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1 PROGRAMMING SKILLS

- ✦ **Python** at professional level. Using Numpy, Pandas, Scikit-learn, Tensorflow and Pytorch for both research and production, deploying through either virtual environments or Docker containers, integrating C++ libraries using Cython when needed, familiar with Unit Test (including Mock), type hint and strictly following PEP 8 coding style,;
- ✦ **GIT and Docker** at professional level. Using daily in development and deployment;
- ✦ **SQL** at experienced level. Familiar with **MySQL**, **PostgreSQL** and **TimescaleDB**;
- ✦ **C++** at experienced level. Familiar with GoogleTest for developing reliable libraries;
- ✦ **Java** at experienced level. Using Java 1.7 for the core of LOBSTER (<http://lobsterdata.com>), which has been running stably over a decade.
- ✦ **AWS** at experienced level. Familiar with EMR cluster setup and monitoring;
- ✦ **Linux user** with 20-year experience. Familiar with most of the common tools;
- ✦ **Other programming languages and tools** including Matlab (10+ years), Scala, KDB+/q, R, OneTick, Apache Spark (running on AWS EMR cluster) and Redpandas/Kafka.

2 PROFESSIONAL EXPERIENCE

- **Founder & Director, Vonde Consulting Ltd., UK** **01/2020 – present**
 - ✦ **High-frequency crypto trading and backtesting platform** using tick-level data, developed in Python and C++ with proper functional and unit tests, deployed by docker containers;
 - ✦ **Efficient backtesting system for low-frequency trading strategies** as a contractual project for a hedge fund, using level 3 market data, developed in Scala using Spark, deployed on AWS EMR;
 - ✦ **Active portfolio construction and statistical arbitrage** based on technical signals and high frequency econometric models, using crypto tick-level market data;
 - ✦ **Water level prediction neural network** developed in Python using Tensorflow, trained on Tencent cloud, deployed for three cities in China.
- **Founder & Head of Development, frischdaten UG, Germany** **04/2015 – present**
 - ✦ **LOBSTER data engine** constructing NASDAQ order book and order flow, using TotalView-ITCH (level 3 market data stream), developed in Java 7.
- **Director, AES Credit-Suisse, UK** **07/2020 – 04/2022**
 - ✦ **Signal enhanced execution strategies** adjusting schedule-based execution algo, such as VWAP, by directional signals;
 - ✦ **Desk daily cover** including quant guidance for dev and data teams, research advice for junior quants, algo advice and customisation for clients.

- Vice President, SMAD Barclays, UK 08/2018 – 11/2019
 - ✦ Execution strategy enhancements including customisable-titled VWAP, impact model for SOR;
 - ✦ Desk daily cover including TCA reports, algo advice for clients.
- Vice President, AES Credit-Suisse, UK 07/2016 – 08/2018
 - ✦ Commodities intra-day volume regime shift model detecting volume curve break points using historical data;
 - ✦ Adaptive VWAP choosing the best VWAP sub-strategies based on client order characteristics in trading time using a machine learning model;
 - ✦ New behavior of liquidity-seeking strategy using a configurable continuous response function for Guerrilla algo.
- Associate Director, Electronic Trading UBS, UK 11/2013 – 07/2016
 - ✦ Pre-trade costs model using an exponential kernel, providing a significant improvement on the pre-trade estimation;
 - ✦ Stop-loss alert model triggering an alarm when a particular stop-loss order likely causes a intra-day market turbulence;
 - ✦ Dark IOC routing study analyzing the liquidity gain and loss of SOR ALP tactics, suggesting a dynamic control on taking the liquidity from the dark pools.
- Scientific Employee, QPL Deutsche Bank, Germany 02/2008 – 07/2011
 - ✦ Financial econometric models for the limit order book and the order flow.

3 EDUCATIONS AND DEGREES

- Doctorate, Humboldt Universität zu Berlin, Germany 02/2008 – 02/2012
 - ✦ Applied econometric models on high frequency limit order book, order flow and dark liquidity using ultra-high-frequency level 3 market data;
 - ✦ Graded as *summa cum laude* recognising my extraordinary academic achievements.
- Master student, Royal Inst. of Tech. (KTH), Sweden 09/2006 – 02/2008
 - ✦ Applied mathematics focusing on numerical methods for PDEs and the high-performance computation.
- M.Sc., University of Copenhagen, Denmark 04/2004 – 12/2007
 - ✦ Economics including courses of macro, micro-economics and econometrics etc., and a thesis on derivative pricing with Lévy processes.

4 PUBLICATIONS

- ✦ Shen, Y. and R. Huang (2014) “Risk-averse reinforcement learning for algorithmic trading”, Conference on Computational Intelligence for Financial Engineering & Economics (CIFEr), 2014 IEEE.
- ✦ Hautsch, N. and R. Huang (2012), “The market impact of a limit order”, Journal of Economic Dynamics and Control, 36, 501 – 522.

- ✚ Hautsch, N. and R. Huang (2012), “Limit order flow, market impact and optimal order sizes: Evidence from NASDAQ TotalView-ITCH data” in: “Market Microstructure: Confronting Many Viewpoints”, F. Abergel, J.-P. Bouchaud, T. Foucault, C. Lehal, M. Rosenbaum (eds.), Wiley Intersciences.
- ✚ Hautsch, N. and R. Huang (2012), “On the dark side of the market: Identifying and analyzing hidden order placements” Discussion Paper 2012-4, CRC 649, Humboldt Universität zu Berlin.
- ✚ Huang, R. and T. Xiao (2012), “How much can hidden liquidity improve the trading price” Working Paper, Humboldt Universität zu Berlin and Harvard University.
- ✚ Huang, R. and T. Polak (2011), “LOBSTER: Limit order book reconstruction system” Working Paper, Humboldt Universität zu Berlin.