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# A Machine With Human-Like Memory Systems

*A Data Management Plan created using DMPonline*

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## **Project abstract:**

Although modern machines are very good at answering factual questions (semantic memory), they aren't good at answering their personal questions (episodic memory). In this project, we explicitly train an agent that has both semantic and episodic memory systems, as we humans do. Our experiments show that such an agent is better at locating objects than otherwise.

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# A Machine With Human-Like Memory Systems

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## 0. General information

### Document version & date

Version 1.0

Date: 21-Nov-2021

### Project title

A Machine With Human-Like Memory Systems

### Project summary

Although modern machines are very good at answering factual questions (semantic memory), they aren't good at answering their personal questions (episodic memory). In this project, we explicitly train an agent that has both semantic and episodic memory systems, as we humans do. Our experiments show that such an agent is better at locating objects than otherwise.

### Your contact details

<https://taewoonkim.com/>

### Please list the other people involved in this project

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**Funding organisation & grant number (if applicable)**

N/A

**Project code (if applicable)**

N/A

**Consulted data management expert(s)**

<https://taewoonkim.com/>

## **1. Data description**

**Will you collect and/or process personal data in this project?**

- No

I create my own data.

**Will you use existing data? If yes, what is their source?**

I create my own data.

**Will you collect or produce new data? If yes, please describe how.**

I create my own data using my own simulator.

It looks something like this: <https://github.com/askforalfred/alfred>

**What kinds of outputs will you produce in this project? Please describe these data assets.**

The data is mock data that an AI will observe while it's interacting with its environment. The simplest case is quadruples (e.g., <Tae's laptop,AtLocation,Tae's desk, now>). Throughout the PhD research, I'll make this environment more complicated by adding additional modalities (e.g., natural language, image, etc.)

The data is processed by the agent itself, using its artificial neural network.

**How much digital data storage will your project require?**

- 0 - 50 GB

**Will you collect physical data? If yes, please describe these.**

Nope.

**Will you take measures to ensure data quality? Please describe these, if applicable.**

I try to make the simulation data that's as close as possible to the real world. In order to do so, I use common sense knowledge (e.g., <https://conceptnet.io/>)

## **2. Legal and ethical requirements, codes of conduct**

**What legislation applies to your research project? Please tick the relevant boxes for your project.**

- General Data Protection Regulation (GDPR)/ Algemene Verordening Gegevensbescherming (AVG)

Nothing really applies though.

**Do you require approval of an ethical committee for this project? If yes, please indicate which ethical committee and whether you have obtained approval for this project.**

- No

**Will you work with data for which intellectual property and/ or confidentiality are an issue? If yes, please describe.**

- No

My data is created by myself, and it will be open-sourced.

**Do you plan on generating a marketable product from your research project? if yes, please describe**

- No

No

### **3. Storage and back-up during the research process**

**What measures will you take to secure and protect data during the research process? Please describe, for each separate data asset you described for question 1.5, how you will ensure data security, where the data assets are stored & backed up, and who has authorization to access the asset.**

The data and the code to generate it will be on github. It will live there forever.

**Is it necessary to transfer the (physical or digital) data assets to other locations or research partners? If yes, please describe how you secure the file transfer.**

- No

### **4. Data archiving and publishing**

**Which data assets will be archived and which will be published?**

It'll be on github.

**Where will you archive your data assets?**

On github.

**For how long will the data be available in the archive?**

Forever on github.

**Where will you publish your data assets?**

github

**How will you ensure your data assets get a persistent identifier (e.g. a DOI-code)?**

github repo.

**Will you register your datasets in an online registry other than PURE? If yes, where?**

github

**Are there restrictions to data publishing? If yes, please specify the reasons and list the data assets you do not wish to share publicly.**

No restrictions.

**When will you share the data? If not immediately after completion of the project, please specify the reasons.**

When I submit my paper.

**Please indicate the license and/ or terms of use under which you share your data.**

Apache License 2.0

## 5. Documentation

**How will you document your project?**

Mostly on github.

**What metadata and documentation will accompany the data assets?**

Apache License 2.0

**What methods, software or hardware are needed to access and use your data?**

Any device that has access to the Internet.

## 6. Data management responsibilities and resources

**Who will be responsible for management of the data assets during the project? Please specify their name, position, role in the project, and faculty/ institution/ group.**

Myself.

**Who will be responsible for management of the data assets after completion of the project (e.g. the project lead/ dedicated data manager/ department head)? Please specify their name, position, role in the project, and faculty/ institution/ group.**

Myself.

**For data that are only available upon request, what methods will be used to handle requests for access and how will data be made available to those requesting access?**

The data is open-sourced.

**What resources (for example financial and time) will be dedicated to research data management? Please estimate their cost.**

It only costs my labor force and electricity for computation. I think it took me about 1 month. But it's not done yet since I'll update the data / code in the next few years.