

# Visual Spatial Reasoning for Large Language Models

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A DISSERTATION

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in partial fulfilment of the requirements  
for the degree of

MASTER OF SCIENCE

# Abstract

This is the abstract of my dissertation. It is a brief summary of the spatial reasoning of LLMs, ChatGPT, Bard, etc.

# Student Declaration

I confirm that I have read and understood the University's Academic Integrity Policy.

I confirm that I have acted honestly, ethically and professionally in conduct leading to assessment for the programme of study.

I confirm that I have not copied material from another source nor committed plagiarism nor fabricated data when completing the attached piece of work. I confirm that I have not previously presented the work or part thereof for assessment for another University of Liverpool module. I confirm that I have not copied material from another source, nor colluded with any other student in the preparation and production of this work.

I confirm that I have not incorporated into this assignment material that has been submitted by me or any other person in support of a successful application for a degree of this or any other university or degree-awarding body.

SIGNATURE \_\_\_\_\_

DATE            September 10, 2023

# Acknowledgments

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# Chapter 1

## Introduction

This project describes the greatest invention since sliced bread, namely twice-sliced bread.

### 1.1 Scope

### 1.2 Problem Statement

### 1.3 Approach

See Fig. ?? for a nice pretty picture that I have included in my dissertation.

### 1.4 Outcome



## Chapter 2

# Background

We base some of our results on the previous work of other authors [?, ?].

## **Chapter 3**

# **Design**

In this chapter, we will outline the design of the software that was developed in this project.

### **3.1 Original design**

The original design document that was submitted can be found in Appendix ???. The idea of that design was as follows....

### **3.2 Changes to original design**

## **Chapter 4**

# **Implementation**

# Bibliography

- [1] A.N. Author. The best paper of all. *Some really good reference* **12**, pp. 100–113, 2003.
- [2] S. omeone. A paper that I wish I'd written. *J. Combinatorics* **34**, pp. 25–78, 1979.

## **Appendix A**

### **Some Interesting Bit of Code**

I might include some particularly interesting part of my code here that is referred to elsewhere in the document.

# **Appendix B**

## **Experimental results**

Here I give details of some experiments that were performed during the course of the project.

### **B.1 Experiment 1**

Some stuff here.

### **B.2 Experiment 2**

Some more stuff here.

## **Appendix C**

### **Original design document**

Here I might insert the original design document for the project, in order to refer to it and changes that I made.