Why

What is the differential mutual information between two components of a multivariate normal.

Result

PROPOSITION **1.** *Let $g \sim \mathcal{N}(\mu, \Sigma)$ Then the differential entropy of g is*

$$\frac{1}{2} \ln \left((2\pi e)^d \, \mathbf{det} \, \Sigma \right)$$

Normal Differential Entropy

Multivariate Normals

Multivariate Real Densities · Positive Definite Matrices · Matrix Determinants · Normal Densities

Matrix Inverses · Probability Densities · Quadratic Forms · Real Matrices

Inverse Elements · Real Integrals · Matrix-Matrix Products · Matrix Transpose · Symmetric Matrices · Identity Matrices

Nonnegative Integrals · Matrices · Real Vectors

Simple Integrals · Vectors · Exponential

Element Functions · Measurable Functions · N-Dimensional Space

Measures · Simple Functions · Space

Partitions · Extended Real Numbers · Characteristic Functions

Real Limits · Probability Distributions · Real Functions

Probability Outcomes · Real Sequences · Real Summation · Intervals · Real Square Roots

Subset Algebras · Probability · Sequences · Natural Summation · Fields · Real Numbers

Set Operations · Cardinality · Common Sense · Family Operations · Direct Products · Groups · Rational Numbers · Natural Square Roots

Injective Functions · Algebras · Natural Families · Natural Order · Natural Sums · Integer Numbers · Square Numbers

Function Composites · Operations · Subset Systems · Families · Natural Products · Zero · Squares

Set Symmetric Differences · Functions · Power Set · Natural Numbers · Equation Solutions

Set Unions · Relations · Set Intersections

Set Complements · Ordered Pairs · Equations

Unordered Pairs · Empty Set

Set Specification · Set Inclusion

Sentences · Set Equality

Sets · Identity

Objects