Documentation – Project 1:

My neural network visualizer shows how a simple AI model processes weather data to predict renewable energy generation. The network has a straightforward 4-4-1 structure: four inputs for weather conditions (temperature, humidity, wind speed, and solar radiation), four hidden neurons that crunch the numbers, and one output that gives an energy prediction.

The app makes forward propagation easy to understand by breaking it into three steps. Weather data goes in, gets processed by the hidden layer (which does the heavy mathematical lifting with weights and activation functions), and produces a final energy prediction. What makes it educational is the interactive visualization - you can hover over connections to see the actual weight values, watch data flow through animated connections, and see all the math calculations happening in real-time. Users can either adjust weather sliders manually or pick from preset scenarios like "sunny day" or "stormy weather" to see how different conditions affect the prediction.