**Adaptive Array Signal Processing**

**[5SSC0]**

**Assignment Part 1A: Adaptive Algorithms**

**REPORT**

**Group number: 2**

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**Date:**

## 1.2 Scenario 1: Known statistics

### 1.2.1 Wiener filter








### 1.2.2 Steepest Gradient Descent




2. SGD filter update MATLAB code (insert only the relevant lines)

Rx= … ;rex=…;

filter.w=…;

|  |
| --- |
| *Insert plot and comments here* |

### 1.2.3 Newton’s Method

3. Newton filter update MATLAB code (insert only the relevant line)

Rx= … ;rex=…;

filter.w=…;

|  |
| --- |
| *Insert plot and comments here* |

## 1.3 Scenario 2: Unknown statistics

### 1.3.1 LMS and NLMS



filter.w =

|  |
| --- |
| *Insert plot here* |

Tradeoff choosing :



filter.w=

|  |
| --- |
| *Insert plot here* |

### 1.3.2 RLS and FDAF

RLS

FDAF

If is increased, …

If is decreased, …

|  |
| --- |
| *Insert plot here* |

|  |
| --- |
| *Update rules:*  *Insert plot here* |



|  |  |  |
| --- | --- | --- |
|  | Computational complexity | Convergence speed/stability/accuracy |
| LMS |  |  |
| NLMS |  |  |
| RLS |  |  |
| FDAF |  |  |

*Comments*