nvest.ai

Revolutionary Crypto Data & Analytics Platform

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Abstract — As the evolution of cryptocurrencies progresses, the velocity, variety and volume of data makes it difficult for traders and investors to keep up with all the news & developments. This is exemplified with the recent explosion of new project launches (ICO's) beginning in 2017, in addition to the important advances amongst well-established projects.

There is simply too much data for the human brain to process. Yet successful investing often requires one to analyze large amounts of data from a variety of sources to be able to find the signal from the noise and spot trends before the crowd. Therefore, investors who can harness insights from data will be one step ahead.

Recent advances in AI and Machine Learning are perfectly suited for decision making tasks made on large, complex data sets and can provide unparalleled insights beyond simple human abilities. However such sophisticated technologies require both technical and domain expertise to fully leverage their application to crypto markets.

Nvest empowers all users, regardless of their technical background, to make better investment decisions by providing accessible AI tools and enabling technology applications. The nvest technology platform will host proprietary tools/applications (*apps*) created by the nvest team and designated token rewards will incentivize community members to create and share new tools and content. The nvest platform combines professionally curated data, plug-and-play AI algorithms and interactive visualization tools into a full suite.

As a community, nvest creates a symbiotic relationship between technologists (data/computer scientists) and investors/traders. The nvest platform provides investors and traders a wide ranging technology solution and for developers, nvest streamlines application development. By focusing on content/tool users and creators, strong network effects will accrue to the nvest platform and benefit all users.

Compared to other companies we think that: Bloomberg + Facebook + Tableau = nvest.ai

Mission Statement— Create a revolutionary crypto data and analytics platform by combining accessible AI technologies with incentivized community participation. Nvest.ai – Complexity Simplified Elegantly

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1 INTRODUCTION

TECHNOLGY is changing every industry. Complex tasks like investing and trading are easily performed by machines when they have the appropriate data and instructions. While some academics assume markets are perfectly efficient and all data and information is reflected in market prices, in the real-world traders and investors know that's almost never the case. In a world awash with data and where Machine Learning is increasingly being adopted, nvest provides a technology solution for traders and investors, by providing them the tools they need to make better decisions. The following principles guide the nvest project:

1. In today's crypto markets, users who adopt a technology strategy to capture insights from data and harness sophisticated machine learning algorithms have an edge over users who do not have any technology strategy.
2. All users should have access to powerful algorithms, regardless of their technical background.
3. Providing preprocessed data and easy to use tools empowers users to focus their time and energy on tasks where they can add more value.
4. Beautiful and interactive visualizations are essential to provide a clear window into the otherwise complex data and number-crunching results.
5. A community can use a token to provide an incentive mechanism for users with different backgrounds to create, collaborate and share their expertise.
6. The value of an investment community is increased when users of different backgrounds interact and contribute.

This creates positive network effects for current and prospective users

7. The initial overhead involved in data collection, processing and algorithmic development is often large and fraught with many unexpected details that require thoughtful domain expertise, yet it is essiential for all Machine Learning tasks. Amortizing this cost over many users is an efficient solution.

2 PLATFORM

In order to harness insights from data, the nvest platform is built upon the following technology pillars: **Data, Algorithms & Visualization:**

Data: Nvest will collect, process and provide users with professional quality raw data. The foundation of all data analytics rests on quality data, as the saying, *garbage-in-garbage-out*, illustrates. As analytical capabilities extend from relatively constrained structured data to big data, unstructured data and real-time streaming, ensuring professional level data integrity is increasingly a major concern. Recent studies suggest that around 60-80% of a data scientist's time is spent collecting, reviewing and cleaning datasets.[1] In addition to technical competence, data integrity must be coupled with domain expertise to ensure that curated data is useful and appropriate for AI and algorithmic processing.

A sample of the data nvest will collect, includes:

☐ Crypto exchange data, including prices and order book information collected at a high frequency from global exchanges.
☐ Unstructured data, like text data found on websites, forums, blogs, event registries, reddit, white papers or GitHub repos.
☐ Historical and current streaming data from sites like Twitter, Telegram, Weibo (微博), WeChat etc.

Nvest will not only create meta data for all existing and planned crypto projects, such as project name, short description, project launch date, project summary statistics, founder names, exchange volumes etc. but we will also create proprietary data sets, like white paper revisions, GitHub tracking statistics and more importantly Github scoring statistics. Domain expertise is essential to exploring and creating new data sets.

Most of the data will be collected and cleaned by the nvest platform, but we will partner with existing data organizations to provide part of the data services when it is the most effective route. Our goal is to provide users with a single point access to a large variety of datasets that have already been reviewed for integrity and are available for use in applications and/or data analysis. Data will be available for users to explore via an easy to use dashboard interface and an API for developers.

Algorithms: While Machine Learning and AI accessibility has greatly improved in recent years, to properly harness it's power, one needs to be able to write code, ensure input data is properly formatted, remove any errors or biases, select an appropriate model algorithm and then tune the many model parameters which often requires complex mathematical understanding. Nvest's team of machine learning experts will build plug-and-play intuitive and easy to use tools that removes these barriers. Nvest empowers all users with the ability to explore machine learning models without any software programming required! Advanced users will be able to easily change settings and customize to their own needs.

For developers and data scientists, nvest will promote a best in class developer API which will grant them access to model level specifications.

Visualization: AI and Machine Learning algorithms often produce complex results. Given a human's limited ability to store and interpret large amounts of data, visualization is often relied upon to improve interpretability. With the improvement of web 2.0 tools like D3.js, interactive visualization adds another dimension to the nvest experience and allows for interpretation of more complex information.

Visualization is a core attribute of nvest and we will provide a variety of static and interactive charts and figures for users to explore, save and share. Developers will be able to access our open source libraries of visualizations and easily deploy them into their applications.

2 Applications/Tools

Applications: Nvest's technology platform hosts all application/tool development along with the user experience. By creating a modern, flexible platform, nvest's technology stack streamlines new application development, enabling fast launch, testing and analytic review of third party apps. In this way, the value of nvest is not tied to one or two '*killer apps*', which may go out of fashion, but rather a marketplace of different applications, created by the nvest team and a community of users.

A sample of nvest applications (apps) is included below. For more information see Appendix 3:

☐ **Pattern Finder:** Explore the current price movement of a crypto currency (or any financial market instrument) and compare it with historical data. Scan for technical analysis price patterns, obtain probability estimates for trades like win/loss ratios, profit targets, d optimal holding period, maximum loss estimates, and much more. You can use Pattern finder to set price alerts and even generate your own automated trading strategy using Pattern Finder as a template with no coding requited. Don't guess what will happen, be prepared for tomorrow by using history as a guide.
☐ **Bot Builder:** With **s**imple drag-and-drop functionality, create your own algorithmic tools on an array of data, including prices, events and text processing. Design a trading strategy to execute trades based on prices or technical indicators, create custom alerts based on text data or sentiment scores, or use events like ICO funding windows as an input for your bot. Build your own bot from scratch or use existing templates to start.
☐ **Token Discovery:** Use Natural Language Processing (NLP) to enhance your fundamental research by summarizing white papers or other text documents like blog/forum posts, create custom sentiment scores, view semantic relationships and many other NLP related tasks. Use nvest's pre-built models and easily change settings to customize to your specific needs. Analyze more data than you could ever read and discover new insights.
☐ **Crypto Sight:** Use statistics to analyze, filter, and screen structured data across the entire crypto market. Determine what are the current macro and industry trends and create your own customized reports. As well, monitor token hash rates, wallet creations and other blockchain data.
☐ **Portfolio-Rizer:** Summarize all your crypto holdings and wallets in one place and provide portfolio level calculations and recommendations. Leverage advanced quantitative finance methods to calculate common risk and performance metrics.
☐ **Opinionator:** Buy/sell or request expert information and reports. Read a cryptographer's review, ask an industry veteran for their thoughts or visit the marketplace to view all reports available. Opinionator allows users to monetize their knowledge via content distribution to the entire nvest user base.

User experience: Nvest's platform is embedded with machine learning technology to improve the user experience, including automated content recommendations, customized visual preferences, suggestions for users to follow, tools of interest, tutorials and alerts. Users can easily update and customize settings or disable all user tracking if they want to remain anonymous.

Nvest provides a completely flexible and customized user experience. Users can choose the tools they want to

use, the data they want to analyze and even the community members they wish to follow and engage with. The nvest community caters to both traders and investors, from neophytes to experts and provides each with the tools and support to match their specific needs.

3 TARGET MARKET

The initial target market for nvest, which we refer to as '*consumers*' are professional crypto investors and traders. While there are many amateur or occasional crypto investors and traders, with roughly 500,000 unique bitcoin addresses and 22 million wallets on Blockchain[2], nvest will target only the top 10% of users, specifically those who are active with their portfolio and/or have a sizeable amount invested. If we use the number of Bitcoin address with greater than 1 BTC as a proxy, our current market is about 700,000 users. [3] This group has the most incentive to our AI tools. By targeting professionals and more active participants initially, we are deliberately focusing on a smaller audience than what is the potential for nvest, and this is a strategic tactic. Peter Theil and Elon Musk used a similar strategy when they started PayPal, targeting large sellers on Ebay and in his recent book, Peter Theil explained why. [4]

"The perfect target market for a start-up is a small group of particular people concentrated together and served by few or no competitors. Once you create and dominate a niche market, then you should gradually expand into related and slightly broader markets."

Given the rapid growth of cryptocurrencies and the difficulty involved in creating complex machine learning tools that are accessible and easy to use, we see the need for professional investing tools to be very high and current solutions below potential or unmet.

Target Market #2: Creators

A key differentiator of the nvest platform is the strategic targeting of '*creators*', who will enrich the community by creating and adding tools to the platform. While the *consumers* and *creators* are not necessarily mutually exclusive, as there are increasing numbers of traders who are comfortable writing code, nvest will create content and user environments specifically targeted to software developers and data scientists. We will cater to developers specific needs and simplify the process involved in building and deploying new applications on the nvest platform.

The most popular and accessible data science programming languages today are Python and R, both of which have millions of users, though exact figures are surprisingly unavailable. Of the 18M users on Stack Overflow, Python is the fastest growing programming language, and comprises nearly 9% of all posts.[5] Nvest will ensure both Python and R are well supported by creating libraries and packages for both. Software developers who don't use Python or R will also be supported with access to a REST API available in all common programming languages. In addtion, developers who are skilled at creating visualizations and easy to use UX interfaces will be targeted and we will ensure they have the necessary support.

4 NETWORK EFFECTS

Financial markets by design are competitive, encourage secrecy and are often dominated by large players with limited incentives to share. Nvest breaks this paradigm by bringing together a diverse user base with different skill sets and encourages users to create, share and learn within a community by focusing on incentives. As nvest creates and hosts an increasing number of value added tools, investors and traders will be drawn to our platform in order to access them. And when that happens there will be more incentive for outside developers to add new tools because of the large audience they can reach.

Table 1: Nvest.ai Competitive Position

Company	User Price	Data Feeds	Data Analysis	Visualization	Target Market	Social	ICO Raise / Current Valuation	Max ROI
nvest.ai	Nvest Token	Excellent, structured and unstructured	Next Generation	Excellent	Crypto trader/investor & Data Scientists	Yes	$20M hard cap	-
Santiment	Open source	Poor so far. Sentiment focus	Sentiment Only	Poor	Crypto traders & investors	Not sure	$12M raised, $73.8M mkt cap	27.3x
Enigma	Token	Expected to be Excellent	Good	None	Quant Crypto traders	Not sure	$45M raised $123.4 mkt cap	13.6x
Cindicator	Token	Good	Mostly Polls	Basic	Crypto traders		$15M raised $104.1 mkt cap	31.6x
CoinFi	CoinFi subscription	Ok, focus on structured data with some sentiment	Ok	OK	Crypto traders	Yes	$15M raised $10.2M market	0
Numerai	Free	Excellent but encrypted	Up to users	Basic	Data Scientists	Yes	$18.2M market cap	18.2x
Blox /CoinDash	Coindash token	Block chain data	Excellent	Basic	Crypto traders	Yes	$16M raised, $28.7M mkt cap	27.7x
investFeed	Mid	Only Tweets	Excellent	None	Traders in Stock & Crypto markets	Yes	$4M raised, $8.6M mkt cap	8.6x
Bloomberg & Reuters	Extremely High	Excellent structured data. Growing unstructured	Excellent	OK	Financial markets, Institutional	Basic	Bloomberg $9.4B in Sales - 2016	-

* As of March 28th, 2018

By creating a community of investors and technologists, we can foster user content creation which increases the value add of the nvest platform and creates strong network effects. Unlike free networks, which can often be inundated with low quality content, nvest utility tokens enable market economic forces to ensure high quality contributions are rewarded and are easily spotted. For example, you can easily filter high quality research by examining the number of subscribers a given user has and the associated cost to access their service.

5 MARKET SIZE, STRUCTURE & COMPETITION

Financial markets facilitate the movement of money between investors and firms and are key to the modern economy. Exchanges, like the New York Stock Exchange, NASDAQ and CME allow investors and traders to easily transact, similar in the crypto world to CoinBase, Bittrex, Binance and many others. While exchanges provide a valuable service, the complexity of modern financial markets has necessitated information service providers as well, for example the well-known firm Bloomberg.

A single Bloomberg terminal is licensed at roughly $25,000 USD per annum and is considered a necessity for most institutional investors. Including the financial service divisions of close competitors Thompson Reuters and FactSet, the annual revenue of these three firms alone, we estimate, was over $15 Billion (B) in 2017. For comparison, the world's 10 largest listed stock and derivative exchanges generated $21B in revenue in 2017 and have a combined market cap of over $255B. [6]

Professional investors pay a high price to access services like Bloomberg because of the depth and breadth of its data and tools. While there are many other software providers, some providing niche services or others at a lower price point, the scale of the three largest firms enables them to offer the broadest array of data and analytics which is tough to compete against.

We believe the tremendous growth in both established and new projects in the crypto markets indicates that there is a need for professional investor tools in this market as well. While many recently launched projects aim to serve this market, none so far that we can identify provides the depth of nvest's functionality or platform advantages. A brief summary of the competitive environment can be found in Table 1.

6 TOKEN ECONOMICS:

Access to tools/apps running on the nvest platform will require payment using nvest tokens. The price set to access tools will vary but the initial goal is to build a large user base so prices will be set at affordable levels. **Master Holders**, (see TOKEN DESCRIPTION) will decide on the specific pricing policies for tools.

Token payments received for using the platform will be property of the nvest organization (See ORGANIZATION). The nvest organization will distribute all tokens received according to guidelines which again will be determined by the Master Holders. Tokens generated from applications or tools built by the nvest team will initially be distributed according to the following guidelines (after any applicable taxes/charges, and subject to review by the Master Holders)

Nvest Token Distribution Policy

Percent	Distribution Party
30%	Tokens deposited into a reward pool for technologists and tool creators. Distribution guidelines for reward pool will be objectively based on usage statistics and transparently displayed.
70%	Tokens held by nvest Organization and used for general budget.

When the nvest platform is open to applications built by the community, the organization will ensure that at least 60% of the tokens received from those apps go back to the contributor for his/her hard work. The exact split will however depend on a variety of factors, including technology workload placed on nvest's platform and improvements vs existing solutions. Master Holders will decide the specific token reward terms.

Once the token generation event is complete, Master Holders will be given the opportunity to vote on a variety of smart contracts that will be created which will contain the exact details of the distribution policy.

Master Holders will also be allowed to vote on burning part of the nvest tokens, subject to a legal opinion which can assure that nvest tokens will remain exempt under applicable federal securities laws.

The theoretical value of the nvest token should be linked with the utility gained from using nvest apps. If an application can save or make a user profits, then the token value should reflect a part of that.

Making successful investment decisions is more than just making a trade recommendation to buy or sell - it can be providing investors with portfolio management tools, informative personalized alerts, or enhancing research through Natural Language Processing. A key point here is that nvest apps do not need to have a direct profit and loss attributable, like a trading strategy, in order to provide value. Should the number and quality of applications built on top of the nvest platform increase, it is likely to provide more users with value therefore the value of the token should see commensurate growth. However any growth of the platform is based on a number of factors and nvest makes no claim that any future growth will be achieved. See Terms and Conditions for more details.

For more details regarding nvest tokens, please see **Token Description**.

7 STRATEGY

As a start-up focused on growing its user base in the rapidly evolving crypto industry, nvest will rely on lean startup methodology towards technology and product development. As nvest's products are digital services, concepts like MVP, continuous deployment, actionable

metrics, user feedback, failing fast, and strategy pivoting will be emphasized.

The team at nvest is committed to providing high quality results in every aspect including design, user experience, data collection, algorithmic implementation and we will embed this in our culture and values.

We fully expect competitor projects to copy our ideas; therefore, building a strong user base of both traders and developers is critical to our success. As an early mover delivering accessible AI tools to investors, we will move fast, delight our users and focus on creating a powerful network effect.

8 TECHNOLOGY & ENGINEERING

The technology platform is developed with the following tenets in mind: scalability in the types and size of data, scalability in processing and computation, intuitive data models, collaboration and quick experimentation and concrete metrics for success. With these, our goals are to provide a state-of-the-art platform with complete coverage of all relevant data sets necessary for market analysis - cleansed and intuitively modeled. The system is modular with plug-and-play components for quickly extending the feature set. The underlying technology stack consists of the following 5 layers (see appendix 1):

1. Data Ingestion and Preprocessing: This layer consists of statefull processes that mine, collect and preprocess data from external sources. The processes are run on a distributed cluster to preprocess and cleanse raw data feeds and crawler results, storing the raw data files on an HDFS data lake.

2. Data storage, Modeling and Representation: The output from the ingestion layer is then abstracted and stored in an accessible form, optimized for running queries efficiently. The databases will consist of distributed mongoDB instances for hierarchical data as well as Amazon Redshift clusters. Kinesis messaging stream will be used to subscribe changes to the data and post-processing will run on an EMR cluster with Spark.

3. AI/Machine Leaning Experimentation and Modeling: Deep learning models are developed and trained over the data abstraction layer (above) to provide predictive and generative features that cross the market data, personalized user preferences and other external sources. For knowledge extraction, modern NLP models will be applied to process language based inputs, leveraging Part of Speech Tagging and training domain specific word-embedding models for classification of terms and topics. These models, in combination with the deep learning architecture over structured market data, will be used for aggregating relevant and trending crypto and market "concepts" for prediction and analysis.

4. Predictive and Generative Models: Models trained will be applied to their use-cases to provide insights about cryptocurrencies. These models will process thousands of features to detect patterns and knowledge from the base data sets. These results will be further exposed via APIs and allow for integration with data scientists, business partners and app developers.

5. Collaborative UI and Interactive Visualizations: output from predictive analytics and generative models are interfaced with rich and customizable UI components, leveraging visualization projects such as D3.js and Tableau. Open source libraries will be created to enable developers to easily access previously deployed visualizations with limited work. Users can share, follow or contribute to the results.

In addition to the base technology platform, nvest also provides proprietary and highly optimized models that uniquely set it apart from potential competitors. In particular, nvest takes a novel multi-dimensional signal processing technique to both training models as well as exposing APIs to developers. An example of a proprietary algorithm is our optimized wavelet feature space (Appendix 2), in combination with RNNs, which provides a rich vector space representation for analysis and search of trends/patterns over arbitrary **scales** and **times**. Our basis functions have been finely tuned to provide better time-variant causal processing across data sets with high dimensional feature spaces.

The nvest platform is accessible via web and mobile apps using reactive design principals. Modern cross-platform JavaScript framework is used to quickly develop the front-end apps and admin consoles. Front end UI layers are optimized to deal with large amounts of data, and when applicable proprietary JavaScript processing is used to reduce server workloads.

Technology security is maintained using industry best practices for all access points, vulnerabilities and system designs. All external traffic will flow through SSL layers. Audit trails of all transactions will be recorded, and OS/system patches will be updated on a regular basis. Regular security reviews will take place by third party security consultants. PII will be isolated in a separate data layer.

9 SCHEDULE AND ROADMAP

DISCLAIMER: Information provided is not a commitment, promise or legal obligation to deliver any functionality. All forward looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Please see Terms & Conditions for more information.

The nvest platform is currently running live on stock market and limited crypto market data at www.nvest.io. Upon completion of the token distribution, we will merge nvest.io with nvest.ai.

It is important to note that nvest is building a software platform focused on data and analytics. We utilize the blockchain primarily for ownership, governanace and payments. Inasmuch our technology development is much more flexible than a blockchain foused project. We are not building a mainnet or testnet but will leverage other projects who have built that technology.

Phase 1: 0 – 3 Months

☐ Token Generation Event
☐ Technology Development:
   - Upgrade data feed services and increase direct exchange connections to collect and store data, including price, order book, and blockchain information.
   - Collect unstructured data related to cryptocurrencies
   - Upgrade current visualization layer and UX.
   - Release upgrades of tools: PatternFinder and BotBuilder on nvest.ai
☐ Build out nvest team with strategic hires, focused on software development and machine learning.
☐ Reach out to contacts to establish strategic business relationships in financial markets, data science and Machine Learning.
☐ Create user group for beta testing and feedback

Phase 2: 3 – 9 Months
☐ Technology Development:
   -Expand the nvest platform in areas such as NLP, high frequency data and unstructured data.
   -Create user dash boards and customizable widgets
   -Focus on interactive visualization of all nvest tools. Integrate popular libraries like d3.js
   -Develop API protocols. Beta release to select data scientist and channel partners
☐ Enhanced integration of token-based transactions.
☐ Security review of user account systems, token transaction systems and PII.
☐ Ramp marketing expense to focus on new user acquisition. Ensure analytical capabilities are in place to evaluate ROI

Phase 3: 9 – 18 Months
☐ Collect comprehensive feedback. Analyze user preference and utility of current nvest tools. Pivot where necessary.
☐ Make smart recommendations to users based on their history and preferences.
☐ Beta release nvest mobile app
☐ Create specific content and user experiences for software developers and data scientists.
☐ Host first contest for community created tools. Provide nvest token rewards.
☐ Drastically increase content available, including tutorials, daily commentary and expert reports.
☐ New version release of tools such as Token Discovery, Crypto Sight and Portfolio-Rizer.

10 MARKETING

As nvest is a startup technology platform, the company has been focused on core development needed to bring the project into operation. However many technology companies fall into the trap of '*if you build it, they will come*' and do not succeed no matter how advanced the end product. We fully understand this and we will devote substantial resources to user acquisition, product marketing and design functions once the project is funded. Nvest's public launch is an important product marketing opportunity given that initial investors will likely overlap with the target consumer user base.

Examples of marketing and promotional activities to drive user growth and product-adoption will include:
☐ Active blogging, social media posting and promotion of user generated content on nvest and popular crypto sites.
☐ Contacting fund managers, traders, widely followed crypto investors/influencers for expert reviews and input towards new tools they would like to have.
☐ Contact partners in Trading, FinTech and Data Science
☐ SEO, including landing pages & keyword campaigns
☐ Online advertising
☐ Industry networking
☐ Sponsoring & attending user groups and meetups

Strategic Partners
Nvest is interested in partnering with strategic firms that would benefit from our tools, such as hedge funds, exchanges (to offer nvest to their users) and influencers. We are interested in making pre-sale offers to potential partners. (See TOKEN DESCRIPTION – PRE SALES for more information.)

11 TOKEN DESCRIPTION

Nvest will create 2,000,000,000 Ethereum ERC20 tokens to be held by the nvest organization and distributed to holders during the token generation event. Nvest tokens will serve as a utility token, do not pay any interest or dividends and should not be considered a security for investment purposes. Please see **Legal & Regulatory** for more information. Holders of 1,000,000 or more nvest tokens will confer voting rights proportional to their ownership and will be considered, "Master Holders."

Token Distribution

Tokens	Pct	Holders
800mm	40%	Nvest.ai (Founders and Employees)
100mm	5%	Advisors & Partnerships
100mm	5%	Reward Pool initial contribution
1,000mm	50%	Public token holders
2,000mm	100%	Total

Decentralized Autonomous Organization (DAO): Nvest intends on creating a democratic decentralized organization that exists solely in the blockchain. The DAO will be responsible for voting on all matters related to nvest tokens. In order to be a participant in the DAO, a token holder must meet the minimum threshold to be a master holder, currently set at 1,000,000 tokens, or 0.05%. The initial smart contract created with the token offering will grant Master Holders the right to vote on an additional smart contract which will contain all the rules regarding Master Holder voting.
Master Holders will be granted voting rights to make decisions on all matters related to nvest tokens, including reward pool distribution policies, app pricing and all blockchain related issues. In addition, master holders may receive discount pricing and first access to all nvest apps and tools.
Fund Raising: General sales will be open to the public beginning on June 22, 2018 through June 28, 2018, subject to

change. Nvest's initial token distribution will be denominated solely in Ether, and tokens will be issued at a nominal value of $0.02 USD. A minimum sale target will be set at $6 Million USD/0.3 Billion tokens, which if not received by the conclusion of the distribution event will result in the cancellation of the campaign and all funds will be returned. A token maximum capital raise will be set at $20M. If the token minimum is met but not the token maximum then any remaining tokens will be burned along with a portion of the team and advisor tokens to ensure the stated distribution remains.

A maximum of 80,000,000 tokens (4%) will be available for any individual address and a minimum deposit of 0.01 Ethereum will be required to participate. The exchange rate, token contract address and detailed terms will be published on the nvest website 48 hours before the distribution. The exchange rate per ETH will be updated daily via an oracle.
Full details of nvest's token will be described with the release of nvest's smart contract which will take place at least 4 weeks before any public generation event for review and comments.
Private and Pre-Sales: Prior to the public sales, select private-sales will be offered to strategic partners, advisors and large investors for a total of $0.2M USD. Nvest will also accept pre-sales, in the amount of $3M USD, which will be governed by the smart contract but receive a sliding bonus from 20-30%[8].
For more information please contact, avi@nvest.io
Vesting: All team members, advisors and strategic partners will be subject to vesting terms which prohibit selling any token for 12 months following the token creation.
Reward Pool: All tokens designated to the reward pool will be locked and inaccessible until a follow on smart contract is created which will detail how the reward pool tokens will be distributed. Only Master Holders will be allowed to vote regarding the reward pool distribution policies.

12 Budget
Nvest Annual Budget

Pct	USD	Category & People
58.3%	$4,050,000	Technology Development: 8 Machine Learning Experts 8 Software Engineers & UX 3 Jr Developers & Offshore
10%	600,000	Marketing, Customer Service & Business Development.
5%	600,000	Exchange Fees (listing)
3%	200,000	Data Feeds
3%	150,000	Operational Expenses.
10%	150,000	Legal, Audit and Regulatory.
5%	300,000	Reserve
100%	$6,000,00	Total

The forecasted annual budget for nvest is $6M USD and is mostly related to technology staffing. We believe in hiring a small expert team to build out the nvest platform vs hiring many developers. Given the recruiting trends for experienced Machine Learning professionals, we will need to pay competitive slaries in order to attract quality talent. We will explore hiring more engineers if the maximum fundraising goal is met.

13 TEAM
Avi is nvest's financial data and market expert. He graduated with honors from the Schulich School of Business and is a CFA Charterholder. He has over a decade of financial market experience and currently works as a Senior Investment Analyst for an SEC registered investment advisor, Horn Eichenwald Investments Corp, which manages high net worth clients in Miami. He has extensive experience using and creating financial data and tools, including algorithmic trading, economic forecasts, portfolio management, fundamental security analysis and quantitative factor analysis. He has global experience across a wide range of financial assets including equities, ETF's, futures, commodities, high yield bonds, foreign exchange, asset-backed securities, hedge funds and cryptocurrencies.

As nvest's founding partner, his role will focus on product development, data services, user experience and marketing strategies. LinkedIn
Saul is nvest's technology expert and will be responsible for software architecture, implementation and team staffing. Saul graduated with a PhD in Computer Science, specializing in Machine Learning in 2005. He has held various senior level positions in the technology field, including leading a team of over 30 developers, responsible for a company's entire technology stack and high-traffic low-latency website. Currently he leads an expert AI team at one of the world's largest technology companies.
Saul has extensive software development experience across multiple architectures, environments and programming languages. As a proponent of machine learning before it was highly popularized, he has vast academic and practical experiences and industry contacts which will be needed for team recruitment.
Saul is a committed founding partner at nvest however his current employment situation does not allow for more public disclosure. For more information please contact us.
Waleem is nvest's resident Data Scientist. He earned a PhD in Financial Economics from the University of Alberta and a Masters in Economics from Central Michigan. Waleem is currently a manager of Business Intelligence and Analytics at Alberta Pension Services, a large Canadian pension plan. He has expert experience with machine learning including Time Series Modeling, Autoregressive Markov Regimes and Anomaly Detection. He has vast experience in applied predicative analytics to business problems. Waleem is an expert in R, Python, SAS, MATLAB and C/C++. LinkedIn
Jenni is nvest's senior software engineer. She holds a BS in Computer Science & Electronic Engineering from University College London and Stanford (combined). Jenni has worked at Cambridge labs, specializing in Machine

Learning and Statistical modeling and has several years' experience in software development and applied machine learning. She is an expert in firmware systems and has worked on various projects including autonomous driving, bio informatics, risk management, algorithmic trading and machine vision, among others. She is a MATLAB and C++ expert. GitHub

Eddie is a software engineer and web developer. He holds a BS in Computer Science from NYU and has several years' experience in software development, with a focus on web technologies. Eddie is an experienced full stack developer. LinkedIn

Bruno is nvest's digital marketing manager. He holds an MBA from Millennia Atlantic University. Bruno has several years of progressive experience in marketing focusing on financial markets in Brazil with proven results and he is an expert at marketing analytics and digital media. LinkedIn

Advisors
Leandro Ruschel, is the founder of Liberta Global and L&S Group. The L&S group represents more than seven different companies in Brazil and provides financial services including overseeing R$700M for client advisory and has over 150,000 subscribers to their comprehensive financial education including a well-regarded trading school.

Leandro is regularly interviewed by major Brazilian media companies and is renown in the Brazilian financial community for his influential role developing Technical Analysis and is the author of the book "Me, the Stock Market and my Grandmother" (*Eu, A Bolsa E Minha Avo*). LinkedIn

Mickael Salabi, is the founder of Tokenpot Capital, a crypto hedge fund. Mickael has been a blockchain enthusiast since 2012 and has participated in many projects during the past six years including being an early investor in Ethereum, Iota, Qtum and many others. Before his involvement in crypto, Mickael was a senior technical architect at RazorFish and has worked in the technology field for several years. LinkedIn

Sol Kafai is a Barrister and Solicitor (Lawyer), and works as in house counsel at one of Canada's largest financial services firms.

Alessandro Barroso, is the Manager of Equity Trading Software Development at Franklin Templeton Investments. Alessandro is a trading and crypto enthusiast and has designed many different trading software including advanced technical indicators and automated trading strategies. Alessandro also has over 15 years' experience in software development, with a focus on web technologies. LinkedIn

We have contacted and are engaging with several high-quality advisors. Stay tuned.

14 ORGANIZATION
The nvest organization will register an offshore based entity (an LLC based in Bermuda is the preferred option) that will create all the tokens and then distribute them during the token generation event. The beneficial owners of the organization will be the co-founders, Avi and Saul. After the token generation event and all tokens have been distributed, the rules governing the tokens will be made by Master Holders and the DAO. Any tokens earned by the organization will be distributed according to the policies set by the DAO.

The nvest organization will sign a binding lifetime agreement for all software development regarding the nvest platform to be performed by an operating company domiciled in Miami, Florida, where the nvest team will be located.

15 LEGAL & REGULATORY
Nvest tokens are a utility token and do not provide any legal ownership rights, dividends or interest and they do not meet any legal qualification of a security. Any person or entity purchasing nvest tokens will agree to all Terms and Conditions, posted on the Nvest website: www.nvest.ai/terms-conditions.html

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15 CONCLUSION

Nvest is creating a revolutionary technology platform for crypto investors and traders. Recent focus on crypto exchanges highlights the large opportunity for ancillary services in crypto markets. By providing a suite of next generation tools that improve decision making, nvest will become highly valued by its users and this will incentivize community content creation. AI and Machine learning are rapidly changing the world but their adoption by everyday users is limited due to many technical hurdles. The future of investment decision-making is within sight, but we need your help to build it. Join the nvest community and be a part of the revolution.
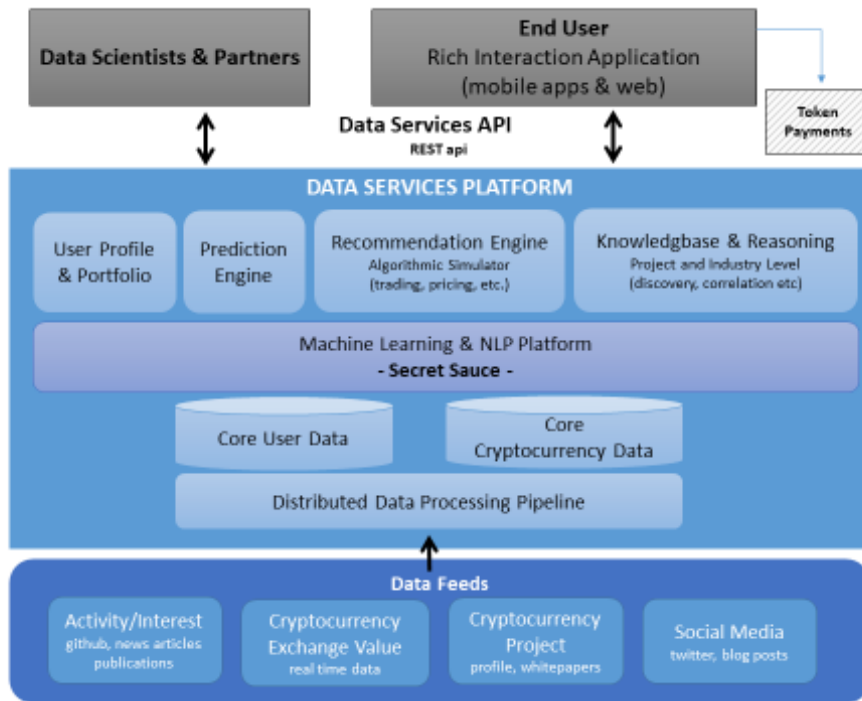
Nvest.ai – Complexity Simplified Elegantly.

REFERENCES

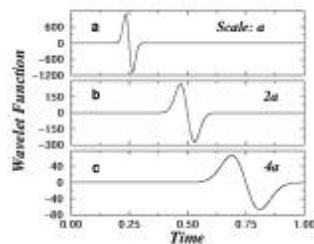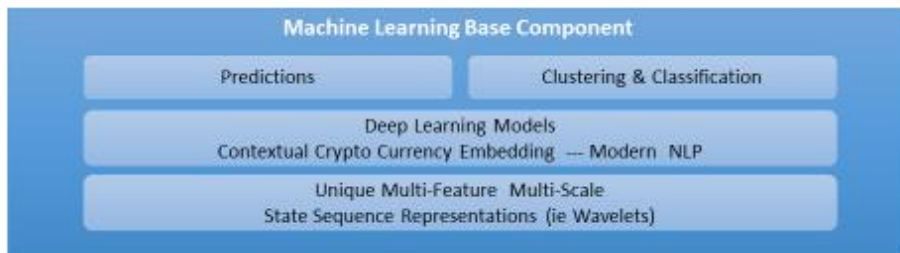1. https://www.forbes.com/sites/gilpress/2016/03/23/data-preparation-most-time-consuming-least-enjoyable-data-science-task-survey-says/#2

   https://www.theverge.com/2017/11/1/16589246/machine-learning-data-science-dirty-data-kaggle-survey-2017

2. Most humans can't memorize more than 7 digits at a time https://en.wikipedia.org/wiki/The_Magical_Number_Seven,_Plus_or_Minus_Two and human spatial ability to deal with multi-dimensional data is limited https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4529354/
3. https://blockchain.info/charts/n-unique-addresses
4. https://bitinfocharts.com/top-100-richest-bitcoin-addresses.html
5. Zero to One: Notes on Startups, or How to Build the Future, Peter Thiel, 2014
   Python users https://insights.stackoverflow.com/trends?tags=r%2Cstatistics%2Cpandas%2Cpython
   https://stackoverflow.blog/2017/09/06/incredible-growth-python/ another reference
6. Source: Bloomberg
7. Pre-Sale bonus tokens will be set forth according to Terms and Conditions. Please email us for more information.
8. Nvest Terms and Conditions can be accessed online: www.nveset.ai/terms-conditions.html
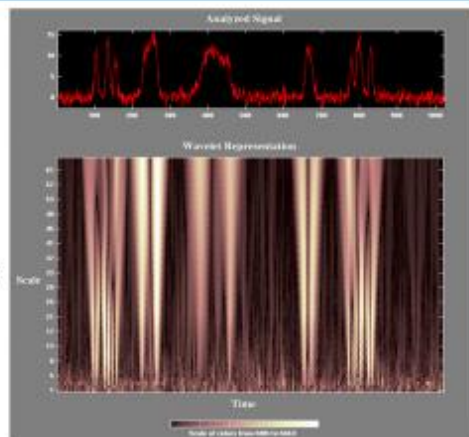
Appendix 1 – Technology Platform Design

Appendix 2 – Machine Learning Base Component

$$h(s,\tau) = \int \theta(t)\Omega_{s,\tau}(t)dt$$

Appendix 3

Nvest Tool Explained -- www.nvest.ai/tools.html

Intro: Nvest's technology platform allows applications (apps) or tools to be easily built and deployed. Nvest provides the data, algorithmic models and visualization libraries to streamline software development. This means is that the initial tools or apps listed are just a sample of what will be offered in the future. There will be more apps as the developer community grows and builds their own apps.

To kick start the platform, the team at nvest will create several applications targeted to crypto traders and investors. We will get feedback from our users and pivot when necessary. The site nvest.io has a working version of Pattern Finder and Strategy Builder (a pre-curoser to the Bot Builder) for users to test and explore. Users should take note that these tools are a first version releases used to demonstrate the product. New version updates will commence shortly after the token generation event and should dramatically improve the user experience and output results.

A core thread running through all nvest applications is that they are easy to use and interpret. As nvest obtains more user data, applications will become smarter and be able to learn user preferences and provide better recommendations for user specific needs. And when the nvest UI dashboard is deployed, all nvest tools will be easily accessible for viewing and analysis.

Pattern Finder

Pattern Finder is nvest's lead tool and is specifically built to analyze time series data, like prices, volume, sentiment, etc, to find patterns in the data automatically. It can scan for all sorts of commonly used technical analysis patterns, like candle stick formations, trends, price patterns, breakouts, consolidations etc. Patter Finder can return many different data points, like future price probability estimates, win/loss ratios, profit targets, maximum loss estimates, display best fit indicators to use and much more. Armed with Pattern Finder data, traders can better analyze a trade setup, game plan for possible outcomes, or even use Pattern Finder to generate a template for an automated trading bot, with no coding required.

In order to use Pattern Finder a user must specify an instrument (crypto, stock, FX etc), a timeframe window, for example if you are looking at a chart, what is the start and end date of the chart and an analysis horizon, or how far back in the past should nvest search for patterns -- collectively termed a 'trade setup'. Once a user has entered a trade setup, nvest's algorithms searches for similar patterns across a wide body of data and provides users with the different data outputs. The current version of Pattern Finder hosted on nvest.io displays the top historical price patterns that match the trade setup, along with forward walk probability distribution of those matches. In addition, individual pattern matches are available for the user to analyze.

However there is much more Pattern Finder can do. Say a user has a chart pattern they want to find, like a very specific flag formation arising after a strong trend, Pattern Finder can be used to scan across all crypto markets (and timeframes) to find that pattern. Similarly, one can run Pattern Finder on the entire crypto market data and request to only receive a reports/notifications when it has found a pattern with abnormal expected profits or another field which is returned from the Pattern Finder analysis.

Pattern Finder uses advanced signal processing techniques, like wavelets and multidimensional feature representations to enable almost any type of data to be mined. Unlike traditional backtesting, where a user searches the historical data for a clearly defined rules/logic (if the 50 day moving average crosses below the 20 day moving average, then show me what a buy and hold strategy did etc) to retrieve statistics, Pattern Finder does not rely on any input logic from the user. Instead one can think of Pattern Finder using heuristics or what is sometimes called 'fuzzy logic' to determine the rules automatically.

Voodoo or Science

A common critique of technical analysis is that its rules are mainly subjective and that if you show the same chart to several technical analysts they will often give you different interpretations. Nvest approaches technical analysis from a scientific lense and we fully understand the pitfalls of data mining and subjective pattern recognition. At the same time we understand the benefits that technical analysis has, namely allowing one produce a fast opinion based on objective data inputs related to price and volume. The big problem we attribute to technical analysis is that most people get stuck looking for only a few patterns or indicators as it's hard to keep track of every possible technical pattern. In addition there is often no scientific analysis used to inform a user what has historically worked and what hasn't. Anyone who has ever traded intraday will likely appreciate that many indicators like candle stick formations and classic chart patterns work much differently on intraday bars vs daily or weekly bars.

What do you see?

For example, take a look at this chart of Estee Lauder (ticker EL) stock from early 2017, shown below. We have overlaid the 50 and 200 day moving average on a daily bar chart, which is a common set up for many stock traders. What do you see? Notice that the 200 day moving average, in yellow seems to work as a good support level in 2013 but afterwards it stops working as price often moves below at times. The 50 day moving average, in green, similarly works as a pivot level most of the time but not so well in 2014-2015.

Now we can also show you the same stock but this time with a 300 day moving average, image below, and you can see that it acts as a much better support line than the 200 day moving average. But if you didn't plot that on your chat you might have missed it.

We can also remove all the moving averages and plot a Weekly candle chart to try and view support and resistance levels. Did you notice that $75-77 was a major support band in early 2017, generated from previous support and resistance levels? If you had too many moving averages or not enough history in your chart you might have missed it.

The really great thing about Pattern Finder is that you can easily add in non-price data as well. In the chart below, we show EL's Price/Earnings (P/E) ratio bands, in orange and forward EPS in blue. While most retail traders probably don't have access to this data or don't use it, almost all institutional investors pay attention to a stock's P/E ratio and EPS growth trend. It would have been nice to know

that in late 2016, when the stock was selling off into the weekly support/resistance level the P/E ratio was at the lower end of the range. But if you didn't have the data or pay attention to it, how would you have ever known? Pattern Finder puts the power of data and patterns in your hands. We give you the statistics, we show you what matters, allowing you to make better decisions.confirmation signal perhaps, in late 2016 that the P/E ratio was at the lower part of the range even as the forward earning were still in a general uptrend. But if you didn't have the data or pay attention to it, how would you have ever known? PatternFinder puts the power of data and patterns in your hands. We give you the statistics, we show you what matters, allowing you to make better decisions.

Bot Builder

Nvest is collecting lots of data but it doesn't do you any good unless you can do something with it. With Bot Builder you can easily access the data and create your own bot to perform an action with it. Your bot can be as simple or as complex as you want it; trigger an email alert if the price of Bitcoin goes above a certain level or go advanced and build your own trading strategy. Bot builder will provide easy to use templates to allow new users to experiment and also tutorials showing how easy it is to create your own bot. Using nvest's drag and drop user interface, built on top MIT's wonderfully popular scratch library, bot builder allows you to create your own algorithms with writing any code.

Bot builder is currently running on nvest.io under the tab "Strategy Builder". While current functionality is limited to building a trading strategy, nvest will quickly add useful features like email/ sms/ telegram alerts and daily reports in Phase 1 of the project roadmap.

Crypto Sight

As crypto markets have evolved into an entire ecosystem with thousands of projects and hundreds of exchanges, analyzing the entire system can provide insights that can be missed if you aren't looking holistically. Since nvest is in the business of collecting and analyzing data, we make it easy to analyze the entire crypto market. We leverage established solutions from traditional financial markets and apply them to crypto markets, all the while understanding the nuances and tailoring the output for crypto.

Crypto sight will provide users the ability to create their own reports, including daily summaries, crypto scans and statistical insights. Nvest will provide a variety of templates for users to start and allow users to easily build and customize to their own needs.

For example, a daily report might be generated which can summarize all of the day's news on a portfolio of crypto currencies and be sent automatically to the user every night. Technical traders can use pre-built scans to find trading opportunities or create their own customized versions. Nvest also provides an extensive library of statistics, which can be easily accessed. For example you can analyze bitcoin price data by day and time of the week to show you when the most and least volatile times of the

week to trade are.

Check out the gallary of crypto sight images on our [reddit](#) or [twitter](#) pages.

Token Discovery

Statistical analysis is good when you have numbers, but what do you do when the data you are dealing with is words and text? Fortunately machine learning has been working on the problem for a while and recent advances in the field of NLP ("Natural Language Processing") allows for excellent analytical insights on text data.

NLP encompasses a variety of different applications, from sentiment analysis, speech recognition, automatic summary, topic segmentation, relationship extraction and others (see Wikipedia). A common thread in many NLP tasks is that they require lots of data and they still involve human oversight, particularly related to training data, before the algorithmic models can be created. The good thing is that once an NLP model is loaded with the proper data and settings, you don't need to be a machine learning expert to be able to use it. Nvest's team of machine learning experts will provide the necessary data and supervision for NLP model creation so that users can easily build on top of our models and deploy their own NLP tools.

Most NLP tools also allow for a high degree of customization which is often inaccessible unless you are a developer. Nvest believes that each user has their own unique needs and style and we want to provide everyone a unique experience. Creating a sentiment analysis indicator is good but creating one personalized just for you is so much better. Should a day trader and a long term investor use the same sentiment analysis settings? By guiding users through the different setting available and making them easy to adjust, nvest enables each user to maximize their experience.

Token Discovery tools can be applied to a variety of data sources and can be easily accessed via the nvest API. You can use Token Discovery to analyze a white paper and use the results as an input in your ICO spreadsheet. For example, if there is a particular word or phrase that you are interested with, or conversely, want to avoid, you can easily create your own Token Discovery score to scan through hundreds of white papers and report the results. Or you can use pre-built models like a grammar score, word complexity score or even a fraud test as a new data point to include in your ICO analysis. Enhance your ICO spreadsheet with advanced data that is processed in seconds and always up to date with Token Discovery.

Opnionator

Detailed analysis performed by a specialist can often yield valuable information and insights that a non-specialist would never see. Nvest provides a platform for crypto experts to present their analysis and in return earn nvest token rewards. While many investors and traders publish their views and analysis it's hard to distinguish who the experts are and what their opinions are worth.

With Opinionator, nvest creates a market for both consumers and publishers of research. It allows anyone to publish their analysis with a variety of settings (public/private) and simplifies payments.

Using nvest tokens as rewards, Opinionatior is ideal for new research analysts and provides them reach to the entire nvest community of users. If a given research analyst is able to provide a different angle of insight to what is generally available (ie most of the research on topic is related to technical analysis and then a cryptographer offers a totally different view) then their input should be highly valued and incentivized. Given that higher quality research should demand higher prices, consumers can also view how many nvest tokens a user has earned as an extra input when searching for research, similar to searching for high gross blog posts on Steemit.

Porfolio-Rizer

Successful investing often involves managing a portfolio of investments and for traders managing multiple positions at the same time. Porfoliorizer gives you the tools, specifically tailored to crypto markets so that you can analyze your entire portfolio. You can view attribution reports to show you where you made and lost money, monitor where your portfolio volatility of coming from, see how correlated your holdings are, create stress tests, goal settings and more. Leveraging traditional financial portfolio theories and tools, nvest's Porfoliorizer tools will also be tailored to crypto markets, which has price volatility and skew unlike traditional assets of stocks and bonds and is more akin venture capital investments. This means that existing portfolio management tools built for the stock market may need to be modified in certain instances. Given that many modern portfolio management theories and applications require a strong mathematic knowledge alongside practical understanding of how markets work. But nvest's expert team will ensure any portfolio tools we release will be theoretically and practically adapted to crypto so you don't have to worry.

Crypto portfolio analytics are often neglected or difficult to use but with nvest we make it easy and intuitive allowing you to analyze your entire portfolio and provide you a richer set of insights that you could get from just analyzing an individual crypto on its own. As crypto markets mature, many crypto investors will realize that managing their portfolio will be just as important as managing the next trade.