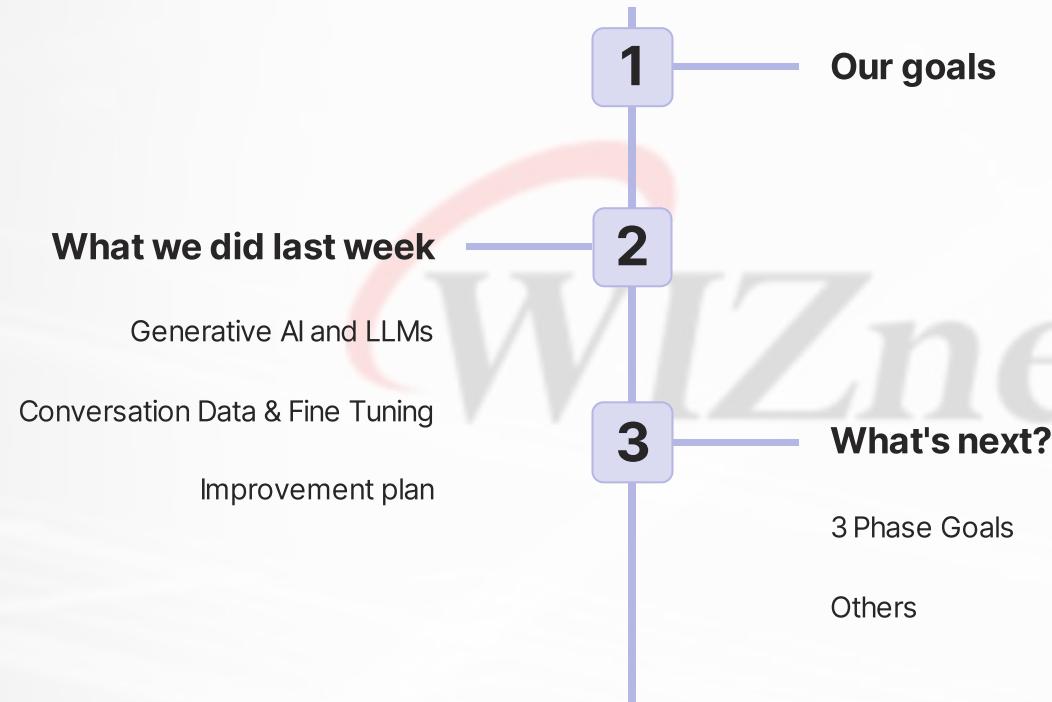




AI Chatbot Trainers

Gunn Simon Benjamin

Contents

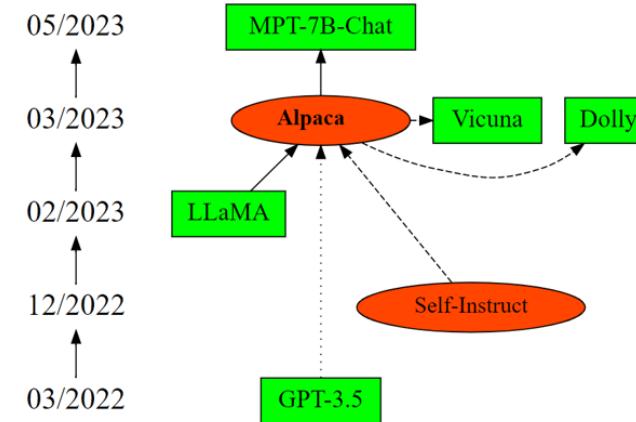
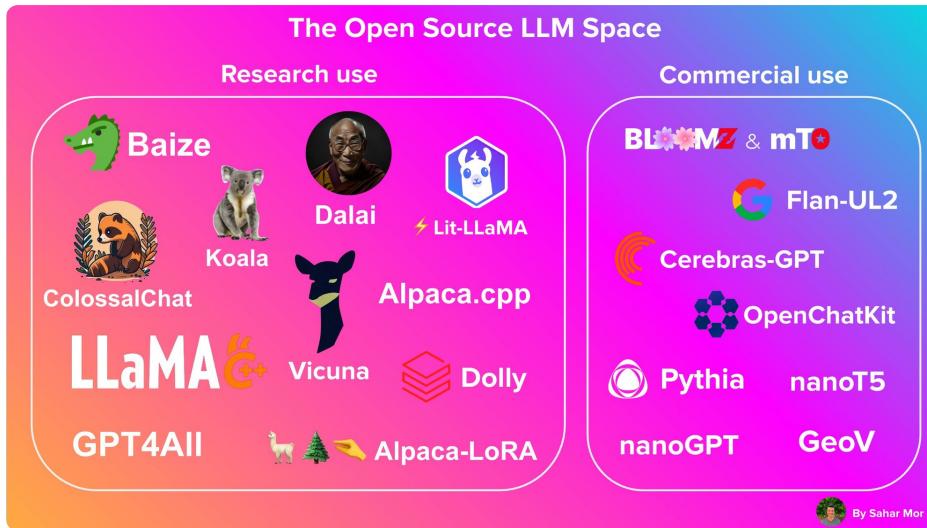


Our Goals



Development of Chatbot System for Real-time Response in Wiznet Forum

Generative AI and LLMs



<https://ai.v-gar.de/ml/transformer/timeline/>



Open Source



self-Instruct from text-
davinci-003(175B)



Reproduce data and train models at a fraction
of the cost and time (7B)



Conversation Data & Fine-Tuning



Database

Generated a set of **6,918** conversations about the **W5100** and **W5500** from 5600 questions and 22,000 conversations in the forum.

Train & Test

Fine-tuning the Alpaca-7B model
No meaningful results without data preprocessing

Improvement Plan

- Preprocess **W5500** chip data to generate quality data
- Perform fine-tuning with the generated data to check performance
- Once significant performance results are obtained for the W5500, data preprocessing for other products is performed.
- Expect new models with better performance to be released during the data generation period

What's next?



Refined direction after developer meeting

Phase 1 : Basic Chatbot with ChatGPT

1 Objective

- Design a simple chatbot to offer answers to common questions in the Forum.

2 Method

- Using gpt 3.5 turbo model (\$0.002 / 1k tokens)

3 Pros and cons

- Publicity for utilizing ChatGPT
- Trained through 2021 and may convey misleading information



Phase 2: ChatGPT Fine-tuning

1 Objective

Create Wiznet custom model who are familiar with Wiznet products

- **Start with the W5500 product which ranks #1** with 1,532 out of 12,295 total search keywords / 996 out of 5,801 posts for 90 total products
- The rest of the products will be added

2 Plan

Fine-tuning Davinci model

- par with gpt-3.5-turbo
- Training - \$0.03 / 1k tokens
- Usage - \$0.12 / 1k tokens (60x chatGPT)

Collect and generate Data

- 3,595 QnA set from Forum DB
- Self-Instruction by docs.wiznet.io

Collect and generate Data

WIZnet Developer Forum

Existing members must set a new password through the "I forgot my Click the link to learn more about how to do it!"

[TCP/IP Chip](#) ▶ [W5500](#) ▶ [최신](#) [신규\(2\)](#) [주요](#)

☰ 글

W5500 vs. W5100 / W5200

W5500 No PHY Link

Realtime EtherCAT Master for Raspberry pi using W5500

TCP Example

TCP Server with W5500

☒ W5500 TCP Client CONNECT problem

Generate more example questions and answers for the PDF file I gave you.

Question: What is the voltage requirement for the W5500?

Answer: The W5500 requires a 3.3V power supply. (Source: Page 7)

Question: What are some target applications for the W5500?

Answer: The W5500 is suitable for various embedded applications such as home network devices, serial-to-ethernet devices, parallel-to-ethernet devices, USB-to-ethernet devices, GPIO-to-ethernet devices, security systems, factory and building automations, medical monitoring equipment, and embedded servers. (Source: Page 3)

Question: How many hardware sockets can be used with the W5500?

Answer: The W5500 can support up to 8 independent hardware sockets that can be used simultaneously. (Source: Page 2)

Question: What are the pin types and notations for the W5500?

Answer: The pin types and notations for the W5500 include I (input), O (output), I/O (input/output), A (analog), PWR (3.3V power), GND (ground), TXN/TXP (transmit negative/positive), RXN/RXP (receive negative/positive), AVDD/AVSS (analog power/ground), RESETn (reset input), INTn (interrupt output), CLKOUTn/CLKINn (clock output/input), CSn/CSPIIn/CPLDn/CSSPIIn/CSPDIn/CSSPDOn/CSSPDSOn/CSPSIn/CSSPSIn (chip select input/output), and LQFP48 (package type). (Source: Page 7)

Wiznet Developer Forum

Self-Instruction using ChatGPT

Phase 3: Long-Term Planning

1 Objective

Using chatGPT's fine-tune API on an ongoing basis is cost prohibitive.

Develop an optimal, low-maintenance API to replace Wiznet Forums

2 Method

Collected a large amount of meaningful data from WIZnet Forum and Channel Talk, and created a high-quality dataset through a high-level refinement process.

Fine-tuning as a model of the latest, ever-evolving technologies

Others

- Refine plans with a timelines, equipments, etc.
- Prepare for AICE training