLE** SLIDE SHOW. YOU CAN PICK ANY EFFECTIVE PRESENTATION METHOD TO CONVEY YOUR MESSAGE.
- IF YOU THINK YOU CAN PRESENT WITHOUT A PRESENTATION, THAT COUNTS AS WELL BUT WE WILL ASK YOUR AUDIENCE IF THEY GOT THE IDEA!

TED TALKS

- **The 3 Magic Ingredients of Amazing Presentations | Phil WAKNELL | TEDxSaclay**
- https://www.youtube.com/watch?v=yoD8RMq2OkU&ab_channel=TEDxTalks

-



To exit full screen, press **esc**



CONOR NEILL

- **How to Start a Speech- Conor Neill**
-
- <https://www.youtube.com/watch?v=w82aIFT5o88>
-

WORDS OF THE WEEK

- Autonomously
- Integration
- Rudimentary
- Programmatic
- Emulator
- Memory Management
- Navigation
- Pathfinding
- Algorithm
- Extraction

- Structured
- OCR
- Observability
- Automation
- Experimentation
- Paradigm
- Methodologies
- Implementation
- Technical
- Capabilities



EOF*

*End of Fun/File

REFERENCES / CREDITS

I - Hacker News: https://github.com/adenta/fire_red_agent