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June 18, 2023

Elizabeth Wong
Director of Licensing and Head of Fintech Unit
Securities and Futures Commission
54/F, One Island East, 18 Westlands Road, Quarry Bay, Hong Kong
sent via fintech contact point

Dear Ms. Wong:

Our company Twofish Enterprises (Asia) Limited, is a research and development company in Hong Kong which develops technology for the virtual asset industry. As part of our research and development activities, we maintain a live demonstration centralized exchange, which we use as a technology development platform.

As a technology provider, it would be possible for us to continue to operate on an unregulated basis. However, we have concluded that it is both in the interest of the firm and the public interest to apply for a virtual asset service provider license from the SFC. We are currently preparing a phase 1 external assessor report ("EAR1").

Concerning the licensing process, we have found that because the SFC maintains an objectives and principles-based regulatory philosophy, it cannot provide specific guidance on how to run a virtual asset exchange. As we have explained to other companies, a health inspector or football referee cannot explain how to run your restaurant or football team. We are hoping to address this gap in the virtual asset ecosystem.

We plan to release our EAR1 to serve as a template for other small and medium enterprises intending to start virtual assets services in Hong Kong both now and in the future. As part of our research and development activities, we wish not to act merely for our commercial benefit but to develop mechanisms by which small and medium enterprises and startups from both within and outside of Hong Kong can operate safely and under regulation.

We have identified several critical issues concerning our license application which we have raised in the attached statement. As we are a small company focused on technology development; we have particular requirements regarding capital requirements, governance, bank accounts, and professional services, which will require discussion with the SFC. We have raised these issues on the attached licensing statement, as well as explained our rationale for obtaining a license instead of operating on an unregulated basis.
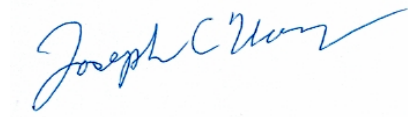
We believe that the issues regarding our licensing application can best be addressed after we have submitted a complete application and the SFC has had an opportunity to examine our "EAR1" and to examine the mechanisms we propose to address the critical issues in our licensing application.

We will need a discussion with the SFC now only if we have misunderstood the requirements of the SFC, and if there are issues we have not foreseen that would cause difficulties for our licensing application. As the licensing application process will be extremely time-consuming for both the SFC and ourselves, we would appreciate that the SFC review our attached statement and contact us as quickly as possible, if there are any issues we have not foreseen that would prevent us from obtaining a license and which cannot be addressed in the context of the "EAR1" drafting process.

Otherwise, it would be most efficient if we begin a dialogue in the context of a completed application after the SFC has had an opportunity to review our complete proposals, and we look forward to starting

this dialogue at that time.

Yours Faithfully,

Joseph Chen-yu WANG
Principal Investigator
Twofish Enteprises (Asia) Limited

encl: Statement regarding licensing
      CV of Principal Investigator

# Statement Concerning Licensing for Twofish Enterprises (Asia) Limited

Joseph Chen Yu WANG

Principal Investigator - Twofish Enterprises (Asia) Limited

June 18, 2023

Our company Twofish Enterprises (Asia) Limited ("Twofish"), is a laboratory for new and innovative financial technologies. We were providing virtual asset services in Hong Kong immediately before 1 June 2023 and have continued to operate such services.

Our company is primary focused primarily in basic research and development of financial technologies including blockchain, cryptocurrencies, and trade finance. Because we consider it essential for our activities to run small experimental centralized exchanges with actual clients, we may be subject to the Anti Money Laundering and Counter-Terrorist Financing Ordinance Cap 615. We therefore are interested in creating a strong firm, solid legal basis for our activities with the cooperation of the Securities Futures Commission.

We are currently preparing a license application as a virtual asset service provider license under the transitional scheme set out in Schedule 3G of the Anti Money Laundering and Counter-Terrorist Financing Ordinance Cap 615 the "AMLO" and are currently in the process of drafting our phase one external assessor report ("EAR1") to describe our activities. We are conducting the drafting of our EAR1 report in a public and open fashion with the hope our EAR1 report can develop standardized best practices for small exchanges operating in Hong Kong and assist other companies to acquire a license in Hong Kong.

In seeking a license we can play a positive role in the development of the virtual asset industry in Hong Kong, and a address a specific regulatory gap in developing virtual assets in Hong Kong. In explaining to other companies the regulatory philosophy of the SFC, we have explained that a food inspector or football referee is simply the wrong person to explain to you how to run a restaurant or how to play football.

The philosophy of the Securities and Futures Commission is one based on objectives and principles. The SFC does not wish to mandate specific processes and procedures but rather would prefer to have the industry take the lead in developing governance and technology processes with the SFC focusing on evaluating and enforcing those outcomes.

However, because the virtual asset industry in Hong Kong is in its infancy, virtual asset providers are looking for specific guidance from the SFC as to appropriate processes. Small companies and overseas companies seeking to relocate in Hong Kong are looking for someone to provide them with specific instructions on how to run their exchange, and may become frustrated and confused when the SFC does not provide specific instructions on how to operate their exchange.

The external assessor review process is intended to streamline the administrative process, but may in fact increase the level of frustration and confusion for such companies. The intent of the external assessor review is for external assessors to take an audit and review role rather than a design role. Hence, the external assessors are not in a position to design the systems which they are intended to assess.

As part of our company objectives, we believe that technological development involves not only the development of hardware and software but also the design and development of legal, economic, and social structures. Hence in preparing our application, we hope to create a template for other companies to prepare their applications both during the current transitional period and beyond.

Preparing an "EAR1" report will involve considerable time and energy on the part of our company. In this letter we wish to outline our rationale for seeking a license, describe our regulatory objectives, and describe specific issues regarding our licensing application. We believe that in-depth discussion on these issues can be delayed until after we have submitted our licensing application with an associated "EAR1" report, but we would appreciate if the SFC would inform us immediately if there is some issue that we have not foreseen.

# 1   About our company

Dr. Joseph C Wang, the founder of Twofish Enterprises (Asia) Limited, is a graduate of the Massachusetts Institute of Technology and has a doctorate in astrophysics from the University of Texas at Austin. He was a quantitative analyst at JPMorgan and possesses several decades of scientific and commercial software programming experience, and has extensive technology and financial expertise in web3, blockchain, and cryptocurrencies. He remains active as a software developer both in the commercial world and in high-energy physics.

Our goal in setting up Twofish is to act as the research and development arm of the Hong Kong virtual asset industry. As such, Twofish is currently operating an experimental virtual asset trading platform under the name "Bitquant Virtual Asset Trading Platform" at the location https://exchange.bitquant.com.hk. The exchange has a limited number of retail clients in North and East Africa, and we have possession of HKD 10,000 of client funds. Twofish does not and has no intention of servicing the Hong Kong retail market, and our activities in Hong Kong are limited to a small number of professional investors who serve as market makers. We do not foresee that the volume of client assets under

custody by us will exceed HKD 1 million HKD.

Our primary goal is research and development and not profit maximization, and we believe that we can earn enough money through small-scale trade transactions with Africa and technical consulting to recoup the costs of our exchange. As such, we only intend to hold a minimum of client funds, all of which can be guaranteed through a personal guarantee by the founders.

## 2    Historical context for our activities

Our purpose in setting up a virtual asset business in Hong Kong is not motivated purely for commercial reasons but also inspired by the a unique moment in history we find ourselves in. In her talk at Bloomberg on 28 April 2023, SFC CEO Julia Leung recounted her conversations with the Central Government and the awareness that we are in the middle of a geopolitical struggle, and both the Central Government and the Hong Kong SAR understand the critical role of the type of research and development we are performing for the future of China.

Our work in this area is intended to further the "Chinese dream" and the great rejuvenation of the Chinese nation. In addition to advancing the Belt and Road initiative through trade, we are also advancing the "dual circulation" model. It is essential for the continued prosperity of the Chinese nation that China maintain open access to trade while developing technology. We note that it has only been in recent years that China has left behind the "century of humiliation" and entered a new and glorious phase of its history.

While we must look to the future, we must not forget the past. China entered the "century of humiliation" when she isolated herself from the rest of the world and fell behind in technology. We must never again allow for a situation in which we face steam engines and precision rifles with obsolete spears and sailboats. China has learned through hard historical lessons that failure to innovate and to master the latest technology is a recipe for catastrophe and this remains no less true today than when the HMS Nemesis sailed up the Pearl River.

When the Europeans first arrived in this area in the 16th century, China was the world's technology leader. But because of its antiquated social, economic, and governmental systems, China disastrously fell behind the West. This must never be allowed to happen again. Dr. Wang believes that financial technology is *more* important than military technology to the future national security and, indeed, the national survival of the Chinese nation. Without a strong financial system, a nation cannot generate the wealth necessary for economic prosperity and national defense. Without strong finances, it becomes impossible to pay scientists and soldiers and deploy resources to resist hostile foreign powers.

It is in this context, that Dr. Wang is actively involved in creating the legal, economic, and technological basis for a system that would promote national security and economic prosperity for the Chinese nation.

# 3 Rationale for seeking a license

One may argue that our research and development activities in Hong Kong do not require virtual asset licensing under the legal theory that our activities do not constitute the operation of a virtual asset business in Hong Kong. Under the terms of the AMLO, a person commits an offense if they conduct the business of providing a virtual asset service provider. Because the Hong Kong Special Administrative Region is a local government of the People's Republic of China, it does not have sovereign or plenary powers and hence has no authority to regulate activities outside of the Hong Kong Special Administrative Region. The Securities and Futures Commission has indicated that it would use the same "active marketing" criterion as the Securities Future Ordinance in determining whether a business is operating in Hong Kong.

As such, if Twofish were unable to obtain a VASP license, we believe that the company can continue its research and development activities on Hong Kong on the basis that its virtual asset exchange does not constitute a business and is merely an incidental activity. Second, because the locus of its business is outside of Hong Kong, Twofish can take the position that it is not in fact operating a business in Hong Kong. By taking these positions Twofish can continue to operate in an unregulated fashion and avoid the difficulties in preparing a license application.

Dr. Wang considers his work to be of such importance to the future of the Chinese nation that he will continue his activities in developing virtual asset technology in Hong Kong, regardless of how the Securities and Futures Commission acts on Twofish's license application. Nevertheless, Twofish is undertaking the difficult and onerous process of becoming a regulated entity for several reasons.

First of all, it is vital for the development of the virtual asset industry that Hong Kong maintains clear and transparent regulation, and that there is a frank, open, and active dialogue between the Hong Kong government, the Securities Futures Commission, the virtual asset industry, and other relevant stakeholders. Conducting our activities through regulatory loopholes and ambiguities decreases clarity and transparency and eliminates the possibility of productive dialogue. Should Twofish operate in a unregulated manner, there would be the issue of what activities are regulated and what activities are unregulated, and this would create confusion and lack of transparency and clarity which harm the development of virtual asset technology in the Greater Bay Area.

Second, it is not in the public interest to "pull up the ladder" and deny opportunities for virtual asset businesses that were not operating immediately before 1 June 2023 to set up in Hong Kong. The virtual asset industry must remain open to new businesses and new innovations from small innovative companies. We believe that it would not be in the public interest if they regulations were such that it was effectively impossible for new small innovative startup business to either be invented in Hong Kong or to move here from elsewhere, and we seek to develop a regulatory system that can accommodate small innovative businesses with new technology. If we can get a license for our company,

so can others, and we believe that it is in the public interest for the SFC to demonstrate how small companies can operate in a licensed environment.

Third, it is not in the public interest to bifurcate the virtual asset trading platform market. If small businesses such as us can only operate on an unregulated basis, it makes it difficult or impossible for such businesses to grow and transition to a regulated system. The result of this is that new and innovative businesses will remain underground and in the shadows only interact with the regulators when there is a crisis. We believe that small businesses should be allowed to operate with reasonable and appropriate regulation from day one to allow these businesses to grow into large businesses with proper regulatory oversight, and so that the regulators can intervene before the public is harmed by a crisis.

Finally, our activities will attract the types of high-technology businesses and investments that Hong Kong seeks to attract if it is to be successful as a virtual asset hub. Taking the position that we are not operating in Hong Kong would make it impossible for us to promote Hong Kong as a business destination in cryptocurrency and technology circles. We hope that our experiences in undertaking the licensing process will encourage other companies to set up in Hong Kong.

For the foregoing reasons, we believe that a formal mechanism to allow small startups and entrepreneurs to set up virtual asset services in Hong Kong in a fully regulated fashion is essential for the economic growth and development of Hong Kong. Without a formal and clear mechanism for the regulation of startups and entrepreneurs, issues such as taxation, employee benefits, business loans, and immigration become problematic.

It is for this reason that we have decided to undertake the difficult process of obtaining a license to operate a virtual asset service provider exchange from the SFC.

# 4    General issues regarding virtual asset regulation

In undertaken virtual asset regulation, we believe that there are several general issues which the Securities Futures Commission and the Hong Kong government should resolve with through dialogue with the virtual asset industry.

## 4.1    A "zero to unicorn" regulatory framework

It is important that the regulatory framework provide a path by which a small company with new technology and innovative ideas can be set up in Hong Kong and grow into a unicorn. In seeking a license, we wish to provide a very clear and straightforward path for other small companies to be set up in Hong Kong, we seek to work with the SFC to develop standards and a regulatory framework that would be sufficient to take into account of the needs of small startups with

limited capital yet flexible enough to maintain adequate consumer production and protection against systemic risk as a VA service provider grows.

Specifically, while it will take several months for us to prepare the necessary documentation for our company to apply for a license, once this documentation is prepared and publicized, another small company can simply copy our filings and set up in Hong Kong relatively quickly. Similarly, while we foresee that the discussions regarding our license application may take several months, once these issues are resolved then any future applications will take considerably less time for regulatory approval.

If our application is approved, then we can foresee a situation by which a startup or other small company wishing to relocate would conduct their regulated activities through our company which would allow them to operate under appropriate safeguards and oversight while there application is pending.

## 4.2 Stablecoin policy

We are using USDT for the purpose of trade settlement and for cash management. We do not have and do not plan to open any bank accounts, and all of our internal business operations are based on stablecoin and paper fiat, with conversion done via the Hong Kong OTC market. Our use of USDT allows clients in North and East Africa to use our exchange and also allows us to pay employees and suppliers in those regions.

We believe that restrictions on our use of USDT for trade settlement between retail clients in Africa and professional investors in Hong Kong would constitute an impermissible foreign exchange and capital control under Basic Law Articles 112 and 115. Although the use of USDT as a method of trade settlement presents AML/KYC and consumer risks, they are no different from those presented by the use of foreign currency to settle trade. Under the Basic Law, if a person wishes to use USDT, Hong Kong Dollar, the US Dollar, or the Zimbabwean Dollar to pay for goods and services, they have every right to do so despite any risks.

In addition, as patriots, we are extremely concerned by the misuse of the global financial system by hostile foreign powers as a means of enforcing economic and technological sanctions against the People's Republic of China, and we believe that developing a robust trade and settlement system based on stablecoin that completely bypasses banks subject to control by foreign powers is in the national security interests of the People's Republic of China.

We note that the difficulties of virtual asset companies in obtaining bank accounts result from the policies of certain foreign powers to attempt to isolate and decouple from China for the economic purpose of limiting Chinese access to technology and limiting its economic power.

We further note that the Chief Executive of Hong Kong and many of the key members of the Executive Council the currently unable to obtain banking accounts, and that certain foreign powers have suggesting imposing economic sanctions on members of the Hong Kong judiciary. Should virtual asset service providers deny accounts to the Chief Executive, the Secretaries for Justice, Secu-

rity, and Constitutional and Mainland Affairs and judges who serve on national security trials? Of course not, but limiting the use and access to stablecoin and forcing virtual asset service providers to go through the banking system results in this absurd situation.

Rather than limit the ability of virtual asset providers to trade using stablecoins, we believe that it is essential for the national security of the People's Republic of China for the Hong Kong government to promote the use of stablecoins and other virtual assets for trade settlement to limit the ability of foreign powers to deny Chinese access to the international financial system and interfere with the ability of China to develop friendly and normal relations with other countries.

## 4.3 Cross-border investor protection

We have noted that the Securities and Futures Commission has raised concerns about people using SFC approval to imply consumer protection where it does not exist. However, we see the opportunities for the Securities and Futures Commission to regulate in ways that would enhance the reputation and good name of the Hong Kong financial industry.

Dr. Wang has been working on Belt and Road projects in Africa and using cryptocurrency to promote trade with Africa for almost one decade. Dr. Wang has focused on Africa because capital requirements are low, and he has sufficient personal financial means to protect his African counterparties against loss. The typical transaction that Dr. Wang undertakes is a few hundred US dollars, and Dr. Wang has sufficient personal financial resources to underwrite these microtransactions.

Twofish has no intention of seeking Hong Kong retail clients because Dr. Wang does not have the personal financial resources to protect Hong Kong retail clients against loss. Our exchange is open only to a select a number of retail clients in North and East Africa. We are specifically limited our retail clients so we can be assured that our clients are knowledgeable about the risk of cryptocurrency, and that the operators of the company in Hong Kong have sufficient personal capital to pay out client liabilities.

It is our intention that any practices SFC mandates for consumer protection in Hong Kong is applied to all our clients worldwide. It is our hope that it allows ordinary retail investors in areas with weak financial and regulatory systems to take advantage of consumer compliant and dispute resolution processes under Hong Kong that we will be able to promote Hong Kong as an international financial center, and give virtual asset service providers licensed in Hong Kong a competitive edge globally.

## 4.4 Development of common and standardized technical standards

The software infrastructure that we are using for our exchange is based on open-source software such as OpenCEX and Hummingbot, and we believe that

open-source software platforms can be used to create a common technical infrastructure for the Hong Kong virtual asset service ecosystem that promotes innovation and resists the risk of sanctions, boycotts, and blockades.

As with our other discussion topics, the issue of technology standards has national security implications. Certain foreign powers have attempted to limit Chinese access to technology and limits to technology will allow these powers to limit Chinese access to money, trade, and markets, thereby limiting Chinese access to oil and food. We are focused on the development of open-source technology, which cannot be denied to China and to create a financial infrastructure in which China can play a leading role in technology development.

Much of our research involves creating a financial infrastructure for Hong Kong that relies on open source and freely available technologies to create "sanction-proof." financial infrastructure so that Hong Kong can remain an open international finance center to any foreign partner who is willing to comply with the laws of the Hong Kong Special Administrative Region of the People's Republic of China, regardless of any sanctions imposed by hostile foreign powers.

## 4.5 Integration and harmonization with money services standards and practices

For Hong Kong to succeed as a virtual asset hub, it is essential to take a holistic approach and have the various sectors of the Hong Kong financial systems work with each other in ways that are mutually beneficial. Our work with Belt and Road projects has brought us into close contact with the Hong Kong money services industry, and we have been made aware of the challenges and limitations that can arise from regulation.

We would like to see a world in which every currency exchange shop in Hong Kong offers Bitcoin and stablecoins for sale. Having a world in which a tourist or business traveler who lands in Hong Kong International Airport immediately sees signs to offer conversion of bitcoin to Hong Kong dollars would immediately establish Hong Kong as a virtual asset hub.

As with many of our other objectives, this, too, has national security implications. Virtual assets allow Hong Kong to use the existing network of MSOs and bypass restrictions on trade that are imposed by hostile foreign powers through their control of currencies and the banking system. Hong Kong already has a robust compliance and anti-laundering infrastructure within its money services industry that would prevent these networks from being used in ways that are against the national interest of the Chinese people. It should now integrate these systems to create an integrated virtual asset system that allows China to be open to international trade and commerce using technology that is developed by it.

# 5 Specific issues regarding our license application

In reviewing the guidance that the SFC has issued regarding virtual asset licenses, we foresee no issues in complying with the technical and AML/KYC standards issued by the SFC. However, because of our unique nature as a research and development organization, we have identified several issues that may be of concern to the SFC.

We will attempt to address these issues in the context of our EAR1 report, and no action by the SFC is necessary if the SFC believes that the issues that we have raised can be resolved after we have filed our license application with an associated EAR1 report. Nevertheless, if the SFC believes that these issues are critical enough, we would appreciate that the SFC would communicate these issues with so as quickly as possible.

## 5.1 Capital requirements

Because we do not foresee having more than 1 million HKD of client assets under management, we believe that a requirement of 5 million HKD of liquid capital would be in our case, excessive, unreasonable, and unnecessary.

Furthermore, it is important that as a research and development organization that operational control of the company remain in the hands of scientists and engineers and not funders and investors, and we believe that an excessive capital requirement would put control of the company in the hands of funders and investors which we do not believe to be in the interests of the company, nor in the public interest.

Because we intend to have only a limited number of African clients (less than 100) and because these clients typically have exchange balances in the hundreds of USD. we will be able to self-insure our clients against loss through personal guarantees and personal assets. We will be prepared to accept limits on total depositor holdings and a requirement that all depositor holding for our retail clients be guaranteed against loss via the personal assets of the founders.

We note that although the Circular dated 29 September 2017 has stated that the SFC will not waive Financial Resource Requirements (FRR) in relationship with the regulatory sandbox that the Financial Resource Requirements (FRR) in Part 3, Cap 571N constitute subsidiary legislation under the SFO. By contrast, the share capital requirements under the AMLO have been issued as guidelines under section 53ZTK under the AMLO rather than as rules and subsidiary legislation under section 53ZTL.

Given that minimum capital requirements have not undergone the vetting process necessary for a formal rule under Section 53ZTL, we believe that it is legally impermissible for the SFC to set the share capital requirement as an absolute bar to AMLO licensing, but rather that the SFC is legally required under section 53ZTK to consider the liquid capital guideline to be but one factor in considering whether a license the applicant is "fit and proper." We

further note that because our exchange is providing liquidity for the purpose of external trade, any action by the SFC would need to consider the Basic Law Articles 112 and 115 and any share excessive capital requirement that restricts a business from undertaking external trade could be considered an impermissible capital control.

Given the above, we believe that it would be legallly impermissible for the SFC to follow a purely rules based approach, and is legally required to follow a principles-based approach that considers alternative mechanisms to insure capital adequacy for intermediaries and when such mechanisms are appropirate under the principle of "same risk, same activity, same regulation."

We believe that we can provide alternative insurance mechanisms to insure that client interests are protected and look forward to presenting those mechanisms in the contexts of our EAR1 report.

## 5.2 No corporate bank accounts

We do not have and do not intend to have corporate bank accounts, and all our assets are in the form of virtual assets or paper fiat. We wish to work with the SFC to develop appropriate standards and guidelines for "bank-less" entities. In our EAR1 report, we will state specific internal standards for cash and stablecoin management, which we hope will become the standard for other entities to operate.

## 5.3 Governance standards

Because we are a small research oriented exchange, our governance practices are more in common with a university research group or research division of a large company than with a normal commericial enterprise. In particular, it is essential that operational control of the company remain in the hands of scientists and engineers and not funders and investors, so that the primary focus of the company is scientific research and development and not profit maximization.

In addition, research and development companies require very loosely defined roles and a small number of focused researchers so that the research team can rapidly explore new avenues of research.

We believe that we can create an organizational structure that both allows for rapid technology innovation while at the same time maintains adequate safeguards to protect the public interest. Specifically we will propose that the external assessor review panel which we are using for to assess our phase one report be made into a independent permanent body with a non-executive chairman that can exercise oversight functions over the operational parts of the company.

The organizational structures that we will propose will create a system that uses the system of grants administration and peer review to allow for regulatory oversight for the purpose of protecting the public interest, and we look forward to discussing these structures with the SFC in the context of the EAR1 report.

## 5.4 Professional services

We are extremely concerned that some licensing requirements may create situations in which highly expensive professional services will result in gatekeeping requirements by which expensive professional services become a "chokepoint" which will limit the development of startups and encourage "rent-seeking." behavior.

We are particularly concerned that SFC requirements will create a "cartel" that will limit the ability of small companies such as ours to receive and maintain licensing. We will propose that the primary compliance mechanism occur through a system of peer review through the permanent external assessors who will then have oversight over the auditor functions of the firm. As such the auditors which we will engage will be of the same skill as that necessary to audit an SME under the Companies Ordinance, and that they will be under the oversight of the permanent external review panel.

# 6 Conclusion

As patriots who love Hong Kong and love China, we will vigorously defend our rights and freedoms as set out by the Constitution of the People's Republic of China and the Basic Law of the Hong Kong Special Administrative Region. We committed to the development of the capitalist system in Hong Kong under the one country, two systems policy and the healthy development of Hong Kong as an international financial center.

We believe that our activities in the development of financial technical are beneficial and necessary for the future economic prosperity and national security of the People's Republic of China. If denied a license, we believe that the laws of the Hong Kong Special Administrative Region of the People's Republic of China and in particular Articles 112 and 115 and the principle of "one country two systems" will provide sufficient space for our company to continue our virtual asset activities in Hong Kong without the approval of the Securities Futures Commission.

However, a situation in which we are operating in Hong Kong on such a basis would require us to use legal loopholes and legal fictions, reduce clarity and transparency, increase confusion and prevent an honest and productive dialogue between various communities in Hong Kong.

We believe that it is better for all concerned if, as patriots, we work with the Hong Kong government and based on activities on a clear, transparent and reasonable regulatory framework, taking into account the laws of the Hong Kong Special Administrative Region of the People's Republic of China and acting under the national strategies and objectives outlined by the Central Government. Such an effort is essential if we are to avoid the mistakes that lead to China's tragic past.

We are living in a time of changes that have not been seen in a century. If change is inevitable, predictable, and beneficial, doesn't logic demand that we

be a part of it? As individuals, we may not be able to summon the future, but we can change the present.

What will it be? Past or future? We have chosen the future, and are hopeful that the Securities and Futures Commission will work with us in our in endevours.

# Joseph Chen-Yu Wang Ph.D.

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Github: https://github.com/joequant

Sai Kung - New Territories - HONG KONG

## Experience and interests summary

Extensive experience in cryptocurrency, defi,and blockchain with team management experience.  Decades of experience in full stack development of networked systems for scientific visualization and financial trading.  Trading digital currency and Hong Kong options.  Over a decade of experience in developing concurrent/multi-threaded financial technology libraries in Nodejs, Solidity, C++, Python, Java, R, Fortran 95/77 and Perl.  Two decades of working experience in developing commercial software with team management experience and developing scientific and academic software.

## Education

**Doctor of Philosophy in Astronomy – Numerical radiation hydrodynamics**
**University of Texas at Austin - 1998**
   • Research focus was the numerical simulation of convection in iron core collapse supernova using finite difference methods (FDM) and finite volume methods (FVM) on partial differential equations.

**Bachelor of Science in Physics with Thesis in Educational Software Development**
**Massachusetts Institute of Technology – 1991**

## Professional Experience

**Principal Investigator**
**Twofish Enterprises (Asia) Limited (Hong Kong / Kenya) – 2023 to current**
   • **OpenCEX and Hummingbot developer (Python) –** Developer and chief manager for virtual asset service provider used in trade finance with Africa

**Data Architect / Blockchain and Web3 Developer**
**Truflation (Hong Kong / Austin, Texas via Remote) – 2022 to current (**https://truflation.com)
   • **Blockchain developer for inflation and NFT indexes (Typescript/Chainlink/Solidity/Python) –** Data architect for system for serving inflation and other financial data on the blockchain using web3 technologies. Project sponsored by Stefan Rust

**Blockchain / Web3 Developer**
**Yamashita Finance (Singapore via Remote) – 2021 to 2022**
   • **Full stack developer with backend focus to implement defi CDO system (2021-2022) (Solidity/React/Redux/devops)**  - Developed algorithms for ethereum smart contracts for defi credit default management system -  (https://etherscan.io/address/0xa592eB7BA3188Eefd468FF12d3101db0d3376Ee7). Project sponsored by Arthur Hayes.

**Freelance Developer - https://github.com/joequant**
**Bitquant Research Laboratories (Own company) – 2014 to 2022**
   • **Regulatory and technical consultant (2020-2022)**  -  Providing regulatory and technical consulting to small Hong Kong based cryptocurrency businesses with a focus to businesses involved in South Asia, East Africa and the Middle East
   • **Backend developer for blockchain supercomputing system (2021-2022) (Nodejs/podman/zeromq) –** Key developer and system architect for blockchain supercomputing system in cooperation with Key4HEP project at CERN and well known crypto hedge fund
   • **Defi arbitrage programmer (2021) (Web3) –** Programmed bot for doing defi arbitrage on ethereum.  Non-proprietary portions are available at (https://github.com/joequant/sto/tree/master/defibot)
   • **Full stack developer for particle physics visualization system (2020) (current) (Javascript/zeromq/SQL) –** Working with CERN as a full-stack developer on data analytics visualization system integrating web frontend with backend JIT C++ compiler.  Work involved packaging systems using Docker/Podman
   • **ICO Technical Consultant – Atlant.io / Angelcoin (2017) - (web3) –** Technical consultant for ICO projects. Atlant.io – real estate – Cited by Ernst and Young report for UK Treasury and interviewed by Australian government on blockchain strategy
   • **Blockchain forensics developer – Blockdynamics (2019) (Jupyter/Python/C++) –** Developed system to trace tainted bitcoin for compliance and regulatory purposes.  Work consisted of developing backend calculations system and then creating developer frontend through Jupyter to interact with the backend code

- **Blockchain logistics system architect – TieNChat (2019) – (nodejs/web3)** Designed system UI/UX and coded prototype system for using ethereum blockchain to track logistics and supply chain
- **Africa / Hong Kong trader (2014 to current) –** Using concurrency / bitcoin to develop trading for One Belt / One Road between Kenya, Nigeria, Tunisia, and Hong Kong.
- **Full stack trading systems developer (2016-2017) – (Reactjs/Python/C++) -** Wrote complete algotrading platform for local HK trader using local broker Sharppoint technology. Developing included creating complete frontend UI for algo and discretionary trading using ReactJS bootstrap, writing middle tier business logic using python and backend connectivity layer to exchange API
- **Full-stack bitcoin arbitrage detection system (2017) - (Reactjs/python) –** Developed complete system for detecting bitcoin arbitrage on exchanges. Frontend based on react bootstrap. Backend based on python
- **Smart contract full stack developer / instructor – Cryptolaw / Hong Kong Law Society - (2015) - (javascript) –** Worked with Hong Kong startup to create interactive smart contract using javascript code to calculate loan payments interactively on javascript web page
- **OpenCL / FPGA Mining Developer (2020)** – **(C++, OpenCL / GPU / FPGA)** - Developed FPGA mining software for cryptocurrency mining using C++ and OpenCL. Low level optimization work including GPU backtesting
- **Cryptocurrency hedge fund developer / quantitative analyst – Fund3 (2018-2019) - (C++/Python)** Worked on contract basis with startup hedge fund to develop algorithms and tick-level backtesting systems
- **Quantitative developer for order book processing - Marvelsoft (2016) - (C++/python)** – Worked with startup fintech to implement trading algorithms for order book processing

**Vice President – Front Office - Quantitative Analytics / Equity Derivatives**
**JP Morgan (Hong Kong) – 2010 to 2013** – http://www.jpmorgan.com/
**JP Morgan (New York City) – 2007 to 2010**
- Developed and maintained cross-asset frontend and backend quantitative code at JPMorgan. Frontend development including developing frontend UI's using Jquery and Javascript for high performance computing dispatch system and web-based UI systems allowing for developer interaction with devops/continuous integration systems. Backend development included developing derivatives pricing libraries.
- Developed infrastructure for Greek monte-carlo and tree calculation engine, developed HPC framework for allowing distributed calculation of greeks, developed python based system for automated generation of testing and compliance documents with python and Latex.

**Development Team Leader – Real-time low latency multithreaded business-critical dispatching software**
**Pointserve (Austin, Texas) – 2004-2007** - http://www.pointserve.com/
- Development team lead and Level III customer support for business-critical real-time dispatch software used by electric, gas, and cable services, including dispatch of cable repair and installation trucks for Time-Warner Cable in the entire greater New York City area. Frontend end coding involved using wxwidgets to create UI to interface with backend Oracle server.

**Development Team Leader – Geological visualization and database analysis software**
**Landmark Graphics, a division of Halliburton – (Austin, Texas) – 1998-2004** - http://www.lgc.com/
- Developed and managed frontend UI using MOTIF widget set and JWT, business logic code using C++ and backend code using Oracle database for Petroworks and PowerView software used to assist petrophysicists and geologists analyze well logging data.
- Participated in four development and release cycles of software included about several hundred thousand lines of code in Java, Fortran, and C++ with database access to big data Oracle database and MOTiF frontend

## Publications and Citations

- **HK Cable Finance Interview (Mandarin/Cantonese) -** https://www.facebook.com/cablefinance/videos/bitcoin 期貨正式登場-搵埋專家一齊傾/1743492929035104
- **Bloomberg interview -** http://www.bloomberg.com/news/videos/2016-08-10/the-lessons-learned-from-the-bitcoin-exchange-hacks
- **EY UK Fintech: On the Cutting Edge -** https://fintechauscensus.ey.com/2018/Documents/EY-UK-FinTech-On-the-cutting-edge.pdf

## Miscellany

US Citizen / Hong Kong permanent resident – Fluent in English and Mandarin Chinese – Written and Spoken