

Leveraging the Power of the Blockchain and Machine Learning to define Relevance in Communications

Today's customers lead fundamentally digital lives. They engage and transact with brands using multiple devices and touchpoints which work in real time.

Although the possibilities for presenting a message and opening new opportunities have gone up exponentially, so have the expectations and relevancy of demands for security of data.

Consumers expect their desires to be met and their questions answered with no more than a click – whenever and wherever they want. They are more connected and empowered than ever before, and brands have no choice but to acquiesce.

To succeed in this new environment brands must refine their platforms to deliver messages that are highly adaptive, in real-time, and as secure as required. Today's communications landscape has outgrown previous generations of technology (e.g. decision trees) – and GNY was created to fill this need.

GNY (*pronounced "gee-nie"*) uses cutting edge machine learning with state-of-the-art algorithms to dissolve the limitations of traditional programmatic communications and marketing. GNY uses a brand's data and other publically available information to securely search through, manage, and learn from billions of potential segments to provide a superior predictive technology. GNY can provide data relating to every dimension required for marketing decisions as well as resolving problems concerning social impact

How it Works

Traditional segmentation (what product or message should be presented on an individual's mobile device right now) is GNY's departure point.

GNY's is a learning machine that constantly evaluates 10's or 1000's of data points to make predictions and then tracks their effectiveness to improve upon them.

Initial data indicators which can be programmed into GNY can be past behavior, a consumer's age, home value, Facebook profile, current time of day, mobile phone location and temperature at that location, and any other consistently trackable data point. See our test case results in the Appendix.

GNY can provide unique predictions for every one of millions of different prospects for a single brand, product, or campaign. Most importantly GNY is constantly learning from the positive and negative outcomes of its predictions to improve predictions and the conversion rates associated with accurate predictions, all with the security and reliability of the blockchain.

What separates GNY and gives it a superior computational and predicative ability is a proprietary combination of three technologies: unique learning capacity, superior processing of market segments, and decentralized blockchain integration.

1. Learning

GNY leverages data sets from the hits and misses of past communications to build a predictive model for each person and each action. The key is learning from how well those recommendations worked. Even when GNY makes accurate recommendations that significantly improve results, some recommendations will not produce results. Just like a seasoned human marketer, GNY examines how things worked out so it can learn from the

experience and improve the next round of predictions regardless of size of market of complexity of data points. This will reduce what the customer will consider pointless and annoying messages.

GNY's advantage is its ability to analyze and leverage data despite enormous volume and complexity. Every new action is automatically tracked and incorporated into the updated model based on transactions, social media, and CRM data collected and ingested. If an email goes out on Tuesday evening, and particular sales are closed based on that email, GNY reinforces the pathway of correlations that drove that email. Where a sale was not closed, support becomes somewhat less strong for the pathways that drove the recommendations that did not produce a sale.

The model is always shifting and updating itself automatically. What drives the exact changes and shifts are hard to detect and isolate because hundreds of data points are in play. This is where GNY computational power extends past the reach of traditional marketing. In essence, GNY does not recognize changes the way a human does, but rather it tracks the trends that result from subtle changes in aggregated human behavior.

For example, let's say Beyonce wears a stylish leather jacket her latest video. A skilled marketer of that jacket knows to start promoting sales of that jacket to segments of Beyonce's fan base on social media based on historical segmentation (location, age, income bracket, past purchase history). Individual results from this marketing push may be analyzed individually; say women in their 30's purchase more than those in their 40s, but the correlations between trends remains unutilized.

GNY's comprehensive management and manipulation of 100s of factors (tracking sales, social media shares, press hits, online queries) allow it to "see" 1000s of new patterns and correlations that are too subtle and complex for a human to see and then be able to track and improve their translation to marketing recommendations.

For example within 10 days Genie learned that women aged between 23-35 in Houston responded more to Facebook Advertisements, and women aged between 28-35 in Los Angeles responded more to Instagram. Recommending the jacket for purchase to young women is easy for marketers, but GNY empowers them to find the optimal message, for every customer, in every market in real time.

GNY Can Respond In Real-Time

Conventional techniques are extremely limited in their ability to adjust to real-time needs and in today's landscape of viral content and interconnectivity can have negative consequences. Even if a marketer has immaculately well designed segments, it is impossible to have them constantly evolve and sub-segment them manually.

So, should a popular athletic club introduce a new service to its members, it can use GNY to build an marketing plan for a test market that takes the historical sales and communications as a starting point.

However, human behavior is such that on the test launch of a test market, there may be a "political" disaster from someone who became president if it transpires that some customers are upset by the politics they find the message annoying, and immediately delete it, whilst others welcome the distraction and display a high conversion rate. The differences in these groups are defined by age, race, political affiliation, and the "100s of factors" discussed above, but it is particularly salient for real-time responsive one on one communication demanded by mobile devices. GNY will have retailored the recommendations for the rest of the market based on the test market, and continue to improve delivery.

2. Unique Segmentation

Ultimately, token purchasers or their clients should be looking for factors that help them decide the following:

- What are my best sales / communication opportunities: who, what, when, where and how?
- Which channel (email, direct mail, facebook ad, banner ad, mobile app ad) should I be using to reach out to consumers?
- What specific products will a specific consumer buy?
- When should I reach out to them?

This is traditionally approached by creating segments. A segment identifies a group that is more likely to behave in a particular way. GNY moves past the traditional segmentation that is inherently limited. Here's how.

GNY considers many more factors than possible for humans

Comparing three factors (age vs. gender vs. purchase) is easy to visualize in a 2 dimensional graph that compares, for example, age vs. gender with a dot for each purchase of a particular product, but one on one communication demands many more segments defined in much more granular ways. What if we considered time of year for the purchase? What about geography? What about information about income, who owns or rents their home, what part of town they live in? Humans do fine with 2 dimensional graphs incorporating 2 factors. They also can deal with 3 dimensional graphs, though they are much more complicated to draw.

That multi-factor visualization required considerable insight to build, leveraging expertise data visualizations linking considerable in locating clusters. Mathematicians and data scientists describe this as correlation and clusters of 150 factors"150 dimensional space", or simply "n-space" (where factor n equals, 150 or more). Such abstract thinking is critical to techniques and algorithms that run within GNY non-mathematicians cannot deal with "n-space" without taking enormous time and effort. however GNY thrives in n-space.

GNY Goes Beyond the Limitations of Segments

Today's b2c (business to customer) and b2b (business to business) consumers expect relevance. Why send only 10 or 20 different emails when current email technology makes it possible to tailor every one of millions of emails to suit individual needs with many variations in wording, product suggestions, timing, illustrations, pricing, etc. While humans can only really deal with 10-20 segments, GNY has no such limitation.

In the "non-sales" space GNY may be used to gather information and statistics such as for medical research etc. linked to specialist devices.

GNY Looks at Data Many Different Ways

Taking 150 dimensions and recombining them in every possible way whilst simultaneously reviewing every possible useful correlation requires a staggering number of mathematical calculations, combinations and re-combinations. Such calculations which trillions of visualizations must be machine calculated. Even with the most advanced servers and algorithms, appropriate programming techniques have only been available for the last few years. Each time GNY recalculates its n-space calculations it selects hundreds of factors and millions of data points. GNY combines, recombines, and reorganizes to develop many thousands of highly specific clusters.

GNY Is Learning Constantly

The world is not static. Consumers are changing, trends are changing, and the weather is changing. Some data classifications are working, some are not. One-on-one communication demands learning from experience. -- every thing is changing. Humans constantly learn from what they do. Clients may send a particular email to receive only 1% responses, where a different but similar email, may achieve a 10% response rate. So GNY learns something which may be fed into future campaigns.

Conventional techniques use “A/B testing”, where clients change one factor at a time, choosing to experiment with the most relevant. GNY compares factors A/B/C/D/E/F/G/H simultaneously in its testing. Every single communication, action or customer response is used to update 100,000 clusters and improves customers “n-dimensional” understanding. Taking the “n-space” equation to the next level — by building an n-dimensional model, incorporating lessons learnt and constantly evolving.

3. GNY leverages the power of Blockchain

GNY communicates securely with any blockchain. GNY decentralized blockchain leverages its power to securely record and maintain consistent data and encourages secure data sharing so data does not leave the security of the chain. Thus GNY builds more accurate, reliable and predictive models that are scalable. Smart API's combined with the universal language of GNY allows for developers to integrate machine learning power across many network models.

4. Participation

GNY tokens are issued on the Ethereum network, known as ERC20 Tokens.

The GNY token allows users to access the computing power of GNY machine learning as a form of credit and payment system.

GNY plans to open sale on its software access by accepting a range of four digital cryptocurrencies, those being:

Bitcoin (btc),
Ethereum (ETH),
ASCH (XAS),
Lisk (LSK).

Users wishing to purchase GNY tokens must open an account at the GNY domain and register this user account with all related personal information. GNY will make regulatory and other checks.

Users must register the sending account from which payment is received and on approval send the requested sum to the official GNY blockchain address.

The GNY receiving addresses are held on a publicly accessible ledger so inflows and outflows can be seen in real time and are totally transparent.

There is currently no fiat to GNY market planned to be offered on an exchange in 2018.

5. Summary

GNY extends beyond the simplifications and limitations of conventional communication and segmentation analysis. Combined with human guidance, it can produce very fine-grained, almost infinite number of clusters to provide highly specific predictions about product, timing, and the most rewarding messaging approach.

GNY combines the best in modern complex algorithms for data ingestion and correlation, the best of modern analysis of sophisticated data within the security and consistency of the blockchain, and the best of Artificial Intelligence mechanisms to allow users or their clients to respond with actionable, detail rich recommendations to real world customers, in real time. All of which assembled in a package that is proficient in interpreting the myriad data produced by modern communication and accessible social media.

GNY brings commercial grade machine learning through a decentralised blockchain to create a unique product with considerable application.

Appendix – Test Cases

Genie Email Targeting - PUBLISHER 1								
Campaign ID	Dates	Campaign Name	List A			List B		
			Requests	Delivered	Opens	Requests	Delivered	Opens
2121412	1-Dec-17	Publication A Test 1 (baseline)	543,076	543,076	21,349 3.93%	103,000	103,000	2,348 2.28%
2121421	6-Dec-17	Publication A Test 2	598,623	598,623	26,234 4.38%	94,000	94,000	3,409 3.93%
2121432	15-Dec-17	Publication A Test 3	603,259	603,259	42,126 6.98%	45,000	45,000	3,791 8.42%
2121447	18-Dec-17	Publication A Test 4 (baseline)	49,119	38,073	4,205 11.04%			
2121447	22-Dec-17	Publication A Test 5	7,638	5,409	2,592 47.92%			
2121412	1-Dec-17	Publication B Test 1 (baseline)	448,123	448,123	14,987 3.34%	112,000	112,000	2,997 2.68%
2121421	6-Dec-17	Publication B Test 2	528,671	528,671	21,234 4.02%	97,000	97,000	3,153 3.28%
2121432	15-Dec-17	Publication B Test 3	604,569	604,569	43,997 7.28%	48,000	48,000	4,367 9.10%
2121449	18-Dec-17	Publication B Test 4 (baseline)	48,231	38,073	3,256 8.55%			
2121449	22-Dec-17	Publication B Test 5	4,238	3,708	1,459 39.35%			

Genie Email Targeting - BEVERAGE 1					
Campaign ID	Dates	Campaign Name	Requests	Delivered	Opens
2121451	15-Dec	OFFER 1	498,123	269,123	7,542 2.80%
2121451	18-Dec	OFFER 1	320,223	163,500	3,120 1.91%
2121456	22-Dec	OFFER 1	120,002	111,601	12,276 11.00%
2121452	15-Dec	OFFER 2	524,361	249,876	6,234 2.49%
2121452	18-Dec	OFFER 2	299,432	153,556	1,132 0.74%
2121457	22-Dec	OFFER 2	120,134	111,783	13,004 11.63%
2121453	15-Dec	OFFER 3	523,980	256,834	7,234 2.82%
2121453	18-Dec	OFFER 3	357,654	192,690	1,603 0.83%
2121458	22-Dec	OFFER 3	124,920	111,891	12,786 11.43%

GNY used past historical viewing data to identify new classifications of content viewers that will predict their next most likely view. GNY used cloud network of keywords and measured distance between nodes of similar category. Genie algorithm runs through millions of combinations to reduce that overall network node distance. GNY also used past historical subscription data to identify new classifications of buyers that will predict their next most effective offer.

GNY then translated targeted IP address hits into personal emails into thousands of more customers.

GNY mined data and feature extraction and ensemble learning to find the most likely new segments and most probable new content categories.

GNY created personalised product suggestions and automatically used re-marketing and lookalike targeting.

Using two separate email lists (one internal, one external) GNY increased email opens from a baseline of 3.93% (internal list) and 2.28% (external list) to 6.98% and 8.42% respectively. This while reducing the number of emails sent and increasing the total number of opens. These results can be seen for both publications tested (Publications A and B).

Genie Content Targeting - PUBLISHER 1

Date	total	Client (12 articles)	Client (per article)	% click	Genie (5 articles)	ie (per article)	% click	% Better
12/22/1017	7,497	6,796	566.33	7.55%	5,308	1,061.60	14.16%	87.45%
12/23/1017	3,718	3,186	265.50	7.14%	2,793	558.60	15.02%	110.40%
12/24/1017	3,563	3,030	252.50	7.09%	2,593	518.60	14.56%	105.39%
12/25/1017	3,293	2,809	234.08	7.11%	2,409	481.80	14.63%	105.82%
12/26/1017	3,797	3,255	271.25	7.14%	2,929	585.80	15.43%	115.96%
12/27/1017	4,184	3,467	288.92	6.91%	3,083	616.60	14.74%	113.42%
12/28/1017	4,398	3,615	301.25	6.85%	3,116	623.20	14.17%	106.87%
12/29/1017	6,622	5,877	489.75	7.40%	4,638	927.60	14.01%	89.40%
12/30/1017	6,351	5,686	473.83	7.46%	4,722	944.40	14.87%	99.31%

GNY also consistently doubled the viewing traffic of website publisher recommendations, compared to personal editors curating each article. Since it is possible for an intelligent employee to write "if this, then that" rules, GNY can effortlessly quantify buying behavior over and over again, each time digging deeper into trends.