Package 'CMAPSS'

January 20, 2025

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Title Commercial Modular Aero-Propulsion System Simulation Data Set

Version 0.1.1

Description
    Contains the Commercial Modular Aero-Propulsion System Simulation (C-MAPSS) data set.

License GPL-3

Imports Rdpack

RdMacros Rdpack

Depends R (>= 4.0.0)

Encoding UTF-8

LazyData true

LazyDataCompression bzip2

RoxygenNote 7.1.1

NeedsCompilation yes

Author Morteza Amini [aut, cre, cph],
    Afarin Bayat [aut]

Maintainer Morteza Amini <morteza.amini@ut.ac.ir>

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CMAPSS   *CMAPSS data set*

Description

Commercial Modular Aero-Propulsion System Simulation (C-MAPSS) Data Set.

Usage

```
data("CMAPSS")
```

Format

A list of the following 2 objects:

- `train` a list of class "hhsmm.data" as the train dataset
- `test` a list of class "hhsmm.data" as the test dataset
- `subsets` a matrix containig the number of units in each subset of the CMAPSS data set (FD001-FD004) for the train and test datasets

Details

The turbofan engine data is from the Prognostic Center of Excellence (PCoE) of NASA Ames Research Center, which is simulated by the Commercial Modular Aero-Propulsion System Simulation (C-MAPSS). Only 14 out of 21 variables, by a method mentioned by Li, et al. (2019) are selected. The `train` and `test` lists are of class "hhsmm.data", which is used in the hhsmm package.

Author(s)

Morteza Amini, <morteza.amini@ut.ac.ir>, Afarin Bayat, <aftbayat@gmail.com>

References

Frederick, D. K., DeCastro, J. A., & Litt, J. S. (2007). User's guide for the commercial modular aero-propulsion system simulation (C-MAPSS).

Saxena, A., Goebel, K., Simon, D., & Eklund, N. (2008, October). Damage propagation modeling for aircraft engine run-to-failure simulation. In *2008 international conference on prognostics and health management* (pp. 1-9). IEEE.

Li, J., Li, X., & He, D. (2019). A directed acyclic graph network combined with CNN and LSTM for remaining useful life prediction. *IEEE Access*, 7, 75464-75475.

Examples

```
data(CMAPSS)
str(CMAPSS$train)
str(CMAPSS$test)
CMAPSS$subsets
```

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