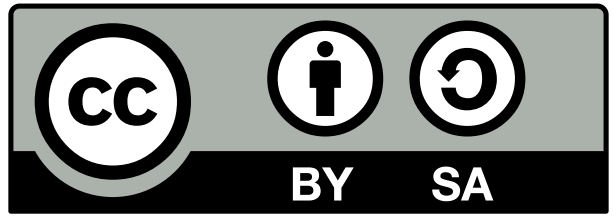


You can download the sources of this presentation here:

https://github.com/mxochicale/cere2018

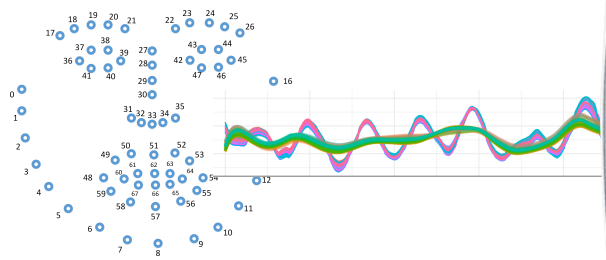
cere 2018

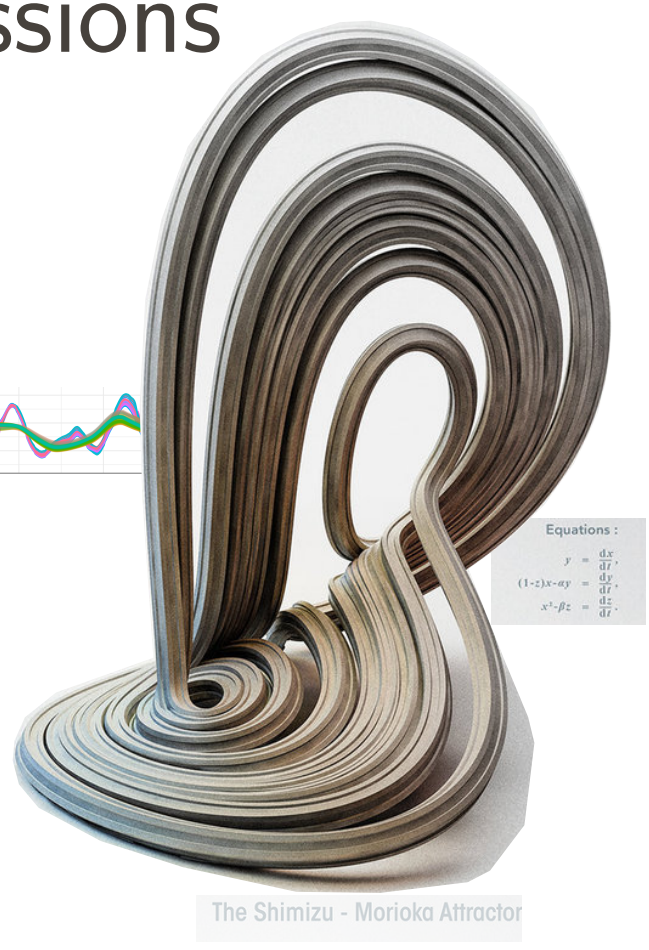
CONSORTIUM OF EUROPEAN RESEARCH ON EMOTION

Towards the Analysis of Movement Variability for Facial Expressions with Nonlinear Dynamics

@CERE_Emotion #CERE2018

Glasgow, Scotland, 4-5 April 2018





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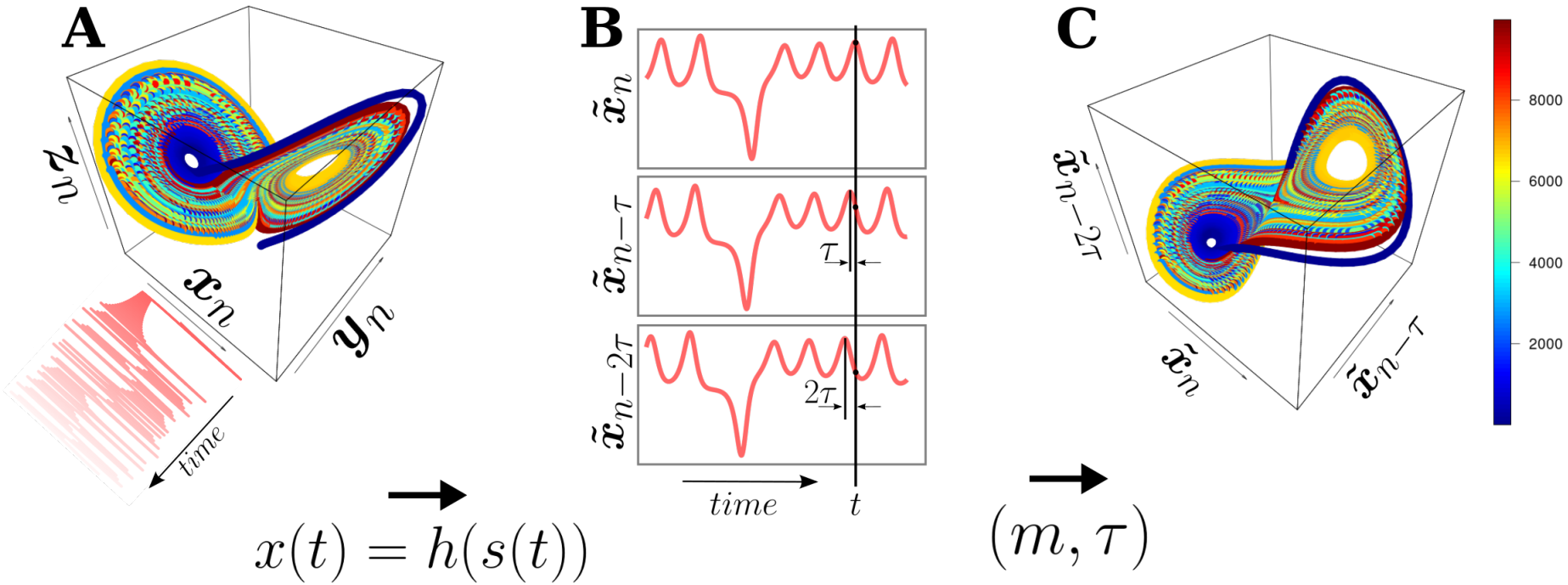
MOVEMENT VARIABILITY

WHAT IS MOVEMENT VARIABILY?

MOVEMENT VARIABILITY is defined as the variations that occur in motor performance across multiple repetitions of a task and such behaviour is an inherent feature within and between each person's movement.

[Lockhart T, Stergiou N, **New Perspectives in Human Movement Variability**, 2013]

STATE SPACE RECONSTRUCTION



$$x(t) = h(s(t)) \longrightarrow (m, \tau)$$

Uniform Time-Delay Embedding

CONCLUSIONS AND FUTURE WORK

CONCLUSIONS FUTURE WORK

- (+) Quantification for Arm Movement and Head Pose Estimation Variability with Nonlinear Dynamics is possible. However,
- (-) the timeseries from the landmarks are mounted on the pose location of the head.

- Test other techniques of Nonlinear Dynamics, e.g. Lyapunov Exponents, Recurrent Quantification Analysis
- Use of Convolutional Neural Networks for automatic identification of Movement Variability

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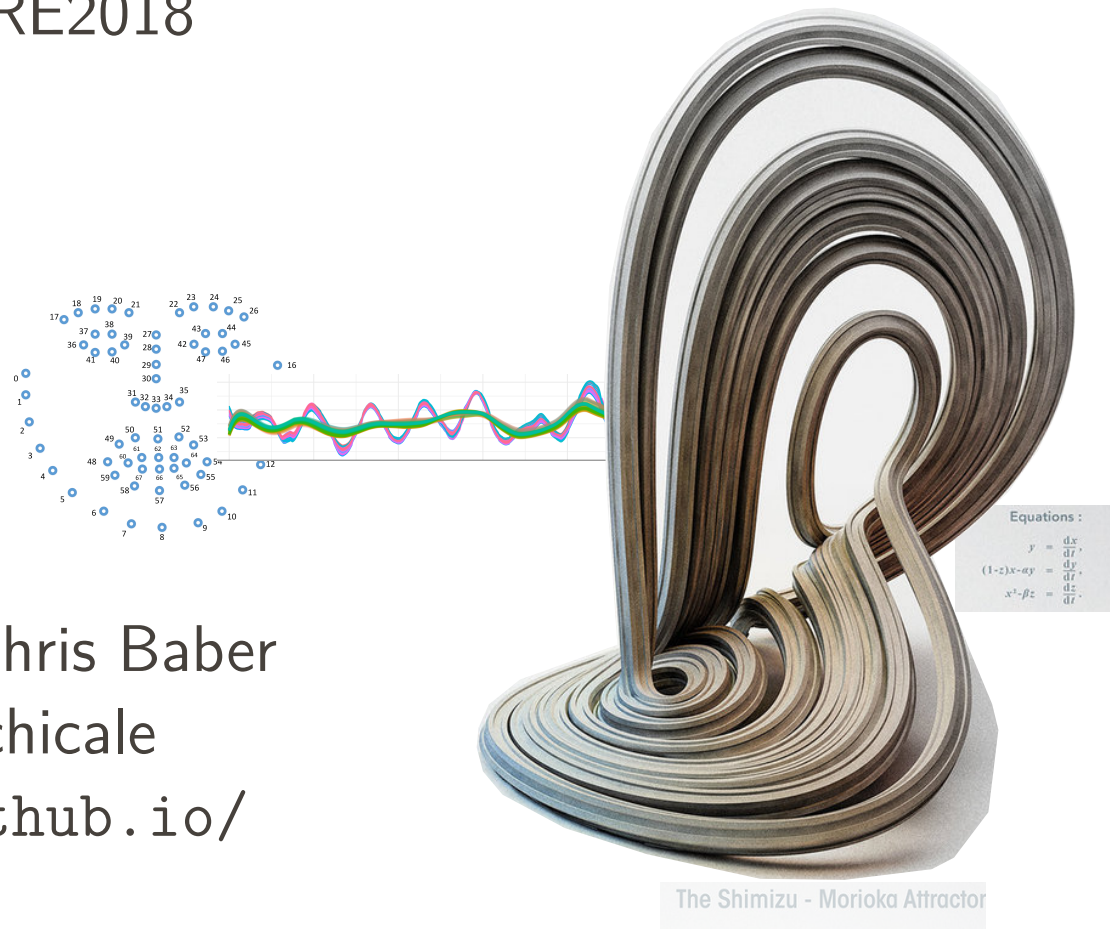

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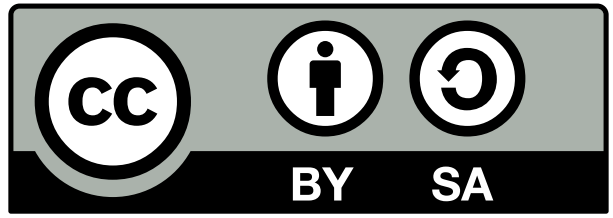

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