X”\*”W=Y

Where x is the data

W is operator

And Y is the solution

This is similar expect

F(x) is the data

Y(x) is the operator

And G(x) is the solution

My objective is to find fist Operation linear or sudo-linar methods of solving this or similar equations that could be useful in machine learning.

As far as I have seen on Internet this method of minimization is not in use.

The easiest way to aproch this problem is with a Fourier transform’s O(nlog(n)). solving Y(t) given G(m) and F(m) is O(n2.3+2\*n2) (the way I solved it) where n is the number of elements in the fourier. It involves a matrix inverse and a matrix multiplication.

For this example we will make







and set b=0 and a = 1

This makes



By observing G(x) we conclude.



Next we just divide the consents. And convert to a matrix.



this on its own is relitivly useless however

And form here it is easy to see how we can solve for any two of the variables given the other one

in addition of this

When the equations are in the form of a power series is interesting











