

jInvert.pdf

The “j” signals that complex numbers are involved.

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The link to this file:

<https://ftp.setterholm.com/WorldPeace/Golden/jInvert/jInvert.pdf>

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without permission.

My Fortran source code herein is all free.

Individual cognition is always flawed -&- Lawyers abound, so...

Use this environment at your own risk.

This computer program runs on Windows 10 and Windows 11 64-bit operating systems and inverts complex matrices, which will aid in finding the complex roots of complex polynomials. Zip file “jInvert.zip” has all the content:

Here the example input complex matrix $jC(3,3)$ is inverted in three steps to $jCinv(3,3)$
As follows: Each complex coefficient has a real part and an imaginary part.

```
@ Rank = 0          abs(CdetN) = 0.0000000000E+00          : JC ( 3 , 3)
                        +1                      +2                      +3
1 ( +0.100000, +0.000000j) ( +0.100000, +1.000000j) ( +1.000000, +0.000000j)
2 ( +2.000000, +0.000000j) ( +0.100000, +0.000000j) ( +0.100000, -2.000000j)
3 ( +0.100000, +0.000000j) ( -4.000000, +0.000000j) ( +0.100000, +0.000000j)
-----
ValMin = 0.400000E-23 scaled by pivot:

iu = 3 ju = 2          Pivot = ( -4.000000, +0.000000j)
@ Rank = 1          abs(CdetN) = 0.4000000000E+01
                        +1                      +3                      -2
1 ( +0.102500, +0.025000j) ( +1.002500, +0.025000j) ( +0.025000, +0.250000j)
-3 ( -0.025000, +0.000000j) ( -0.025000, +0.000000j) ( -0.250000, +0.000000j)
2 ( +2.002500, +0.000000j) ( +0.102500, -2.000000j) ( +0.025000, +0.000000j)
-----
iu = 3 ju = 2          Pivot = ( +0.102500, -2.000000j)
@ Rank = 2          abs(CdetN) = 0.8010499360E+01
                        +1                      -3                      -2
1 ( +0.076158, -0.977403j) ( -0.013155, -0.500576j) ( +0.024671, +0.237486j)
-3 ( -0.023721, +0.024966j) ( +0.000639, +0.012467j) ( -0.249984, +0.000312j)
-2 ( +0.051180, +0.998627j) ( +0.025558, +0.498690j) ( +0.000639, +0.012467j)
-----
iu = 1 ju = 1          Pivot = ( +0.076158, -0.977403j)
@ Rank = 3          abs(CdetN) = 0.7853218703E+01          : jCinv ( 3 , 3)
                        -1                      -3                      -2
-1 ( +0.079239, +1.016945j) ( +0.508016, -0.053043j) ( -0.239555, +0.043907j)
-3 ( +0.027268, +0.022144j) ( +0.011365, -0.001474j) ( -0.254570, +0.007334j)
-2 ( +1.011493, -0.131177j) ( -0.053412, -0.005913j) ( +0.056746, +0.249446j)
-----
sign untracked:      CdetN = ( +7.788000, +1.010000j)
```



The PhilosophyWorks®

Lakeville, Minnesota, U.S.A.

<https://setterholm.com>

The compressed download is:

<https://ftp.setterholm.com/WorldPeace/Golden/jInvert/jInvert.zip>

Download this file to your computer and “extract” the contents. Typically the extracted files are in subdirectory “/jInvert”. In that subdirectory **change** “jInvert.ex**f**” to “jInvert.ex**e**” which Windows then refers to as an ‘application’. The program runs in a DOS window that you can X out of at the upper right corner.

04/20/2026 06:43 PM 2,328,402 jInvert.zip

04/20/2026 08:27 PM 354,388 jInvert.pdf <-This .pdf

!A Directory

04/20/2026 07:43 PM 1,796 _Dir.txt

!A sample input file:

04/19/2026 04:12 PM 2,019 jInvert-Input.txt

!A sample output file:

04/19/2026 06:17 PM 6,060 jInvert-Results.txt

!Fortran source listings .pdf's with color-coded syntax & line #'s:

04/19/2026 06:06 PM 504,375 jInvert_Demo-F95.pdf Demonstrator

04/19/2026 06:19 PM 1,257,896 jInvert-f95.pdf Inverter

Module jInvert_FoR <- The "Frame-of-Reference" @ 31

End Module jInvert_FoR @ 68

Subroutine jInvert(Nin,C,iRW,iP) <- the overwriting complex inverter @ 68

Subroutine jInvert_Report(N,C,iP) <- overwriter progress reports @237

Subroutine jInvert_Check(N,Cout,iP)<- quality confirmation (full rank) @270

@: approximate Line#'s ^^^^

!Absoft Pro Fortran 64-bit build environment:

04/19/2026 06:19 PM 43,254 jInvert.atools

!Fortran 95 source code

04/19/2026 06:04 PM 5,283 jInvert_Demo.f95

04/19/2026 06:17 PM 14,460 jInvert.f95

The Executable file: Should run in 64-bit windows 10 & windows 11.

04/19/2026 06:17 PM 317,952 jInvert-64.exe

In "jInvert.zip" the extension is ".exf"
when unzipped, ***CHANGE TO***: ".exe"

Name your input file and output file here:

see page 3

Conform the syntax of your input file to “jInvert-Input.txt”

04/19/2026 11:21 AM 1,534 jInvert-Filenames.ini

jInvert-64.exe also genereates these two binary files:

04/19/2026 06:17 PM 308 jCin.bim

04/19/2026 06:17 PM 320 jCinv.bim

windows security rejects .bin files,
hence the use of a .bim extension
~ 14 File(s) ~ 2,175,466 bytes

Off-topic: Intersecting linear programming and complex variables might be fruitful. Linear programming reliably realized manufacturing process efficiencies many decades ago. Also, the assumption that “war is inevitable” may be flawed, or nonsense.

“jInvert-FileNames.ini” and its notes:

```
"jInvert-Input.txt",          <- Line 1
"jInvert-Results.txt",       <- Line 2
```

Everything after line two is ignored.

|||||

Your "jInvert.exe" filenames initializer:

Line 1: names your input matrix file.

Line 2: names your output matrix file.

when "jInvert-FileNames.ini" is absent or unreadable, default names are:

"jInvert-Input.txt", -and-

"jInvert-Results.txt",

Additional jInvert() outputs:

complex(16) binary matrix coefficients (256-bits total-per-coefficient):

jCin.bim -and-

jCinv.bim

The extension is ".bim" because windows security blocks ".bin" files.

jInvert() is a key enabler in finding the complex roots
of complex polynomials that fit complicated data.

jInvert() also "inverts" linearly-dependent complex matrices. I
haven't yet confirmed either the accuracy or the utility of doing so.
For real matrices the corresponding feature is remarkably useful.

2026.04.20 JMS

My first-principles introduction to real matrix inversion is:
<https://ftp.setterholm.com/PseudoInverse/Hat.pdf> - pages 1-4.
"Hyperspace Algebra Tools"

"Hat.pdf" is a very direct path describing "what to teach" in an
introduction. "How to teach" the material needs improvement.

The context for this FTP upload can be found in my two previous posts:

[https://ftp.setterholm.com/WorldPeace/Golden/ Golden-Readme.pdf](https://ftp.setterholm.com/WorldPeace/Golden/Golden-Readme.pdf)

and in the same subdirectory: [/QuantitativeGovernance.pdf](#).

The hallmark/my definition of Wisdom is realizing harmony with minimum effort.
Qualitative Governance is a waste of almost-everyone's time.

I learned that “cells’ votes” don’t solve Rubik’s Cubes (achieve harmony) in the fewest
number of moves. Search in vain – for unaided wisdom - sourced between any pair of
human ears. Causing chaos is intuitive: the USA and Israel are bombing Iran and
Lebanon!

Wisdom (shortest-path harmony) is non-intuitive: The concise definition has made it
quantifiable; WisdomCAD was last-year’s free, new name for the idea. Search it; as of a
week ago: Google was still redirecting people to “Wisdom Card”.