

Joseph Chen-Yu Wang Ph.D.

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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. A decade and a half of working experience in developing commercial software with team management experience. Over two decades of working experience 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.
- Developed code using FORTRAN 77 and FORTRAN 90 for use on SGI, Sun, IBM RS/6000 and DEC Alpha workstations. Vectorized code for use on CRAY J90 supercomputers, and modified code to allow for parallel processing on CRAY T3E supercomputer using the MPI message passing system.

Bachelor of Science in Physics with Thesis in Educational Software Development

Massachusetts Institute of Technology – 1991

Professional Experience

Data Architect

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 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 current

- **Regulatory and technical consultant (2022 to current)** - 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