

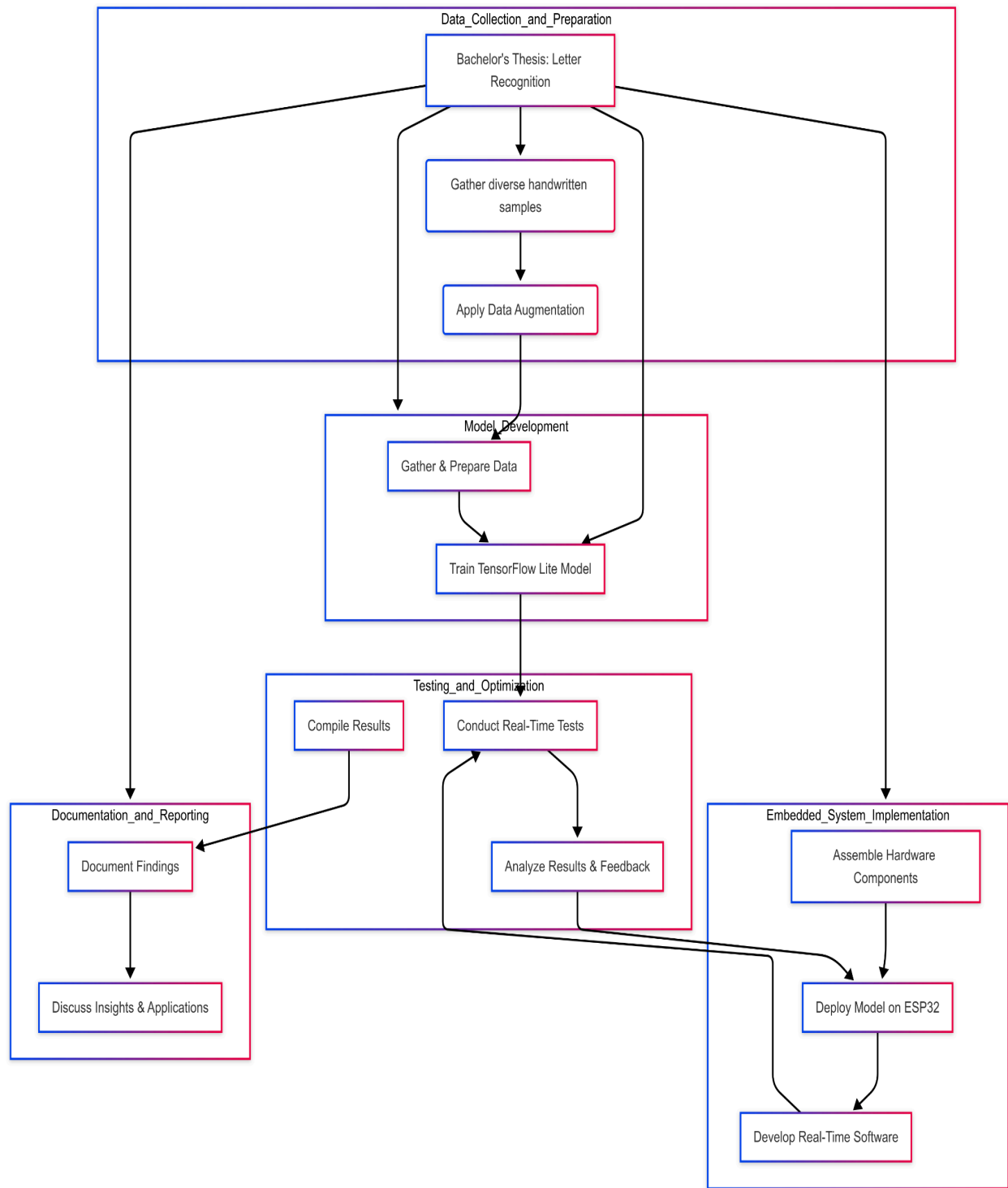
# Problem tree Bachelors Thesis

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## 1 The Problem Tree

This problem tree illustrates the various problems and sub-problems involved in developing a machine learning-based letter recognition system tailored for diverse handwriting. The tree is structured into distinct categories: Model development, Embedded System Deployment, Testing and validation and Documentation and reporting. Each category breaks down into detailed tasks, such as gathering diverse handwriting samples, applying data augmentation if needed, deploying the model on an embedded system (esp32 microcontroller), conducting thorough testing and validation and systematically documenting and reporting the findings.



**Figure 1:** Problem tree illustrating the structured breakdown of tasks and subtasks for developing, deploying, testing and documenting a machine learning-based letter recognition system for diverse handwriting styles on an embedded microcontroller system (esp32).