**Machine Learning for Signal Processing**

**[5LSL0]**

**Assignment 1: Optimum Linear Filters**

**REPORT**

**Group number:**

**Names including ID:  
 1:  
 2:**

**Date:**

## Known statistics

### Wiener filter








### Steepest gradient descent



The gradient descent algorithm goes to a steady state if

2. GD filter update Python code (insert only the relevant lines)

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

### Newton algorithm

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

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

*Comments*

## Unknown statistics

### (N)LMS



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

Trade-off choosing :



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

### RLS

RLS

If is increased, …

If is decreased, …

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

|  |  |  |
| --- | --- | --- |
|  | Computational complexity | Convergence speed/stability/accuracy |
| LMS | 1 | 1 |
| NLMS | 2 | 2 |
| RLS | 3 | 3 |

*Comments*