



PRAXIS [AI + DATA SCIENCE]

SciGood

About Us

Who we are

SciGood is an AI and Data Science consulting group with a strong record in developing boutique AI-based solutions for Innovative Companies around the world. Our scientists are active PhDs at world leading Artificial Intelligence and Computer Science research institutes, putting our team at the forefront of Artificial Intelligence and its latest applications. We have access to the most current research in modern AI, Scientific Computing, and Reinforcement Learning technology.

What we do

Our core business is to help companies manage risk and optimize profit by using Artificial Intelligence to predict the future. Our scientists securely process vast quantities of data, which our technical team then integrates into your current workflow, making us an end to end Artificial Intelligence service provider. Use of the tools at our disposal can give our clients novel and valuable answers to business-critical questions using the data that they already have at their disposal but which they may never have discovered using traditional techniques. Our tools help us learn from the data and the outcomes not just from the current human interpretation of what the data should mean.

Examples of prior projects:

- We helped a company providing trade finance services to predict invoice payment times by using a neural network to analyze all aspects of customer invoices including phrasing, issue date amount and produced a 40% improvement in invoice payment prediction
- We analyzed millions of customer receipts to help a finance company predict surprises in company earnings
- We used freely available (but difficult to integrate!) data from European satellites to help an investment company analyze the current levels of infrastructure in various regions of Africa. This required our technology to look at and “understand” the images returned by the satellites. Our expertise in satellites extends beyond visual data to thermal, NO2 and full spectrum light data.
- Perhaps our most exciting project is a tool that we have developed (and for which we own the rights) that helps us to predict the price that a given customer is prepared to pay for an on-line product

In addition to a great deal of development capacity available, we have pre-built components to access various datasets and tools to help us deploy at speed so that our customers can quickly take advantage of our novel insights. These tools cover both back end integration providing fast encrypted data transfer and frontend development of web enabled data visualization tools.

Contact

Reach out to chris@scigood.com or visit us on the web at scigood.com

Case Study: Pricing Optimization

Problem Background

Retailers and service providers spend an extensive amount of time and money determining the perfect price point for their products in order to maximise profit and reach. By harnessing the power of artificial intelligence, any company can find the optimal price point faster and with less risk than ever before. Our solution has been integrated on over \$50m of product this year.

Solution

Our newest service is a dynamic pricing tool, powered by state of the art reinforcement and machine learning. Our tool can predict the prices that individual users are willing to pay for identical products, as some clients may be more price sensitive than others. By using an individual pricing tool, any company can provide products with a higher margin to those individuals that are more willing to pay, while still retaining individuals that would otherwise seek cheaper services.

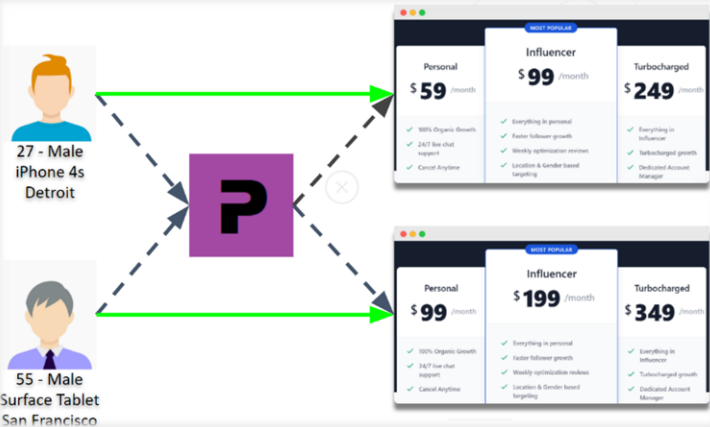
This system works at speed, with calculations performed in fractions of a second and prices changed as fast as the client can receive a signal from our server. This means that prices can be customized directly for a customer before they even reach the landing page. A customer would be entirely unaware that prices were individually set, as the prices do not change once the customer reaches the site. This system works out of the box, but improves further as more customers purchase your product and this information is fed back into our AI system. The tool is safe and secure as our servers are encrypted and don't store any personal information.

Our dynamic pricing tool works by embedding a javascript snippet into the client's website, which quickly acquires a customer's information as they access the site. This information is then sent via SciGood's API to our secure servers, which is then enriched and analysed to build a user profile. With our state of the art reinforcement learning methods the profile is then used to predict the ideal price margin for that customer. When customers purchase products, this information is fed back into our tool in order to further refine our margin prediction models.

Features

Outside of the system functioning powerfully as a collective it showcases core technology that can be used in other applications.

1. DeepUser – Our proprietary tool for comparing data with different labels, possible inaccuracies, and vast size
2. SecureGateway – Our API framework that can quickly be deployed to securely transmit and process data in the cloud while returning near-instant results
3. PriceHoney – The core pricing algorithm, able to adjust commodity and product prices on the fly in order to maximize profits



Case Study: Stock Exchange

Date Issued: Wednesday, 24 June 2020

Client

An extremely large, globally known, American stock exchange.

Challenge

A large stock exchange was suffering from occasional system failures. When these failures occurred the markets would go down, making international headlines and causing large losses.

Given the extreme complexity of the exchange, there were innumerable possible causes of failure, and these could not easily be monitored to predict failure ahead of time, meaning resources couldn't be deployed to avert a failure before systems completely shut down.

Our task was to predict failures before they occurred so that technical teams could respond before systems shut down.

Solution

To predict when the system would fail, we produced several physics-informed mathematical models of how the complex system would work. We then built a machine learning tool that used the models to make predictions about what could happen to the system.

With this Machine learning tool in place, we could consistently make predictions about system problems before they began affecting performance. These predictions were then fed into an easy to read dashboard that could be understood not just by technical staff, but also by executives who had a stake in monitoring the performance of the system.

Results

After passing testing the fully functional system moved onto production servers where it runs on a live feed of data, allowing for constant system monitoring and early failure diagnosis. Since installation we have not been made aware of any system issues being able to progress undetected to the point where they triggered a market outage.

Client renewed contract several times and offered several jobs as a permanent part of their operations.

Case Study: Invoice Monitoring

Date Issued: Friday, 15 November 2019

Client

A mid-sized Australian FinTech that processed huge quantities of invoices

Challenge

Businesses need to predict their future cash flows in order to make informed decisions about their spending and to stay out of fiscal distress. This is made more complicated by the fact that a large proportion of invoices sent out by businesses are paid late.

Because of this lateness businesses currently have to guess how much money will be paid in and hold more money in cash and other easily liquidated assets than they really require.

The client processed huge quantities of these invoices already, and we made the case that building software to predict when invoices would be paid could provide a useful service to their customers, allowing them to further establish their unique value proposition.

Solution

We built an AI that read the contents of individual invoices and then used it's knowledge of tens of thousands of other invoices to make predictions about when invoices were likely to be paid. By predicting payment times for each individual invoice, the AI could then collate this to create a system that could predict the probability of having a certain amount of cash on hand at a given time.

The AI returned it's findings in the form of several easily readable plots built to be digested not just by the technical teams, but also by the business and accounting teams who needed these insights.

Results

Client obtained a fully functional system that wildly exceeded expectations, providing predictions roughly 85% more accurate than competitive methods. The full system is making it's way into production shortly and is already part of the companies unique value proposition and future strategies.

Client extended our work to cover fraud detection and have begun laying the groundwork for us to develop their own in-house data science team. Client also offered several full time roles.

Case Study: Satellite

Date Issued: Thursday, 15 October 2020

Client

A European FinTech working on behalf of an extremely well-known NGO

Challenge

Large NGO's spend tens of billions of dollars a year on developing infrastructure and essential services in Africa. As the continent is massive, dangerous, and generally difficult to monitor, it is difficult to establish the effectiveness of NGO spend in helping develop this infrastructure.

To help ameliorate this issue the client company, a FinTech based in Europe, sought to develop a scalable solution that could provide the consistent monitoring required for this NGO.

Solution

Working on behalf of the client, we constructed a hybrid AI-Satellite based approach. We began by developing a system that streamed worldwide satellite coverage. The satellite data was then processed, with clouds and atmospheric disturbances being removed, before the data was then sent to the AI.

The AI we produced developed an understanding of what buildings and roads looked like from thousands of labeled examples, and then applied that knowledge to the satellite images, identifying all the buildings and roads over the entire continent. It then used new satellite images to see how development changed on a month by month basis.

Results

Client was left with a fully functional system that could fulfil all the requirements of the NGO mandate, as well as additional features such as the ability to detect water, electrical coverage, and vegetation.

Client continued our contract for further work in processing unique data-sets for a series of hedge funds.

