**深 圳 大 学 实 验 报 告**

**课程名称：­**

**实验项目名称：**

**学院： 电子与信息工程学院**

**专业：**

**指导教师：**

**报告人： 学号：**

**班级：**

**实验时间：**

**实验报告提交时间：**

**教务处制**

Description of format:

* Use Times New Roman, 12 pt, single column, single line spacing.
* When inserting figures and tables, title of the figures and tables must be included.
* Do not change ‘1、Purposes of the experiment’ and ‘2、Design task and detail requirement’.

**1、Purposes of the experiment**

1. Use Matlab to calculate the autocorrelation of some functions, and use the result to solve some typical problems.
2. Analyze the results and give reasonable conclusions

**2、Design task and detail requirement**

See ‘Appendix 1 – Task and requirement for experimental report 2.doc’.

**3、The result and Analysis**

* **Part 1 - Basic 1: (10 points)**

Please provide your code, they must be runnable and output the figure in your report.

1. Plot the signal, and the autocorrelation , and Cross-Correlation .

* **Part 2 - Basic 2: (40 points)**

1. Write your parameter setting here, using a table.
2. Use the autocorrelation to estimate your signal frequency, and explain why it is possible to estimate the signal frequency through autocorrelation. (Hint: write some theory/equations here, together with description or explanation. Equations without description or explanation are not acceptable because no one can understand anything with only equations)
3. For =0.5, 1, 5 (you can try more), plot the figure of Autocorrelation for one run.
4. Test the accuracy of **your estimation of signal frequency** using autocorrelation for **100 independent runs**, show the results using table(s) or figure(s), and give analysis. (Hint: to get a result of **100 independent runs**, you should write a ‘for’ loop)

* **Part 3 – Advance 1:**

**Part A:**

1. Explain your method (add the signals from the 4 microphones with correctly estimated lags) with necessary texts, equations, and/or flowchart.
2. Show the figures under 3 SNR cases (SNR = 30,10,-10dB).
3. Your analysis.

* **Part 4 – Advance 2:**

**TBD**

* **Part 4:Extra**

**TBD**

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| 指导教师批阅意见：  成绩评定：  指导教师签字：  年 月 日 |
| 备注： |

注：1、报告内的项目或内容设置，可根据实际情况加以调整和补充。

2、教师批改学生实验报告时间应在学生提交实验报告时间后10日内。