

# Package ‘MatSkew’

January 20, 2025

**Type** Package

**Title** Matrix Skew-T Parameter Estimation

**Version** 0.1.5

**Author** Michael P.B. Gallagher, Paul D. McNicholas

**Maintainer** Michael P.B. Gallagher <gallaump@mcmaster.ca>

**Description** Performs matrix skew-t parameter estimation, Gallagher and McNicholas (2017) <doi:10.1002/sta4.143>.

**License** GPL (>= 2)

**Encoding** UTF-8

**LazyData** true

**RoxygenNote** 6.1.1

**NeedsCompilation** no

**Repository** CRAN

**Date/Publication** 2019-07-28 10:00:06 UTC

## Contents

Fit_Skewt . . . . .	1
SimX . . . . .	2

<b>Index</b>	<b>3</b>
--------------	----------

---

Fit_Skewt	<i>Matrix Skew t Parameter Estimation</i>
-----------	---

---

## Description

Performs parameter estimation for the matrix variate skew-t distribution using an ECM algorithm.

## Usage

```
Fit_Skewt(X, Tol = 0.001, max_iter = 1000)
```

**Arguments**

X                    A list of matrices of the same size  
Tol                  The tolerance of the ECM algorithm. Defaults to 0.001  
max\_iter            The maximum number of iterations. Defaults to 1000

**Value**

Returns a list with elements M (the estimate of the location), A (the estimate of the skewness), nu (the estimate of the degrees of freedom), Sigma (the estimate of Sigma), Psi (the estimate of Psi), loglik (a vector of log likelihood values), flag (returns TRUE if a numerical issue occurred, FALSE otherwise).

**Examples**

```
data(SimX)
Fit_st<-Fit_Skewt(SimX)
```

---

SimX	<i>Simulated Data</i>
------	-----------------------

---

**Description**

This is a simulated dataset with 100 observations from 4 by 3 matrix skew-t distribution.

**Usage**

```
data(SimX)
```

**Format**

An object of class `list` of length 100.

# Index

\* **data**

SimX, 2

Fit\_Skewt, 1

SimX, 2