

Dissertation Outline

"Identifying Depression Through Speech"

Structure based on A-grade Glasgow dissertations (FATA, IDA, GIST)

Front Matter (~2 pages)

- Title page
 - Abstract (~250 words)
 - Acknowledgements (optional)
 - Table of Contents
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Chapter 1: Introduction (~3-4 pages)

1.1 Motivation

- Depression prevalence and impact (global, UK)
- Limitations of current diagnosis methods
- Why speech as a biomarker?
- The gap: interpretability over accuracy

1.2 Aims

- Identify predictive acoustic features
- Compare read vs spontaneous speech
- Provide interpretable analysis

1.3 Outline

- Brief summary of each chapter
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Chapter 2: Background (~8-10 pages)

2.1 Depression and Speech Production

- Cognitive effects of depression
- How cognition affects speech
- Observable speech changes

2.2 Acoustic Feature Definitions

- Fundamental frequency (F0)
- Energy/intensity measures
- MFCCs and spectral features
- Temporal features

- Voice quality measures
- Standard feature sets (eGeMAPS)

2.3 Machine Learning Approaches

- Traditional methods (SVM, Random Forest)
- Deep learning approaches
- Evaluation metrics

2.4 Related Work

- AVEC challenges and DAIC-WOZ
- The ANDROIDS corpus
- Feature importance studies
- The gap this work addresses

2.5 Summary

Chapter 3: Design (~4-5 pages)

3.1 Research Methodology

- Experimental approach
- Justification for methods

3.2 Data Selection

- Why ANDROIDS corpus
- Dataset characteristics
- Ethical considerations

3.3 Feature Extraction

- OpenSMILE pipeline
- eGeMAPS feature set
- Processing steps

3.4 Classification Approach

- Choice of classifiers (SVM, RF)
- Cross-validation strategy
- Evaluation metrics

3.5 Feature Importance Analysis

- SHAP values
- Permutation importance
- Statistical tests

Chapter 4: Implementation (~4-5 pages)

4.1 Development Environment

- Tools and libraries
- Hardware specifications

4.2 Data Processing Pipeline

- Audio preprocessing
- Feature extraction process
- Data storage format

4.3 Model Training

- Hyperparameter selection
- Cross-validation implementation
- Training procedure

4.4 Analysis Pipeline

- SHAP implementation
 - Visualisation generation
 - Statistical analysis
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Chapter 5: Evaluation (~6-8 pages)

5.1 Classification Results

- Overall accuracy
- Per-task performance
- Confusion matrices
- Comparison with baselines

5.2 Feature Importance Results

- Top features (read speech)
- Top features (spontaneous speech)
- SHAP summary plots
- Statistical significance

5.3 Task Comparison

- Read vs spontaneous accuracy
- Feature overlap analysis
- Task-specific markers

5.4 Summary of Findings

Chapter 6: Discussion (~5-6 pages)

6.1 Interpretation of Results

- What the features tell us
- Clinical implications
- Scientific insights

6.2 Comparison with Literature

- Agreement with prior work
- Novel findings
- Discrepancies and explanations

6.3 Limitations

- Dataset limitations (language, size)
- Methodological limitations
- Generalisability concerns

6.4 Future Work

- Directions for extension
 - Recommended improvements
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Chapter 7: Conclusion (~1-2 pages)

7.1 Summary of Contributions

- Main findings
- Research question answered

7.2 Final Remarks

Back Matter

References

- All cited works (BibTeX)

Appendices (if needed)

- Full feature list
 - Additional plots
 - Code snippets
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Page Estimates

Section	Pages
Front matter	2
Introduction	3-4
Background	8-10

Design	4-5
Implementation	4-5
Evaluation	6-8
Discussion	5-6
Conclusion	1-2
References	2-3
Total	35-45

Target: 40 pages (matches Glasgow limit)

Key Differences from Original Draft

Before	After (A-grade style)
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Motivation as chapter	Motivation as section in Introduction
Background = everything	Background = existing work + theory
No clear aims section	Explicit Aims + Research Question
No outline section	Chapter outline included

Updated: February 2, 2026

Based on: FATA, IDA, GIST dissertation structures