针对时间序列分类（TSC）的深度模型

Deep Learning for Time Series Classification[1]

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[1] Hassan Ismail Fawaz et al. "Deep learning for time series classification: a review". In: *Data Mining and Knowledge Discovery* 33.4 (2019), pp. 917–963.

Overview

问题背景描述

TSC 社区生态

Different Learning Tasks

Multi-variate

MTS

- different measurements of the **same** instance
- **high correlation**
- feeding features

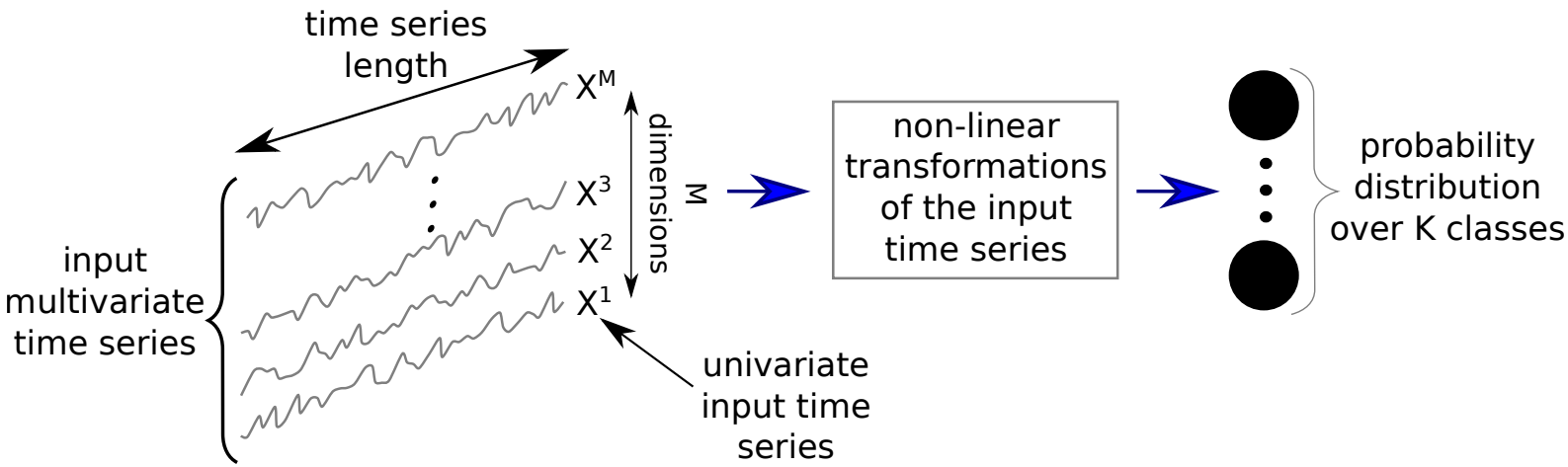
Univariate

panel data

- the same measurements on **different** instances
- i.i.d. assumption
- feeding sku/store/...

Problem Description

univariance/multi-variance/panel



Libraries/Implements/Community

sktime[2] & its extensions

Sktime

- based on classic models (shallow)
- `scikit-learn` interface compatible

Sktime-dl

- use `Keras` to implement all 9 **SOTA** deep models above
- 暂时**不能**直接安装（MacOS）

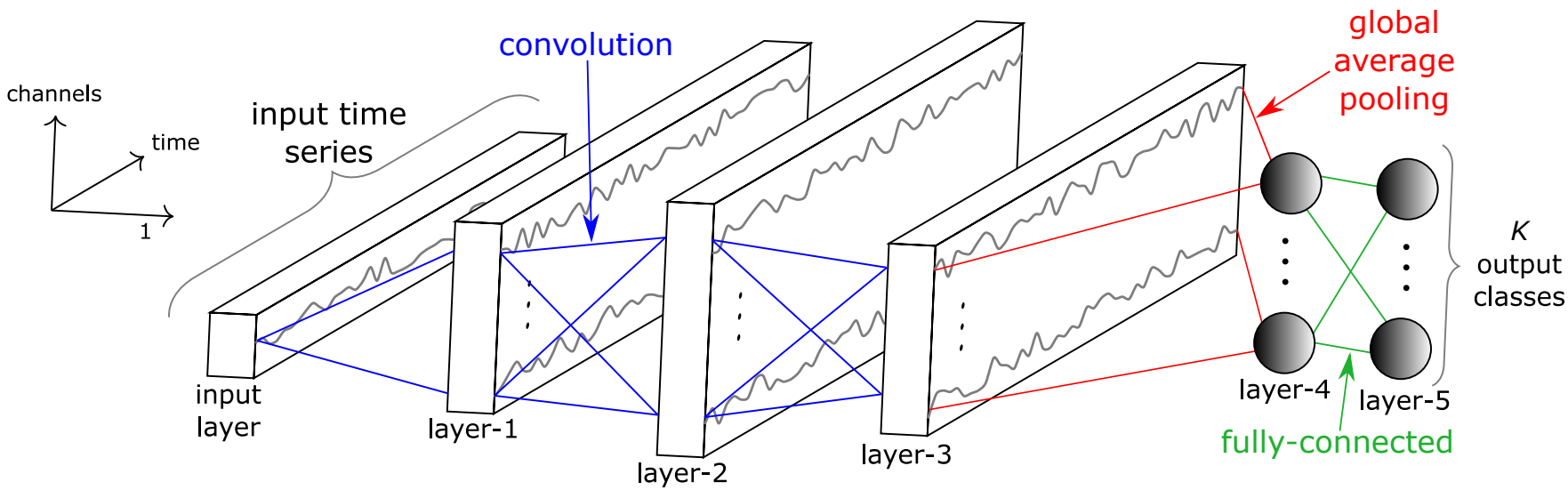
UEA & UCR Time Series Classification Repository

- 128 TSC datasets + 30 MTS datasets
- Collect a bunch of **classic** algorithms

[2] Markus Löning et al. *sktime: A Unified Interface for Machine Learning with Time Series*. 2019. eprint: `arXiv:1909.07872`.

Fully Convolutional Neural Network[3]

FCNN



[3] John Cristian Borges Gamboa. "Deep learning for time-series analysis". In: *arXiv preprint arXiv:1701.01887* (2017).

Thanks

All codes, slides and papers available

li-xin-yi/deep_time_series_share_slide