

## Guidelines for completing the thesis summary sheet.

The thesis summary sheet provides a checklist of issues that your thesis *should* cover.

Theses vary, so some items in this checklist may not be applicable to your thesis. In this case, you should state “Not Applicable” or “N/A” in the appropriate section, and (if space permits) describe why that section is not applicable to your thesis.

This form must be completed electronically using 12 point fonts. It must not be extended beyond one page.

This summary sheet must not introduce new information that is not covered in your thesis. Indeed, you will likely find that it merely distills information already described in your thesis, and you may be able to complete many sections of this sheet by using text taken verbatim from your thesis (e.g. from the introduction to your thesis).

### Guidelines for specific parts of the summary sheet:

The **Problem Statement** should describe the context of this work, identifying the field of the work, the significance of this field, and limitations of previous work done in this field.

The **Objectives** section should state what you aimed (at the beginning of Thesis Part B) to achieve in the field identified by the problem statement.

The **My Solution** section should summarise the essence of your solution for achieving the previously stated objectives. This section should be highly informative, e.g. if you were to start work again on this topic, then the information in this section should allow you to minimise the time taken to achieve the same results.

The **Contributions** section describes *your* contributions to this work, as opposed to the contributions of your supervisor, other students in your group, and other parties around the world. You list your contributions in order of decreasing significance (i.e. with the most important contribution first) and include no more than one contribution per line. (The Contributions section of the “Thesis Pointers” points to where, in your thesis, these contributions are described in more detail.)

The last section asks you to suggest possible future work that could be done as a future thesis. For example, extensions to your work or alternative approaches.

The “Thesis Pointers” can be used as a checklist of content that should probably appear in your thesis. In the last (“Literature”) section of the Thesis Pointers: In the column on the right, write the reference identifier, as it appears in your references list. In the column on the left, list the pages of your thesis that refer to this reference, with the page where this reference has most impact on your thesis leftmost, and the page with least impact rightmost.

**Thesis title:**

**Topic number:**

**Student Name:**

**Student ID:**

**A. Problem statement**


**B. Objective**


**C. My solution**


**D. Contributions (at most one per line, most important first)**


**E. Suggestions for future work**


While I may have benefited from discussion with other people, I certify that this thesis is entirely my own work, except where appropriately documented acknowledgements are included.

Signature: \_\_\_\_\_

Date: \_\_ / \_\_ / \_\_\_\_

## Thesis Pointers

List relevant page numbers in the column on the left. Be precise and selective: Don't list all pages of your thesis!

	Problem Statement
	Objective

### Theory (up to 5 most relevant ideas)


### Method of solution (up to 5 most relevant points)


### Contributions (most important first)


### My work

	System block diagrams/algorithms/equations solved
	Description of assessment criteria used
	Description of procedure (e.g. for experiments)

### Results

	Succinct presentation of results
	Analysis
	Significance of results

### Conclusion

	Statement of whether the outcomes met the objectives
	Suggestions for future research

### Literature: (up to 5 most important references)


**A. Problem statement**

Although speech processing algorithms are designed with the ‘ideal environment’ in mind, in reality all speech signals are corrupted by noise during practical usage. In order to maximize their robustness against noise, a fundamental component of speech processing methods is an estimator of the presence or absence of speech, hence the need for a voicing activity detector. Existing VAD algorithms provide fair voicing decisions in low noise environments, however their performance degrades severely in low signal-to-noise ratio situations. Thus, the need to develop new algorithms to address this issue is a contemporary and relevant one.

**B. Objective**

Review relevant literature in the field of VAD and speech modeling. Implement at least one commonly used method of voicing activity detection. Propose and implement a new or modified technique for VAD. Compare all methods using a rigorous assessment criterion. Analyse the results obtained and provide conclusions.

**C. My solution**

VAD using LPC
VAD using zero crossing count
Proposed VAD based on perceptual sub-band energies
Proposed VAD based on masked sub-band energies

**D. Contributions** (at most one per line, most important first)

New algorithm developed using filter banks and masking models
Demonstrated efficacy of new algorithm
Novel assessment criterion proposed.
Lower complexity implementation.
Compared novel and existing methods
Error in reference [7] noted.

**E. Suggestions for future work**


While I may have benefited from discussion with other people, I certify that this thesis is entirely my own work, except where appropriately documented acknowledgements are included.

Signature: \_\_\_\_\_

Date: \_\_ / \_\_ / \_\_\_\_

## Thesis Pointers

List relevant page numbers in the column on the left. Be precise and selective: Don't list all pages of your thesis!

5	Problem Statement
15	Objective

### Theory (up to 5 most relevant ideas)

32	The source-filter model of speech production
35	Linear prediction modeling of the vocal tract
40	FFT and filter bank analysis
43	Auditory masking
45	VAD overview

### Method of solution (up to 5 most relevant points)

46	Energy measure
47	Zero crossing rate
48	Linear predictive coding
49-50	Filter banks

### Contributions (most important first)

51-53	New algorithm based upon filter bank methods and masking models
61-66	Demonstrated efficacy of new algorithm
52	Novel assessment criterion proposed.
63	Lower complexity implementation.
40-50	Compared existing methods
46	Error in reference [7] noted.

### My work

51, 52	System block diagrams/algorithms/equations solved
53	Description of assessment criteria used
55-58	Description of procedure (e.g. for experiments)

### Results

61	Succinct presentation of results
63-65	Analysis
66	Significance of results

### Conclusion

71-77	Statement of whether the outcomes met the objectives
78-79	Suggestions for future research

### Literature (up to 5 most important references)

23	[2]	Atal B. and Rabiner L. 1976
19	[5]	Cappé, O. 1994
20	[9]	Ephraim, Y. and Malah, D. 1984
21	[10]	Freeman, D.K, et al 1989
29	[17]	Martin, R., 2001