In this blog post, I demonstrate a Python code, that shows how to perform various matrix operations such as:

1. Defining a matrix,
2. Adding matrices
3. Multiplying two matrices,
4. Transposing a Matrix
5. Determinant of a matrix,
6. Inverse of a matrix,
7. Eigenvalues and eigenvectors of a matrix,

using the SciPy package and the lining module within it.

The documentation for SciPy lining is: https://docs.scipy.org/doc/scipy-0.14.0/reference/linalg.html

The code is pretty much self-explanatory, although you can also watch the YouTube video below it where I walkthrough the code.

CODE:

```
import numpy as np
from scipy import linalg as lg


#Defining a matrix A
A = np.array([  [1, 2] , [3, 4]  ])

#Defining matrix B
B = np.array([ [6, 1], [5, 1] ])

#Addition
sum1 = A+B
#Subtraction
diff = A-B
#Multiplication
prod = A.dot(B)
#Transpose
transpose = A.T
#Determinant
determinantB = lg.det(B)
#Inverse (if non-singular)
inverse = lg.inv(B)
#Eigenvalues, Eigenvectors of square matrix
values, vectors = lg.eig(B)
#Print Matrix A
print(A)
#Print Matrix B
print(B)
#Print A+B
print(sum1)
#Print A-B
print(diff)
#Print A*B
print(prod)
#Print A'
print(transpose)
#Print det(B)
print(determinantB)

print(inverse)

print(values)

print(vectors)
```

YouTube Tutorial

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I'm a physicist specializing in computational material science with a PhD in Physics from Friedrich-Schiller University Jena, Germany. I write efficient codes for simulating light-matter interactions at atomic scales. I like to develop Physics, DFT, and Machine Learning related apps and software from time to time. Can code in most of the popular languages. I like to share my knowledge in Physics and applications using this Blog and a YouTube channel.

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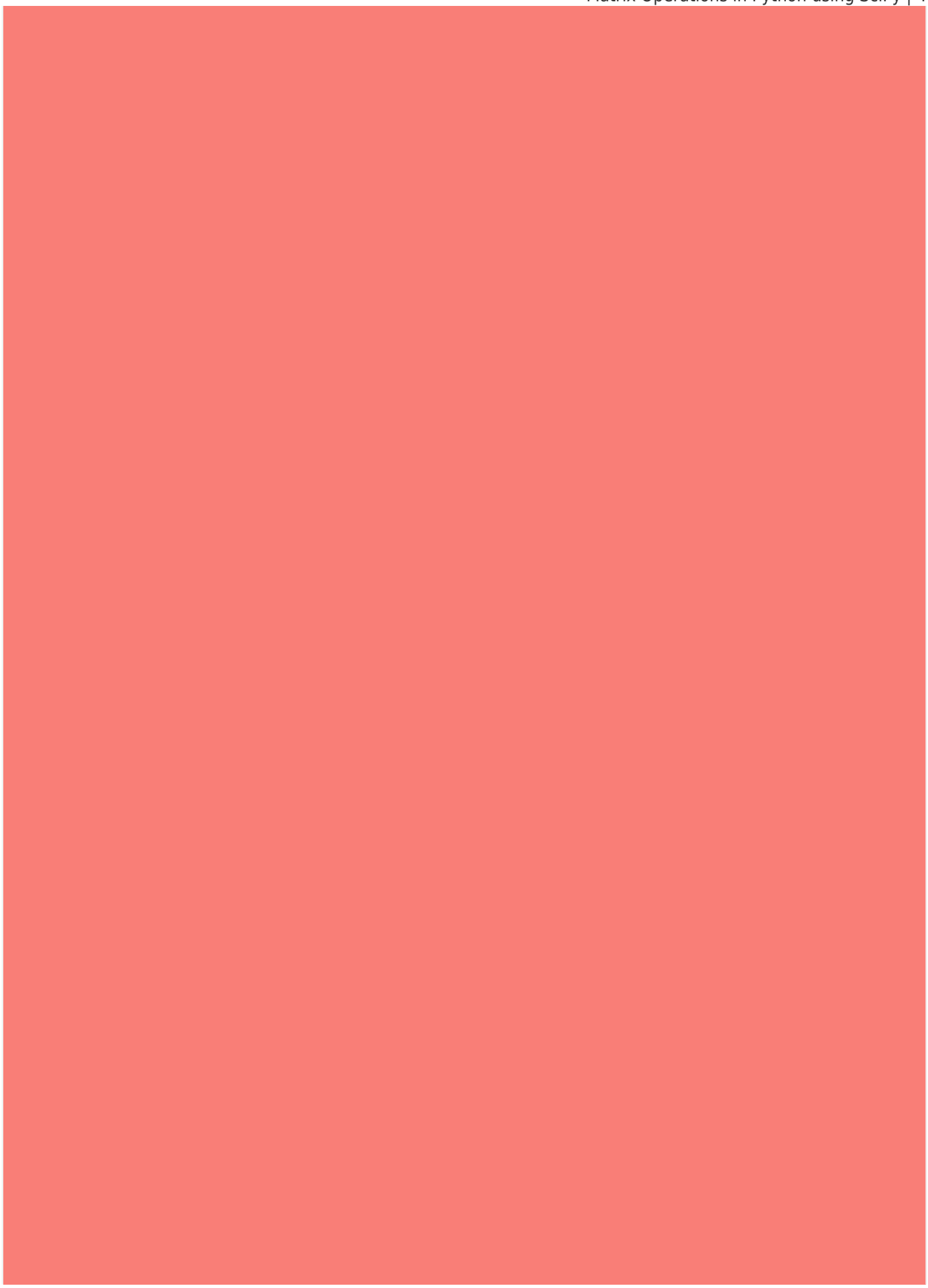

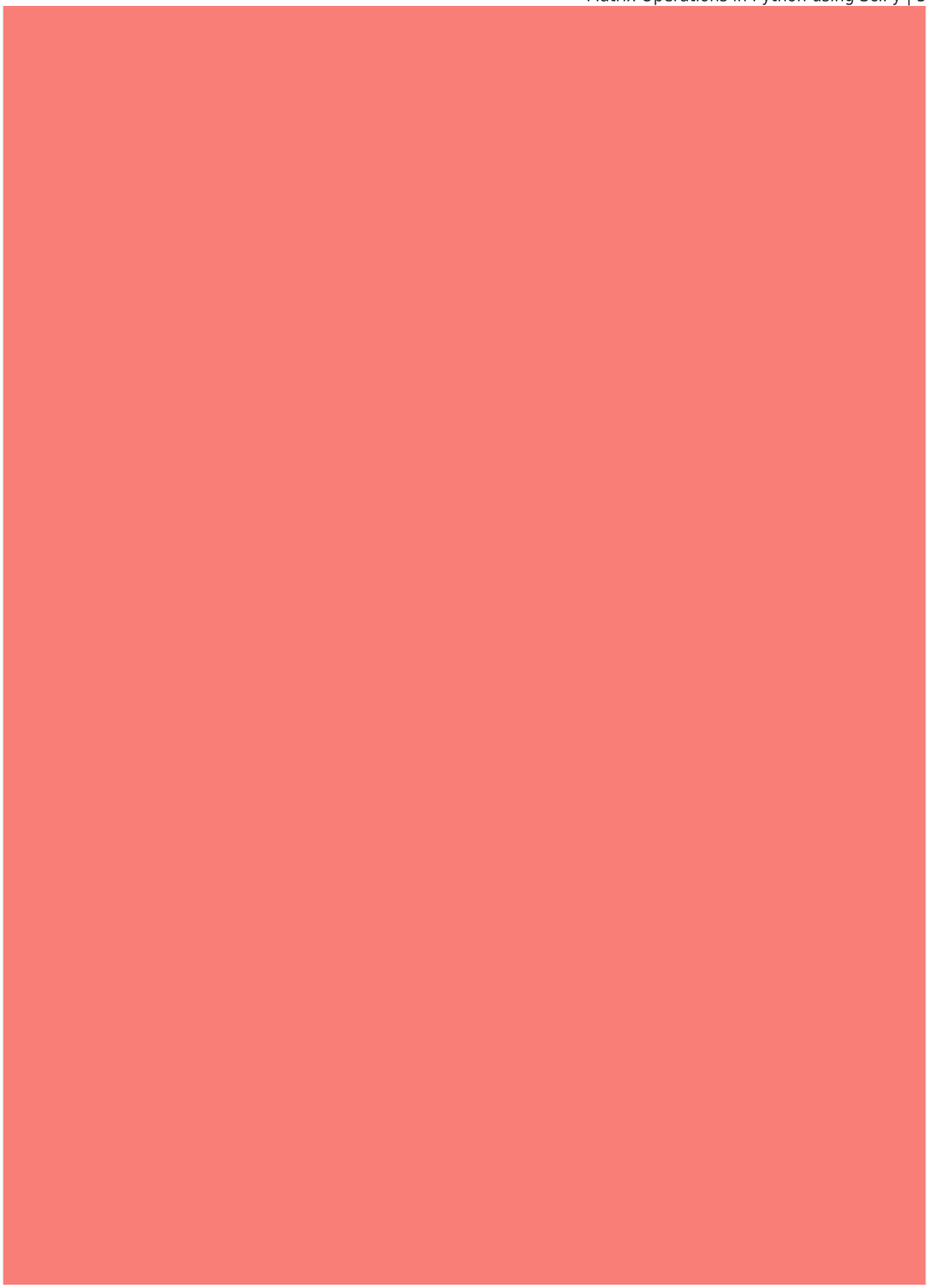

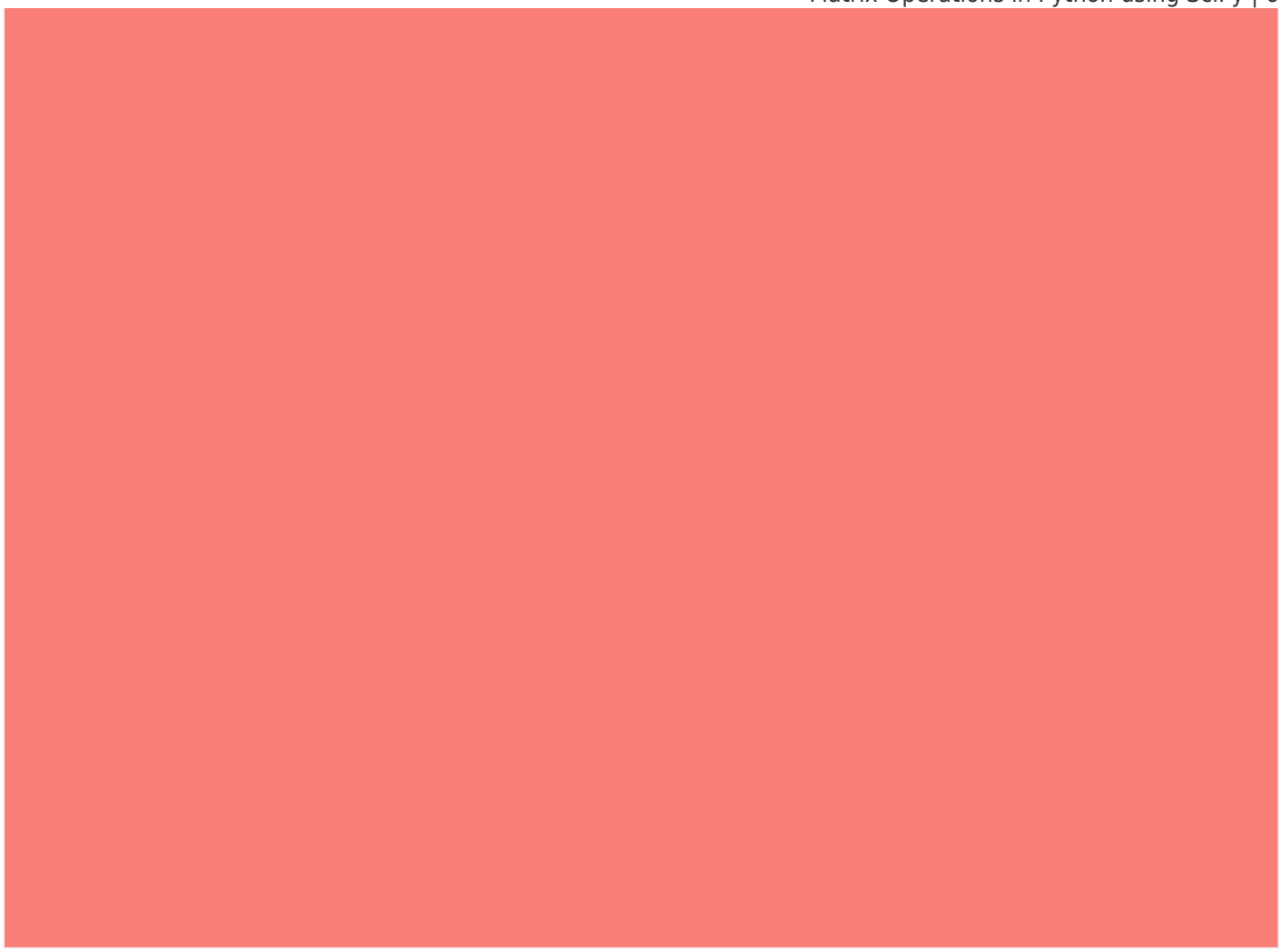

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