



PATTERN
COMPUTER®

Pattern Computer, Inc.

The Pattern Discovery Company



Who/What is Pattern Computer?

- We create unbiased pattern discoveries resulting in higher accuracy, higher efficiency, and increased revenue to drive bottom-line results
- The patterns we discover are explainable. Think simple Excel equations. That is *very* different from other AI/ML offerings which can only create predictive models. Understanding 'why' is essential
- Novel mathematics drives new methods. Pattern discovery creates business and technical understanding. Neural networks don't.
- Working in partnership with the customer's data scientists, our tools reveal patterns to their subject matter experts, creating an applied understanding of our models, allowing researchers and business leaders to effect meaningful changes to their business processes.

Explainable AI

- Neural networks do not provide insight into the model created by the trained network – typically referred to as a 'black box'. The model created is a predictive model, but only provides limited insight.
- Pattern Computer's Explainable AI (XAI) has been shown for the first time and confirmed by Berkeley National Labs experts.
- The fundamental, and critical difference is that Explainable AI allows the data scientist, researcher, or business decision maker to understand the ranked factors driving a specific outcome, and how those different factors contribute to that outcome. Neural networks can only *predict* the outcome of given scenario.

Examples

- Discovered an accurate pattern of a test bench measurements (out of hundreds) to identify a critical flight-control component that would fail prior to warranty expiration
- Identified the pattern of operation during power generation which led to excess emissions of toxic gasses leading to fines
- Discovered the leading patterns of US flight delays in 2018 based on 7.2M flights and 130 different features
- Discovered the model to identify the molecular response to light stimulation to create a model as accurate as PCR in identifying patients infected with Covid-19 and does it in 3 seconds. The device using that model is called ProSpectral™
- Discovered an accurate model to identify breast cancer based on human tears.
- Identified the pattern behind breast cancer diagnostics measurements. We can accurately predict breast cancer 92% of the time using 3 measurements¹.
- Consistently outperform published results in academic papers using neural networks to predict results. *Ours also has the explanation.*

1. Wisconsin Diagnostic Breast Cancer dataset

Working with PCI

- Customer data privacy, security and appropriate handling is paramount.
 - HIPAA, CITI research, ethics and compliance training
 - Custodial requirements; on-premises/datacenter restrictions
- Clean data is always preferred, but we can deal with real-world data
- We like raw data, engineered data can be limiting in discoveries
 - Normalized data can leave artifacts in the dataset
- We are the tool data scientists need to answer the most important problems; we work alongside to provide new patterns/answers to increase efficiency, effectiveness and innovative processes