Hello, I am Ben.

I'm a scientific computing PhD student with four masters in computational mathematics disciplines in the physical and economic sciences. My specialty and expertise is in computational and numerical methods for applied math purposes. I have many years of experience with MATLAB, Octave, R, Python, and some basic experience with C++, but this is my very first time using Rust.

I gave it my best shot, and using no external crates, libraries, or plugins that run in purely Replit, I was able to write functions that mostly emulate numpy and matplotlib.
As such, I used trigonometric, exponential, and polynomial functions to generate a sampled time domain signal, take its fast fourier transform, and plot some visualization of it. Unfortunately the bitmap display does not seem to be working properly, but the exported CSV indicates the scientific data was at least accurate.

The side by side images verify the accuracy and validity of such result, and I also double checked up to numerical precision with numpy's built-in subroutines.

In particular, SpiceAI+ SpiceOSS seems to be HEAVILY focused on time series analysis and signal processing and statistical/stochastic machine learning methods for such type of organized structured data upon some lattice of equidistant or equally spaced sample points.

As such, given more time, I would attempt to implement convolution, a Daubechies/Haar fast wavelet transform, ARIMA autoregressive linear predictors, HPC filter from Macroeconomic theory, automatic FIR/IIR filters with like Butterworth filter design or Remez Exchange/Parks McLellan algorithm, and Monte Carlo demonstrate the Wiener-Khinchin-Einstein theorem by utilizing a Box-Muller Method to transform IID Uniform random samples generated via repeated powers of the generator of a modular group of prime order to simulate a sequence of IID Normal random variables or perhaps Brownian Motion.

If this is what SpiceAI is looking for, I am a creative problem solver within the realm of advanced mathematical methods who can hopefully quickly adapt to learning coding in the high-paced tech startup environment.

Thank you for your time, this was actually super fun to learn something completely new.
Ben