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#### Martin Becker, Jens Lippel and Thomas Zielke

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1 Introduction	

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### 1 Introduction

 Dimensionality reduction (DR) often serves as a preprocessing step, e.g., for linear classification.

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### 1 Introduction

- Dimensionality reduction (DR) often serves as a preprocessing step, e.g., for linear classification.
- The DR's purpose is to ensure that the subsequent component can function robustly.

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### 1 Introduction

- Dimensionality reduction (DR) often serves as a preprocessing step, e.g., for linear classification.
- The DR's purpose is to ensure that the subsequent component can function robustly.
- The robustness of a DR itself is rarely questioned:

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# Introduction Dimensionality reduction (DR) often serves as a preprocessing step, e.g., for linear classification. The DR's purpose is to ensure that the subsequent component can function robustly. The robustness of a DR itself is rarely questioned: Mostly studied: "Outlier robustness"

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2 – D	eep Neural Networks
We consider 2 related deep neural networks (DNN):	
GerDA	Generalized Discriminant Analysis [1]
ReNDA	Regularized Nonlinear Discr. Analysis [2]

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3 - Robust Inter-cluster Structure

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### 3 – Robust Inter-cluster Structure

 Consider 2 random data splits (DS<sub>D</sub>) from MNIST into 50k training and 10k validation samples.

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Thank you for your attention.

I am looking forward to your feedback and questions.