# EE40098

# Coursework C: Automated Feedback

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# Formative Feedback Only

All feedback contained within this document is purely indicative of your current solutions performance. Final grades for this assignment will consider a range of additional factors when producing a mark, meaning there may be some slight change between the performance seen here and your final grades. This feedback is intended to provide you with some insight into the performance of your approach prior to submission, allowing you to further improve your solution as the semester progresses.

# 1.1 General Data Properties

**Table 1:** Properties of the provided dataset, D2, provided for reference. These may also be found in the coursework specification.

Property	Value
SNR (Approx.)	60  dB
Num. of Classes	5
Classification Status	Unlabelled
Sampling Rate	$25~\mathrm{kHz}$

**Table 2:** The D2.mat submission file content metadata. As outlined in the coursework specification, this should include an Index and Class vector. If you have labelled every identified pulse, you should expect the number of class entries to match the number of index entries in your submission data.

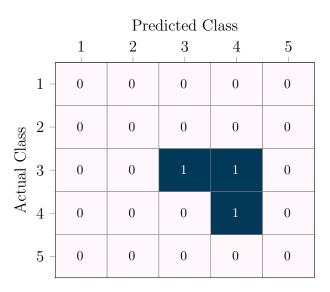
Name	Data Type	Data Shape
Class Index	<pre><class 'numpy.ndarray'=""> <class 'numpy.ndarray'=""></class></class></pre>	(1, 2840) (1, 2840)

#### 1.2 Submission Performance

The index identification accuracy (i.e. how well you identified where pulses were in the data) was first assessed before class identification was considered. This yielded the following metrics:

**Table 3:** Index identification performance for dataset D2, reported as precision and recall. In both cases, a value closer to 1.0 is better.

Metric	Value
Precision	0.001056
Recall	0.00136



**Figure 1:** Confusion matrix for the dataset D2 submission file. A good result should have most values sitting along the lead diagonal. The raw count has been used here instead of percentage to provide you with additional insight.

# 2.1 General Data Properties

**Table 4:** Properties of the provided dataset, D3, provided for reference. These may also be found in the coursework specification.

Property	Value
SNR (Approx.)	40 dB
Num. of Classes	5
Classification Status	Unlabelled
Sampling Rate	$25~\mathrm{kHz}$

**Table 5:** The D3.mat submission file content metadata. As outlined in the coursework specification, this should include an Index and Class vector. If you have labelled every identified pulse, you should expect the number of class entries to match the number of index entries in your submission data.

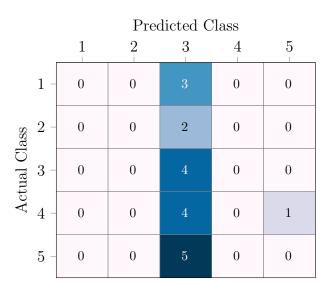
Name	Data Type	Data Shape
Class	<class 'numpy.ndarray'=""></class>	(1, 11560)
Index	<pre><class 'numpy.ndarray'=""></class></pre>	(1, 11560)

## 2.2 Submission Performance

The index identification accuracy (i.e. how well you identified where pulses were in the data) was first assessed before class identification was considered. This yielded the following metrics:

**Table 6:** Index identification performance for dataset D3, reported as precision and recall. In both cases, a value closer to 1.0 is better.

Metric	Value
Precision	0.001644
Recall	0.009309



**Figure 2:** Confusion matrix for the dataset D3 submission file. A good result should have most values sitting along the lead diagonal. The raw count has been used here instead of percentage to provide you with additional insight.

# 3.1 General Data Properties

**Table 7:** Properties of the provided dataset, D4, provided for reference. These may also be found in the coursework specification.

Property	Value
SNR (Approx.)	20  dB
Num. of Classes	5
Classification Status	Unlabelled
Sampling Rate	$25~\mathrm{kHz}$

**Table 8:** The D4.mat submission file content metadata. As outlined in the coursework specification, this should include an Index and Class vector. If you have labelled every identified pulse, you should expect the number of class entries to match the number of index entries in your submission data.

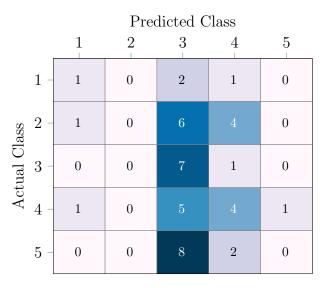
Name	Data Type	Data Shape
Class	<class 'numpy.ndarray'=""></class>	(1, 20493)
Index	<class 'numpy.ndarray'=""></class>	(1, 20493)

## 3.2 Submission Performance

The index identification accuracy (i.e. how well you identified where pulses were in the data) was first assessed before class identification was considered. This yielded the following metrics:

**Table 9:** Index identification performance for dataset D4, reported as precision and recall. In both cases, a value closer to 1.0 is better.

Value
0.002147 0.017134



**Figure 3:** Confusion matrix for the dataset D4 submission file. A good result should have most values sitting along the lead diagonal. The raw count has been used here instead of percentage to provide you with additional insight.

# 4.1 General Data Properties

**Table 10:** Properties of the provided dataset, D5, provided for reference. These may also be found in the coursework specification.

Property	Value
SNR (Approx.)	0  dB
Num. of Classes	5
Classification Status	Unlabelled
Sampling Rate	$25~\mathrm{kHz}$

**Table 11:** The D5.mat submission file content metadata. As outlined in the coursework specification, this should include an Index and Class vector. If you have labelled every identified pulse, you should expect the number of class entries to match the number of index entries in your submission data.

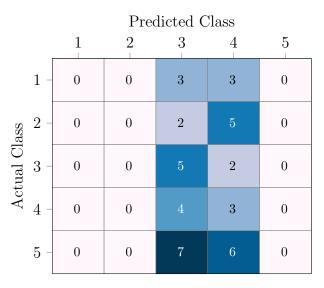
Name	Data Type	Data Shape
Class Index	<pre><class 'numpy.ndarray'=""> <class 'numpy.ndarray'=""></class></class></pre>	(1, 27900) (1, 27900)

## 4.2 Submission Performance

The index identification accuracy (i.e. how well you identified where pulses were in the data) was first assessed before class identification was considered. This yielded the following metrics:

**Table 12:** Index identification performance for dataset D5, reported as precision and recall. In both cases, a value closer to 1.0 is better.

Metric	Value
Precision Recall	0.001434 $0.019637$



**Figure 4:** Confusion matrix for the dataset D5 submission file. A good result should have most values sitting along the lead diagonal. The raw count has been used here instead of percentage to provide you with additional insight.

# 5.1 General Data Properties

**Table 13:** Properties of the provided dataset, D6, provided for reference. These may also be found in the coursework specification.

Property	Value
SNR (Approx.)	<0 dB
Num. of Classes	5
Classification Status	Unlabelled
Sampling Rate	$25~\mathrm{kHz}$

**Table 14:** The D6.mat submission file content metadata. As outlined in the coursework specification, this should include an Index and Class vector. If you have labelled every identified pulse, you should expect the number of class entries to match the number of index entries in your submission data.

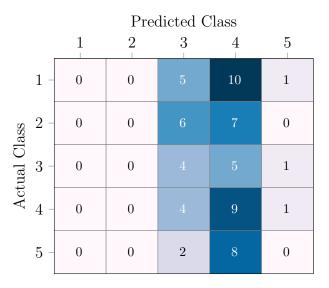
Name	Data Type	Data Shape
Class	<class 'numpy.ndarray'=""></class>	(1, 30216)
Index	<class 'numpy.ndarray'=""></class>	(1, 30216)

## 5.2 Submission Performance

The index identification accuracy (i.e. how well you identified where pulses were in the data) was first assessed before class identification was considered. This yielded the following metrics:

**Table 15:** Index identification performance for dataset D6, reported as precision and recall. In both cases, a value closer to 1.0 is better.

Metric	Value
Precision	0.002085
Recall	0.020868



**Figure 5:** Confusion matrix for the dataset D6 submission file. A good result should have most values sitting along the lead diagonal. The raw count has been used here instead of percentage to provide you with additional insight.

10