Robo-advisory Platform for Cryptoasset Management and 'Wealth for All' Initiative

Business White Paper

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Abstract

CryptovationX is a Robo-advisory platform that aims to provide an easier and more reliable way of trading and investment in Cryptoassets. By making use of Artificial Intelligence Technology, CryptovationX plans to provide the best one-stop-solution Robo-advisor platform for all Blockchain-related Investments.

The vision, "Utilizing Artificial Intelligence (AI) to Provide the Best One-Stop-Solution Robo-advisor for Blockchain Investment with the Vision of 'Wealth for All'", aims to provide an opportunity to support communities in need through the "Wealth for All" Initiative.

The platform is meant to be used to automate opportunities and help reduce risks in trading using AI Technology, and give the user a multitude of choices for the best way to invest in Cryptoassets. By the use of technology, the platform aims to be a one-stop-solution for both seasoned investors as well as new investors.

The platform proposes three main Robo-advisors; the creation of a Robo-advisor ('Arbi') that can advise investors on arbitrage opportunities, an AI predictive tool for speculative trading ('Specto'), and an exchange and investment provision service for users ('Broca'). The Robo-advisors will be equipped with "3 As" - Answering, Assisting and Advising.

Using funds achieved from CryptovationX Token sales, we hope to implement the 'Wealth for All' Initiative, a project intended to provide Financial Literacy Rewards Program as well as Sustainable Development Goals (SDG) Grant.

CryptovationX also aims to raise funds to organize an annual Blockchain x AI Conference to help find new talents and support the growing Blockchain x AI ecosystem. It provides an opportunity for people who need funding to get what they need and showcase what they have to offer.

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1. Background and Introduction

1.1 Problems

1.1.1 Cryptocurrency Market Problem

Blockchain technology was first introduced in 2008 through 'Bitcoin' by an anonymous coder called 'Satoshi Nakamoto' through the publication of a paper titled 'Bitcoin: A Peer-to-Peer Electronic Cash System' (see: https://bitcoin.org/bitcoin.pdf). It describes the use of payment from one party to another without the intermediary financial institution through a peer-to-peer network and hash network timestamp transactions into an ongoing chain of hash-based proof-of-work. This paved way for the beginning of the Decentralization and Cryptocurrency era.

However, it can be daunting for new investors (or potential investors) to step into the world of cryptocurrency investment as the market high volatility may affect cryptocurrency values to drop sharply in a short period of time, causing rookie traders to panic and attempt to cut loss without doing proper research. Furthermore, this emerging market is still not efficient. Asymmetric information leading to extreme price differences of the same cryptoasset between each exchange portal is still happening all the time. Especially, the Kimchi Premium, where cryptocurrencies generally sell for higher in South Korea, has been lasting since 2017 and was around 40% difference (higher) at the peak during early 2018.

To address such problems, there needs to be a platform that can pool together a series of information in one place for people to access as well as advise them in an innovative way to understand those information easily. Proper educating and training regarding the difficulties and challenges of trading and investing through various approaches can help the investor to mitigate their lost due to fears, uncertainty and doubt (FUD) news. It will also reduce market volatility and make market to be more mature which mean lower risk for the investor.

1.1.2 Sustainable Development Problem

Despite being in the 21st century where globalization, urbanization and technological advancements have made the world a better place, there are some that struggle to keep up. It can be due to a number of factors which can include poor governance of their country leading to widening income gap, inaccessibility to resources leading to poverty, or just poor socioeconomic status (SES).

We need to advocate education, financial literacy, and financial independence, the focus of the SDG fund will likely start from 'No Poverty', 'Quality Education', 'Decent Work and Economic Growth', in synergy with Nobel Peace Prize Winner Professor Yunus' "Disruptive Technologies for 3 Zeroes"; namely Zero Poverty, Zero Employment and Zero Carbon Emissions (Professor Yunus founded Grameen Bank, with 96.0% repayment rate for $20 billion in loans. His current work focuses on empowering businesses to solve social and environmental problems all around the world).

1.2 CryptovationX Foundation

CryptovationX Foundation (https://cryptovationx.io/) is co-founded by several partner organisations with the mission of "Utilizing Artificial Intelligence (AI) to Provide the Best One-Stop-Solution Robo-advisory Platform for Blockchain Investment with the Vision of 'Wealth for All'".

The following organizations listed below are major partners in CryptovationX Foundation.

1. **Cryptovation** (https://cryptovation.co/), the Founding Member of CryptovationX Foundation, was first founded in Thailand, supported by Thai Fintech Association sandbox and incubator (https://thaifintech.org/). It has developed a Robo-advisor called 'Arbot Robo-advisor' (https://arbot.cryptovation.co/), an open-source program that uses Quantitative Analysis to recommend the most profitable trading opportunities with low risks in cryptocurrencies. Cryptovation has developed a Cryptoasset Arbitrage Terminal (Arbot) and been selling it to fund managers and hedge funds. These tools help the fund managers do arbitrage in the cryptoassets and ICO tokens.

2. **AVA Advisory** (http://www.ava.fund/) is an investment Robo-Advisor with Artificial Intelligence technology to help investors increase their investment return with the ease of use. AVA underwent forward testing in the Thai Stock Exchange using its auto-trading AI function. It also founded Omicron Labs (http://lab.ai), a Cognitive Science and AI Research Lab on Financial Intelligence, is supported by Sirindhorn International Institute of Technology (SIIT) in Thammasat University. AVA will be focusing their efforts to help to develop the AI engine for Robo-advisory platform.

3. **Asia Wealth Group** (http://www.asiawealthgroup.com/), a wealth management business that is listed in Nex Exchange (http://www.nexexchange.com/) in United Kingdom, seeks to acquire companies in Asia and European companies that have the potential to expand into Asia. As co-partners of CryptovationX Foundation, they provide professional expertise and advice to conduct this business.

4. **Capitalise Crypto** (https://capitalisecrypto.ai/), a platform that uses state-of-the-art technology employing Natural Language Processing (NLP), converting language into computer code that can help facilitate trading protocols. This partnership can be beneficial for our platform, as it can help bridge the gap for rookie traders.

2. Robo-advisory Platform

CryptovationX platform will contain three Robo-advisors that will help users to learn more about cryptoasset investment and guide them to make decisions based on data and algorithms. Each one will undertake a persona that can be asked questions, provide tutorials and even help to run the account based on the preference of the user.

Broadly speaking, they function as a personal assistant that will assist the user with investment decisions. They will also serve to provide opportunities for users to earn tokens that can be used to upgrade their status within the platform, which in return will unlock many new features and services provided by the Robo-advisors. More specifically, there will be at least five levels of services available for all users based on the number of holding tokens which will be described further below.

Our Robo-advisors will be given a name for an ease of reference; 'Arbi' for arbitrage-bot, 'Specto' for speculative-bot, and 'Broca' for brokerage.

(Below is a summary table of the features that will be provided based on the levels of user's access. Details of each category will be further elaborated in the following pages.)

2.1 Table of Feature Accessibility

Robo-advisory Features	Level 1	Level 2	Level 3	Level 4	Level 5
1. Assistant Chatbot	✓	✓	✓	✓	✓
2. e-Learning and Quiz	✓	✓	✓	✓	✓
3. Prediction Game	✓	✓	✓	✓	✓
4. Exchange Registration Assistant	✗	✓	✓	✓	✓
5. Portfolio Management Terminal	✗	✓	✓	✓	✓
6. Human Language Order	✗	✗	✓	✓	✓
7. Opportunity Signaling	✗	✗	✗	✓	✓
8. Automatic Execution	✗	✗	✗	✗	✓

2.2 General Features

The general features are features that are shared among all three Robo-advisors;

2.2.1 Assistant Chatbot

The function of this chatbot is to answer questions imposed by the user, either by voice or text. Users can ask about the platform features and Blockchain-related questions. The chatbot will respond with the best answer using machine learning technology which continuously improve its performance.

2.2.2 e-Learning and Quiz

Designed to educate and help users to have a better understanding of investing in Blockchain through quizzes and mini-games. Gamification of learning will incentivize users to learn and complete more quizzes or mini-games.

2.2.3 Prediction Game

This feature will offer users an opportunity to be our analyst ('Predictor') by participating in a gamified series of predictability questions regarding cryptoasset price, market trend, etc., and earn reasonable amount of CXO tokens as a reward (see 4.1.2 Predictor Incentive Program).

A sample question could be, "What is the next target price of Ethereum in one week?". The data collected from the answer of this game will be utilized to further develop our AI engine by deep learning approach (see 3.2 Collective Intelligence Program).

2.2.4 Exchange Registration Assistant

The platform can provide a one-stop feature to register together with KYC, credentials and self-portrait with passport on our database, where we will use the information strictly for verification across supporting cryptocurrency exchanges.

2.2.5 Portfolio Monitor Dashboard

This feature will allow users to monitor every cryptocurrency exchange account the user owned in a single place. By visualizing statistics in dashboard style, the user will be able to get important informations by a glance. For example, the dashboard can illustrate a list of cryptocurrency exchange the user has and the total cryptoasset worth in USD.

2.2.6 Human Language Order

The user can use written language to make complex instructions and help facilitate automation for cryptoasset trading. For example, the user may want to purchase a cryptoasset when the value dips below a certain threshold, the user can key in the instructions into the system. The degree of complexity can vary depending on the expertise of the user. For example, basic users may input something like this, "Buy Ethereum when the price drops to $300, and sell Ethereum when the price is $350". More advanced users can input more details such as, "Every day at 5pm, if the price of Ethereum goes below 5% of the value on the previous day, purchase the Ethereum no more than 100 per week. If Ethereum is rising past 5%, sell Ethereum but no more than 5 a day."

This feature will be in collaboration to use an innovation of Capitalise Crypto (https://capitalisecrypto.ai) who use Natural Language Processing (NLP) Technology which involves using human language to translate into commands or actions for a computational system.

2.3 'Arbi' (Arbitrage Trading Robo-advisor)

Arbi is the Arbitrage Trading Robo-advisor. Arbitrage is the adjustable-risk investments by simultaneously buying and selling fiat and cryptocurrencies, in order to, take advantage of different prices for the same asset. After 2-years of R&D by Cryptovation, the team has developed 7 arbitrage strategies (for more information about the strategies, please kindly visit https://arbot.cryptovation.co).

This process requires a large volume of data and multi-step calculations in order to determine if the transaction is profitable. With 'Arbi's algorithm, it will collect information from various sources and generate a list of potential opportunities for user, as well as, teach user the steps to execute arbitraging strategy.

Higher-level user accounts may skip the previous part and directly ask Arbi to complete the multiple steps, including clicking buttons, thereby eliminating the long-process of the manual instruction.

List of features offered by Arbi;

2.3.1 Opportunity Signaling

Users will be able to receive notifications for any trading opportunities in which they can make more sophisticated decision over trading and investing in cryptocurrency. This will also be the level where 'Arbi' allows the user to access the arbitrage system.

2.3.2 Automatic Execution

Users will be accessible to the system, in order to, receive the signal and execute the trade directly without logging in through its API.

2.4 'Specto' Speculative Trading Robo-advisor

Specto is the speculative trading robo-advisor. Speculative trading is the act of trading a financial instrument involving high risks with the expectation of significant returns, to take maximize profit from fluctuations in the market. AVA advisory (www.ava.fund/), with 4 years of R&D and experience in equity market, will be providing their expertise to develop Specto.

For new investors, 'Specto' aims to educate on predictability tools and patterns for users to have a better understanding about the conventional trading. For seasoned speculative traders, 'Specto' aims to provide the right tools that can help them minimize the risk, eliminate manual prediction, and perform speculative trading by automation all with the use of real-time analysis and AI prediction.

List of features offered specifically by 'Specto';

2.4.1 Opportunity Signalling

Users will be able to receive notifications for any trading opportunities in which they can then decide whether to trade or not. Specto will also provide tools that can help with risk management and speculative prediction.

Specto can also suggest improvements to the user's trade strategies and providing information that the user can use to get better returns and manage risks.

2.4.2 Automatic Execution

Users can introduce trading options to the system using Natural Language Processing for more complex level of trading. Users will be able to have the system receive the signal and execute the trade directly without logging in through its API.

2.5 'Broca' Brokerage Robo-advisor

Broca is the Brokerage Robo-advisor. She will review and suggest potential ICO investment opportunities, through careful reviewing and selection from high reputation third-party sources.

It can be difficult to decide which cryptocurrency (or cryptoasset) exchanges to register with but 'Broca' is able to assist by answering questions, providing statistics and history of the exchanges.

Participating in ICO fundraising campaigns can be difficult especially with the uprising trend of companies starting their own ICOs and reliability is always a question in the minds of the investors. 'Broca' can critically analyze ICOs and list them in accordance to its reliability using data available, including trend prediction, independent reviews and past records.

List of features offered specifically by 'Broca';

2.5.1 Opportunity Signalling

Users may have the option to turn on notifications for emerging ICOs which have opened itself for token sale and have been approved to be reliable base on data analysis.

Information from various reviewing sites such as Cryptocompare (https://www.cryptocompare.com/), ICOrating (https://icorating.com/), ICOStats (https://icostats.com/) etc, as well as the general social sentiment by other people involving specific ICOs will be collected for the user's ease of reference.

2.5.2 Automatic Execution

Users will have access to some of the recommended Top Picks by CryptovationX, which also contain more comprehensive analysis of each pick and in-depth review. This can include prediction and estimation of profit margin assuming the user invests in the ICO.

Users will also have access to the automatic ICO investing features which will prompt the user before executing any ICO purchases, and the user may choose to press the 'Invest' button.

3. Technology

3.1 Gamification Design Concept

Gamification is the application of combining game playing elements into traditional non-gaming activities, typically in online marketing, to engage users with products or services. To make our platform more attractive to new users and to reward users, there will be points and scores allocated to the user's profile. The platform will also feature a level system, with customizable avatars for the Robo-advisors and animated user interface to emulate a realistic gaming experience.

3.2 Collective Intelligence Program

This program will utilize knowledge (or data) collected from predictor to feed into the deep learning system to help improve our AI engine. These following are the deep learning models we will use for this program.

3.8.1 A Single Units of a Dense Layer
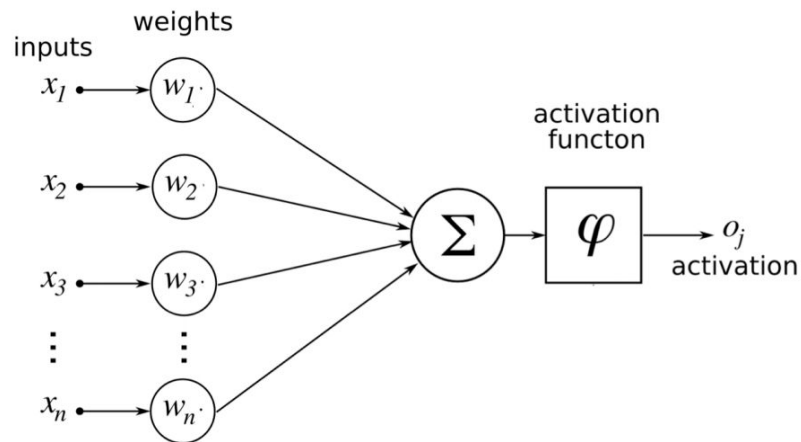
A unit (or node) in a neural network takes as input the features $x1$, $x2$, ... , xn, and multiply by the learnable weights of the unit $w1$, $w2$, ... , wn. The output of the unit can be computed by
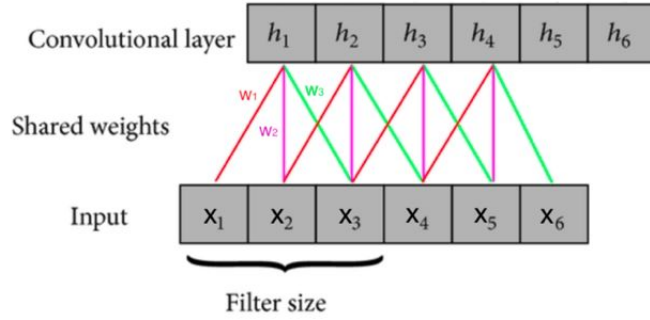
$$o_j = \varphi\left(\sum_{i=1}^{n} w_i x_i\right)$$

where $\varphi(x)$ is the activation function. In general, the sigmoid function

$$\varphi(x) = \frac{1}{1+e^{-x}}$$

is used as the activation function.
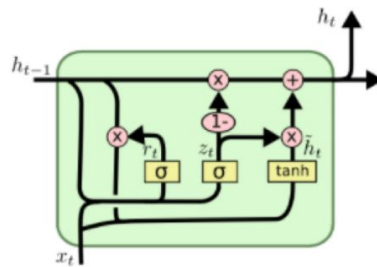
3.8.2 Convolutional layers

While the units of dense layer take in all features as input, the units of a convolutional layer $h1$, $h2$, ... , hn (n = 6, as in the figure) take in partial input features $x1$, $x2$, ... , xm (m = 3, as in the figure). By doing so, it substantially reduces the number of learnable weights $w1$, $w2$, ... , wn of the network.

In addition to the smaller number of weights required in convolutional layers, it also forces each unit to concentrate on processing local input features, which help extract locally useful features. For convolution layer, we choose parametric rectified linear unit as the activation function, whose equation is given by

$$\varphi(x) = \begin{cases} x, & x \geq 0 \\ \alpha x, & x < 0 \end{cases}$$

where α is a learnable weight.

3.8.3 LSTM/GRU Layers

$$z_t = \sigma \left(W_z \cdot [h_{t-1}, x_t] \right)$$

$$r_t = \sigma \left(W_r \cdot [h_{t-1}, x_t] \right)$$

$$\tilde{h}_t = \tanh \left(W \cdot [r_t * h_{t-1}, x_t] \right)$$

$$h_t = (1 - z_t) * h_{t-1} + z_t * \tilde{h}_t$$

3.8.4 Residual Convolutional Block and Residual LSTM/GRU Block
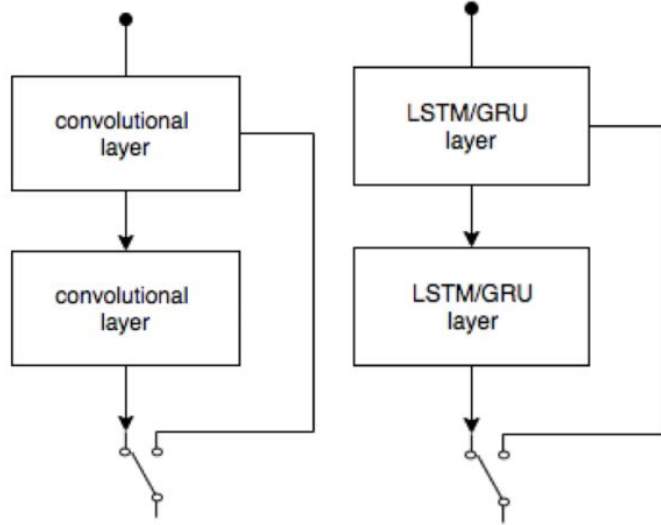
Parametric residual block is a technique used to stack convolution layers or LSTM/GRU layers by allowing the outputs of the previous layer (denoted by o(l)) to be mixed with outputs of the current layer (denoted by o(l+1)).

$$o^{(l)} = \varphi(\sum_{i=1}^{n} w_i x_i)$$

$$o^{(l+1)} = \varphi(\sum_{i=1}^{n} w_i o_i^{(l)})$$

$$\hat{o} = \gamma \cdot o^{(l)} + (1 - \gamma)o^{(l+1)}$$

where γ is another learnable weight. We can train γ so that the network can automatically choose to pass on an appropriate amount of information from the previous layer to the next layer.

3.8.4 Ensemble Model

The architecture of our deep learning model can seen as 2-column ensemble where each column processes the input features from different time frames; namely, daily and weekly input features.
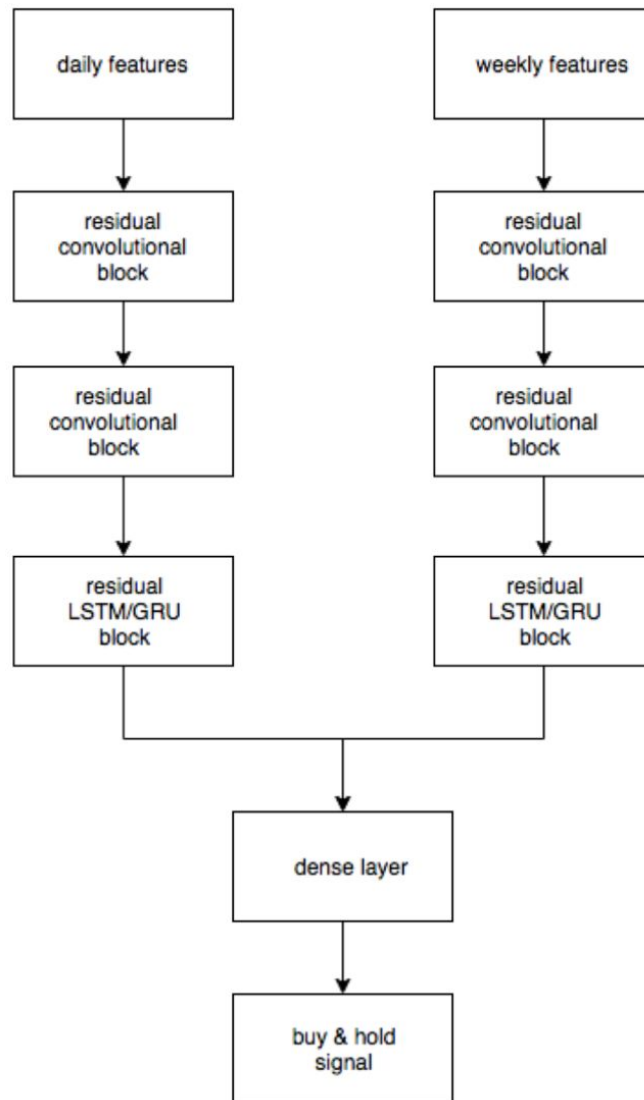
As shown above, each column is a stack of 2 convolutional blocks and 1 LSTM/GRU block. The output from each column is then concatenated and to make final predictions using a dense layer. Each column can be pre-trained separately and ensemble before training the last layer. We have found that training the entire model using multitask method yields a more stable result.

3.3 Deep Reinforcement Learning

Main strategy of our cryptocurrency trading bot is 'Deep Reinforcement Learning', it is a strategy for robot to experiments trading on cryptocurrency exchanges, developed from the past collective data, in order for the robot to collect experimental results and design policy that will ensure profitable trading. DRL is the basis of intelligence which not limited to only human.

For the programmable cryptocurrency robot to make trading-decision in different markets, it requires only state of cryptocurrency at certain period, how robot should take action for profitable outcomes.

The term 'how to take action' means those who are in reinforcement learning and it leads egg and chicken problem. Good policy will choose the action that could generate good profits which depends on the policy we select to implement and this is what reinforcement learning has been tried to solve.
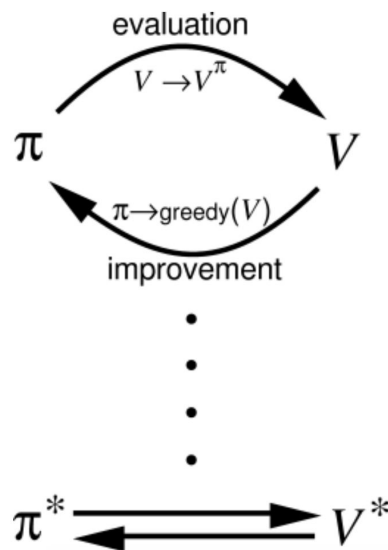
3.3.1 State Space Engineering

Using deep neural network such as Convolutional Neural Network (CNN) to collect pattern of primary features and adding high-level features resulted from CNN to be used as state space of our model. High-quality of non-linear features which might be impossible by human capability.

Using human engineer feature set means collecting raw data from cryptocurrency market to process feature extraction by using human expert knowledge for extracting high-level features. For example, process of chronologicalized feature engineer to obtain appropriate feature for assembling state space, will be smaller and higher-quality for cryptocurrency market where data set is limited to only 1-2 years.

3.3.2 Chronologicalized Feature Engineering

Fibonacci

Fibonacci sequence has been applied for trading effectively for some cryptocurrencies, especially BTC/USD. We try to encode Fibonacci retracement and fibonacci extension into the form of time series.

Firstly, we use human knowledge to indicates Fibonacci from cryptocurrency candlestick chart. Then translate the result of Fibonacci value into data in the new time series and using this feature set as component of state space.

For example, when the price of BTC/USD test 261.8% Fibonacci and RSI signal bullish divergence into state that the model might be learned and take action in buying BTC/USD but we only extracted Fibonacci feature set. The model will choose the action independently and in fact the status of state at one point will be composition of multiple features.

Accumulate Volume by Price (AVP)

'Accumulate volume by price' reflects of psychology of traders in the market. Professional traders have a theory that if the volume being trade at particular time will be supportive/resistance of asset price. Because plenty of traders created buying order at certain price which accumulated and indicates whether most traders are making profit or loss. If the asset price is higher or lower supportive/resistance.

The problem is that converting data of accumulate volume by price on the price-axis, to be supportive/resistance on the time-axis. In order to, convert data into time series format that will be composited with features.

3.3.3 Mathematical Foundation used in Crypasset Market

Model of cryptocurrency robot we have been developed is highly complicated. In order to, simplify our mathematical model that has developed, we has outlined the basic understanding of complexity.

Feature Normalization

Before integrating primary feature extracted from cryptocurrency exchange into state space, we need the process of normalization.

The goal of feature normalization is to resolve the problem that trading prices and trading volumes vary significantly across different cryptocurrencies. We want to normalize all the prices and volumes, including other technical indicators, so that they are in a comparable range. The following conditions must be concerned:

- The normalized values are comparable across different stocks
- The normalized technical indicators should preserve their desired properties. For example, if an MACD value is greater than 0, then the normalized MACD value should also be greater than 0.
- To ease training deep learning models, the normalized feature values should lie between [-1, 1].

Some examples of normalization formula, where t denoted as time, are given below.

$$\text{norm\_candle}_t = \frac{\text{high}_t - \text{low}_t}{\text{open}_t}$$

$$\text{norm\_ema\_25\_day}_t = \frac{\text{ema\_25\_day}_t - \text{close}_t}{\text{close}_t}$$

$$\text{norm\_sd\_day}_t = \frac{\text{sd\_25\_day}_t}{\text{close}_t}$$

$$\text{norm\_volume}_t = \log_{10}\left(\frac{\text{volume\_sma\_5\_day}_t}{\text{volume\_sma\_25\_day}_t}\right)$$

From the above example, 'norm_ema_25_day' is positive whenever 'ema_25_day' is greater than the current close price and is negative whenever 'ema_25_day' is less than the current close price. This illustrate the fact that this normalization formula will preserves the support-resistance property of 'ema_25_day'.

3.4 Portfolio Management

3.4.1 Markowitz portfolio theory

Let $w1$, $w2$, … , wn be the weights or proportion of n different stocks in the portfolio and $r1$, $r2$, … , rn be their corresponding expected returns. Let cov[i, j] be the covariance of stock i and stock j. We want to find the weights that maximize the expected return for a fixed variance $\sigma2$.

$$\text{maximize} \sum_{i=1}^{n} w_i \cdot r_i$$

subject to

$$\sum_{i=1}^{n} w_i = 1, \quad w_i \geq 0 \ \forall i = 1, \dots, n$$

$$\sum_{\text{all } i,j} w_i \cdot w_j \cdot \text{cov}[i,j] \leq \sigma^2$$

To avoid a sudden change when rebalancing the portfolio over time, we sample the certain number of weights $w1, w2, \dots, wn$ from Dirichlet distribution and search over that weight space. $w1, w2, \dots, wn$ ~ Dirichlet$(($w$1)+1, ($w$2)+1, \dots, ($w$n)+1)$

3.4.2 Adjusted risk per trade using relative strength

Using relative strength for adjusting risk per trade helps improve the empirical expected return.

$$\text{relative\_price}_i = \frac{\text{stock\_close\_price}_i}{\text{market\_close\_price}_i}$$

$$\text{relative\_strength\_25} = \frac{\text{relative\_price}_i - \text{relative\_price}_{i-25}}{\text{relative\_price}_{i-25}}$$

$$\text{risk\_per\_trade}(x) = \begin{cases} 0.05 & x < 0.0 \\ 1.5x + 0.05 & 0.0 \leq x < 0.1 \\ 0.20 & x \geq 0.1 \end{cases}$$

where x is the 25-day relative strength of the stock as defined above.

4. 'Wealth for All' Initiative

4.1 Financial Education Mechanism

CryptovationX aims to set up a committee comprising of many key partners that uses a portion of the profits from 'Wealth for All' Fund to executive 2 main strategies; Financial Literacy Rewards and Sustainable Development Goals (SDG).

Financial Literacy Rewards would encourage learning and self-improvement by incentivizing Collective Intelligence (see 'Collective Intelligence Program' section) and hopefully address the rising unemployment rates and narrow the widening income gap.

Sustainable Development Goals (SDG) Fund will be used to support the United Nations' 2030 Agenda, with committee members that have been advocating these goals since its launch. SDGs (https://sustainabledevelopment.un.org/) are a collection of goals that is set by the United Nations which addresses social and economical development issues. SDGs are targeted to all countries, and not just limited to developing versus developed countries.

4.1.1 'Wealth for All' Fund

The fund will be established using ETH and BTC as base assets. It will be managed by our trader team who will use the Robo-advisory platform to implement trading strategies in different cryptocurrency markets, Cryptovation will prepare monthly reports attached with results of trading profit and publish it in our official blog. With the help of AI technology, on top of our past record on profitability using our business model, it is a generation of income that can be self-sustainable and a long term solution.

Every quarter, the generated profit of the fund will be used to repurchase tokens and redistributed in the following programs. CXO token buy-back scheme which will conduct in the open market (anonymously in various public cryptocurrency exchanges).

90% of the purchased CXO token will be used in the Predictor Incentive Program. Another 10% will allocate for the Sustainable Development Goals (SDGs) Fund.

This approach would be better than merely setting aside a portion of the funds raised to initiate the projects, as it would not be self-sustaining and would no doubt deplete steadily and quickly.

4.1.2 Predictor Incentive Program

This program want to incentivize everyone (regardless of their gender, race or age) to be educated and contribute as a predictor in our Prediction Game feature (see 2.2.3 Prediction Game) by giving CXO token. With a proper reputation ranking system, the more correct answers provided by predictor, the more determine amount tokens will be rewarded.

The 90% of CXO token that has been bought back using the profit of 'Wealth for All' fund will be subjected to redistribute through this program within a quarter before the next buy-back schedule. In order to achieve this goal, the fix amount of reward will be set for each time frame, then all predictor who win in that time frame will share the reward among them.

4.1.3 Sustainable Development Goals (SDGs) Grant

CryptovationX hopes that this fund will be able to target grassroot individuals to understand more about finance, investment and technology. To achieve this Corporate Social Responsibility (CSR) goal, we will create an external committee to grant suitable social projects. We has brought together several international development organization and social enterprises to be part of this grant committee as following;

- **Asian Development Bank (ADB)'s NGO and Civil Society Centre** (https://www.adb.org/site/ngos/main) is an international development finance institution dedicated to reducing poverty in Asia and the Pacific. Since the late 1980s, ADB has worked increasingly closely with civil society organizations. ADB also has strategic partnerships with global NGO networks and often form collaborative projects with them.

- **Yunus Centre AIT (YCA)** (http://www.yunuscenter.ait.asia/) is the first collaboration of its kind by Nobel Laureate Prof. Muhammad Yunus and the Asian Institute of Technology (AIT). YCA aims to create a world free from poverty by harnessing the power of social business and effective technologies to improve the lives of the marginalized.

- **Social Giver** (https://www.socialgiver.com) is a shopping platform which collaborates with businesses to channel profits made on the platform to people in need. They have several projects running which highlights everything the consumer needs to know before making a purchase, and allowing the consumer to decide which project to contribute to.

- **Dress The Dream** (https://www.dressthedream.com/) is an initiative which prides itself in maintaining sustainability of clothing through upcycling old dresses that have been donated by people who want to

make a difference and proceeds of the initiative would go to women empowerment in Thailand.

4.2 Blockchain x AI Ecosystem

CryptovationX Foundation plans to release some source codes publically on Github so that anyone who wishes to make their Robo-advisor can use it as a reference for further development. As time goes by, the older versions of 'Arbi', 'Specto' and 'Broca' will be released for public use, as well as the winning project from the 'Blockchain x AI Development Competition'. CryptovationX supports the idea of open sourcing as it can contribute to ecosystem building and knowledge sharing.

4.2.1 Blockchain x AI Conference

In order to, stimulate young minds and provide an avenue for tech academics to showcase their work, CryptovationX would like to have a section of the Blockchain x AI Conference for academia. CryptovationX would engage universities to have sessions of Poster Presentations and Proceedings for their students as well as organize plenary sessions for tech professionals and entrepreneurs to talk about current events and share knowledge with participants.

Particularly, Asia School of Business (ASB) in collaboration with MIT Sloan Management (http://www.asb.edu.my/) has shown interest in wanting to spearhead this academic conference, as it is an exciting opportunity to learn more about innovation in the tech field. Professor Rajesh, one of our advisors and head of Innovation and Entrepreneurship Centre at MIT-ASB (http://www.asb.edu.my/innovation-entrepreneurship-center/), expressed keen interest in organizing in this academic conference. It can also serve as a headhunting opportunity for businesses who are looking to groom talents.

4.2.2 Robo-advisory Competition

As part of our journey to constantly improve the CryptovationX platform, CryptovationX hopes that the competition will add valuable elements into our platform by expanding beyond the initial concept or redefine functions that have already been introduced. CryptovationX hope that through this competition that it can reduce the barriers of financial difficulty for young startups that have the potential to grow into giant tech companies and help contribute to the development of Blockchain and AI globally.

Starting in 2019, CryptovationX will send out the list of requirements and sort through applicants who wish to participate in the competition. During the first CryptovationX Robo-advisory Competition, CryptovationX will announce the nine shortlisted teams to develop more advanced versions of 'Arbi', 'Specto'

and 'Broca', robo-advisors that can be integrated into our CryptovationX system.

The nine shortlisted teams will then be incubated and provided with $10,000 monthly funding. They will have one year to develop and test the prototype to a reliable product which will be showcased at the conference in 2020. CryptovationX will also organize bootcamp as a part of the incubation to bring together the teams and check on their progress throughout the year.

The progress will be judged by independent organizations, aside from a representative from CryptovationX Foundation, so as to maintain transparency and unbiasedness.

Winners of the competition will then be acquired to CryptovationX Foundation and their Robo-advisors will be integrated to the platform. The winning teams will have a profit-sharing scheme with CryptovationX for the user's usage of their Robo-advisor.

4.2.3 Blockchain x AI Competition

The Blockchain x AI Development Competition is an idea CryptovationX propose that can provide a platform for new developers or business ideas to flourish and showcase their talents. In order not to restrict creative freedom, this competition will be less stringent with the theme of the product as long as it is Blockchain or AI related.

There will be three teams that will be shortlisted and incubated with monthly funding of $10,000. The winning team will also be acquired by CryptovationX Foundation to further develop the technology.

The progress will be tracked by independent organizations, aside from a representative from CryptovationX Foundation, so as to maintain transparency and unbiasedness.

5. CryptovationX Tokens (CXO)

CryptovationX Foundation will issue CryptovationX Tokens (termed 'CXO') to utilize in the Robo-advisory platform and its decentralized ecosystem.

5.1 Use of Tokens

There will be several levels of user accounts in the CryptovationX platform. Accessing to certain services such as automation and execution will be offered to users who reserve more tokens. However, to allow new users to gain access to features, they have to participate in our Collective Intelligence Program to earn CXO tokens.

Periodically, CryptovationX will reward consistent users of the platform with CXO tokens as their activity contribute directly into the development and improvement to the AI technology.

Ultimately, CryptovationX Tokens (CXO) will be used as a mean to access the CryptovationX robo-advisory services - 'Arbi', 'Specto' and 'Broca'.

5.1.1 Staking for Robo-advisory Platform Accessibility

As discussed earlier, there will be several levels of service available to users. In order to gain access of Robo-advisory platform in each level, the user has to stake a certain amount of CXO tokens in their ERC20-supported wallet and link the wallet address with the platform to prove the ownership. This protocol can be considered as the lifetime membership scheme.

There will be five levels and will require an exponential increase of CXO tokens to reach them. The initial amount of staked-tokens required per level is as follows;

Level	Number of Tokens Required
Level 1	10 CXO
Level 2	100 CXO
Level 3	1,000 CXO
Level 4	10,000 CXO
Level 5	100,000 CXO

CXO token holders will get exclusive access to Cryptovation's robo-advisory platform. Holders of the CXO tokens will receive 5 different levels of access to

Cryptovation's services. CXO token holders will be able to access Cryptovation's robo-advisor including, Arbi, Specto, and Broca. Token holders can use data from the Cryptovation's platform and will not be affected by the information received from Arbi, Specto, and Broca since each robo-advisor is not an automatic trading-bot, but advisors for every participants in the platform that helps to analyze an investment decision. Arbi, Specto, and Broca will assist token holders to make profitable trading. Access to robo-advisory services will be available for CXO token holders, accordance to token balance in the account.

5.1.2 Payment for Premium Services

For users who wish to access certain services under the "Premium", such as costume customisations or Broca's exclusive brokerage services, users can choose to use CXO to pay for such services. For example, users may want to participate in exclusive private sales, which are not normally available to users unless the user receives special access through the premium function.

For more advanced users, insight reports may be available to provide information that may be invaluable for investment decisions by simply paying a small token fee. Lastly, for users who only want to improve the aesthetics and overall user interface experience, they can opt for in-platform purchases using CXO to customize the platform to their preference.

5.1.3 Voting for Staking Scheme

In order to, gather feedback from users and to accommodate the fluctuation of CXO token value, CryptovationX will conduct an annual voting session for platform users to decide how many CXO tokens will be required for reserve, in order to, gain access to different levels. After collecting sufficient data and feedback, the CXO token requirement will be readjusted in the following year.

5.2 Token Sale

By releasing CXO tokens, we offer all participants (traders, investors, analysts, data scientists, and the team) the chance of becoming creators of a decentralised ecosystem. Each CXO token holder can obtain a new level of access to Cryptovation's robo-advisory platform, which the accessibility of the product's features will depend on the quantity of tokens in each holder's stake, as well as payment for premium services and voting for staking scheme as mentioned above.

5.2.1 Terms of Token Issuing

CXO tokens will be issued on Ethereum blockchain using the ERC-20 token standard and 100% of the tokens will be issued prior to token sale period.

Token Total Supply: 1,200,000,000 CXO
Tokens for Sale: 720,000,000 CXO

5.2.2 Sale Method

We plan to sell CXO token privately to high networth individuals and institutional investors, in order to, avoid any consequence of regulatory uncertainty. Tokens cannot be sold to residents of the United States of America (USA), Singapore, People Republic of China (PRC), or other countries where the sale of tokens may require registration as a security.

However, we also plan to list CXO tokens on exchanges, giving people the opportunity to buy them openly (for residents of countries where the purchase of ICO tokens does not violate local laws), gain access to the Robo-advisory Platform, or sell them to interested traders or investors.

We will accept only ETH and BTC for the token sale. The price of CXO token is 0.03 USD per token (at price equivalent provided for illustrative purposes only, no at currency will be accepted) and the sale hard cap is 21,600,000 USD.

5.2.3 Token Allocation
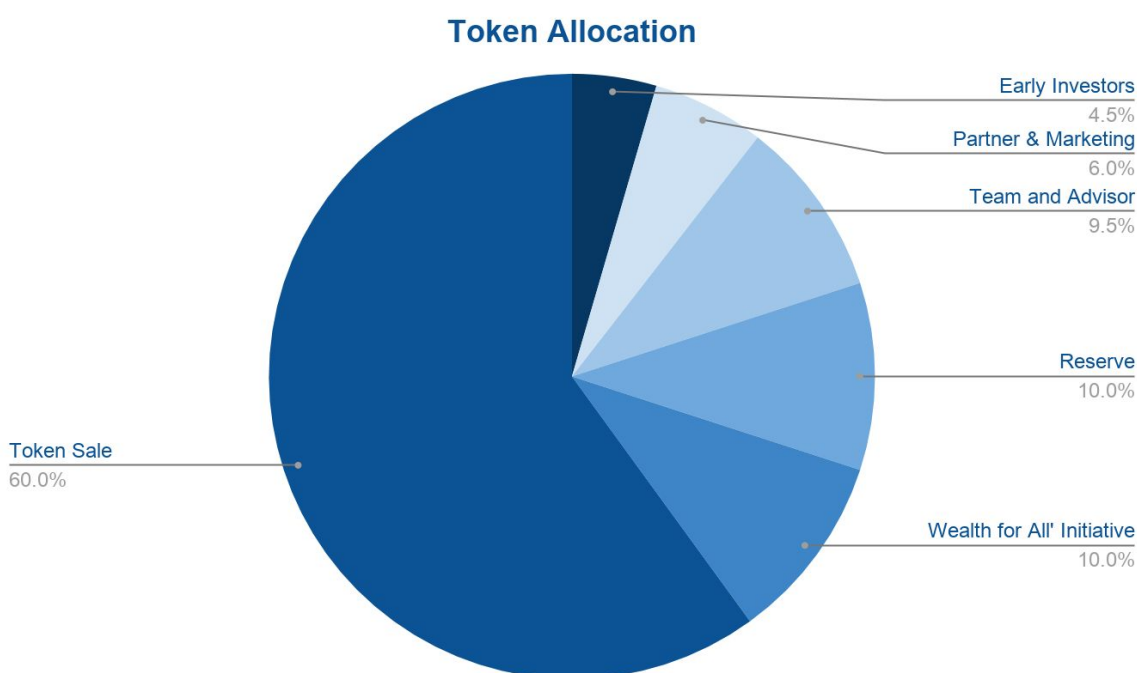
Token Allocation

Allocation	Percentage	Token
Token Sale Contributors	60.0%	720,000,000
Early Investors	4.5%	54,000,000

Partner & Marketing	Bounty	1.0%	12,000,000
	Airdrop	3.0%	36,000,000
	Strategic Partner	2.0%	24,000,000
	Total	**6.0%**	**72,000,000**
Foundation	Team & Advisor	9.5%	114,000,000
	Reserve	10.0%	120,000,000
	'Wealth for All' Initiative	10.0%	120,000,000
	Total	**29.5%**	**354,000,000**
Total		**100.0%**	**1,200,000,000**

5.2.4 Use of Funds

Management of the funds will be broken down into 5 broad categories, namely, 'Robo-advisory R&D', 'Blockchain x AI Ecosystem', 'Foundation Operations', 'Wealth for All Initiative' and 'Reserve' which will be allocated as follows (proportions below are not final and may change at company's discretion based

Use of Funds

- Legal, Compliance and 10.0%
- Wealth for All' Initiative 20.0%
- Blockchain x AI Ecosystem 20.0%
- Robo-advisory Platform 50.0%
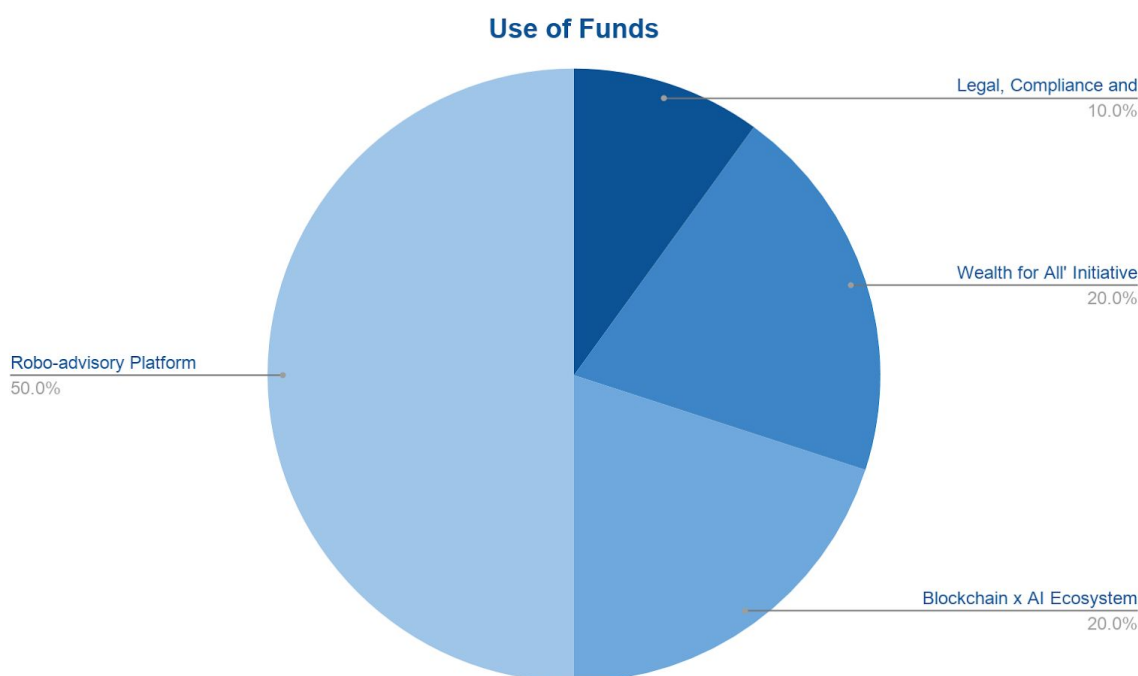
on business needs).

50% - Robo-advisory Platform: budget for continuation of scientific work, infrastructure development, creation of new products, development of the

Robo-advisory platform. The budget will be allocated between these areas as set out below:

- Development: data science, machine learning, AI modules, mobile applications, web versions, products, API, web-hosting, server capacity;
- Trading: trading services and terminals, development of trading algorithms and infrastructure;
- Operational costs: sustaining the business's day-to-day operations, salaries, office rent, other operational costs.

20% - Blockchain x AI Community Building: The funds will go to support our annual Blockchain x AI Conference and providing supports for participants in the Robo-advisory Competition.

20% - 'Wealth for All' Initiative: portfolio for technology validation, the accumulation of valid trading data and formation of a dynamic motivational ETH/BTC pool for forecasters. The trading cases of this portfolio will also serve to make up a history of transactions, which will contribute to growing interest and demand for Robo-advisory platform.

10% - Legal, Compliance and Reserve: legal support, improvement of company's legal structure, protection of users' rights.

5.2.5 Legal Consideration

Legislation on the circulation of securities in certain countries, such as the United States of America (USA), Singapore, People Republic of China (PRC), prohibits the sale of CXO tokens to the residents of those countries. When you buy CXO tokens, you should be aware of the restrictions on their subsequent sale and promise to follow our instructions and/or those of the exchange when reselling them to other people.

6. Roadmap

Year 2017 - Cryptovation		
Q1	Blockchain Arbitraging R&D	Next, Cryptovation was set up to figure out how to strategically earn money using blockchain and bring that idea to the masses.
Q2	Arbitraging Forward Test	Deciding that there might be potential, the founders put some money to test the concept and made a reliable profit over the period.
Q3	Wealth Management Service	The idea was then launched to several potential investors, which lead to some customers entrusting small funds to manage.
Q4	Reached $1M of Asset Under Management	By the end of 2017 there were more investors. At this point, the business was looking toward automation and AI.
Year 2018 - CryptovationX ICO (CXO)		
Q1	Foundation Establishing and Community Building	CryptovationX Foundation
Q2	Launch CryptovationX ICO	CryptovationX ICO (CXO) launched to raise funds
Q3	Launch Arbi (Beta Version) Platform	Development of AI automation will start with 'Arbi', as our most important bot to nurture as arbitrage is the nature of the business.
Q4	Launch Specto (Beta Version) Platform	Development of 'Specto' will follow once 'Arbi' is launched, this can allow opportunity to perform speculative trading.
Year 2019 - Blockchain x AI Conference		
Q1	Organize the 1st 'Cryptovation Blockchain x AI Conference' Launch Broca (Beta Version)	Blockchain and AI Conference will bring together people to share knowledge in this area. It will also launch the 1st Robo-advisor Development Competition It is also the place to unveil 'Broca' beta version.
Q2	Launch Arbi (Version 1.0) Platform	The first version of 'Arbi' should be launched

		by Q2 2019.
Q3	Launch Specto (Version 1.0) Platform	Following 'Arbi' will be 'Specto'.
Q4	Launch Broca (Version 1.0) Platform	Lastly it will be 'Broca'. Year 2019 will be the year where the platform fully goes live and exits beta stage.
Year 2020 - 'Wealth for All' Initiative		
Q1	Organize the 2nd 'Cryptovation Blockchain x AI Conference'	In this conference, it will announce the winners for 2019's Robo-advisory Development Competition. It will also launch the 2nd Robo-advisor Competition and 'Wealth for All' Initiative.
Q2	Integrate Winner Technology to CryptovationX Platform	Modifications and upgrades to the Robo-advisory platform based on the new technology developed by the Conference winners.
Q3	To Be Confirmed	

7. Team and Advisor

Management Team

Pondet Ananchai
Chief Executive Officer
CEO, Cryptovation.co

Niran Pravithana
Chief Innovation Officer
CEO, AVA Advisory

Richard Cayne
Chief Financial Officer
CEO, Asia Wealth Group

June Thatsanasateankit
Chief Marketing Officer
CEO, Dress the Dream

Makkhawan Voraboot
Chief Blockchain Officer
CEO, Bitwalex.com

Jerald Tan
The Director of Wealth for
All Program

Pongsakorn Rujanaporn
Chief Operating Officer

Advisor

Rajesh Nair
Director of Innovation &
Entrepreneurship Center,
MIT Asia school of Business

Shahar Rabin
Co-founder & CEO,
Capitalise.ai

Arch Wongchindawest
Founder & CEO,
Socialgiver.com

Sree Murthi
CEO, IT Spear Sdn Bhd

Joshua Ho
Co-founder, QCP Capital

Wanchalerm Langkawiket
Founder & CEO,
HashBX.com

Chaiwut Kovitchindachai
Co-founder, AVA Advisory &
Ex-executive Director,
Prinsiri