Tsz Shun (Jason) Chow

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Highly motivated, passionate and detail-oriented Kotlin / Java engineer with more than 20 years hands-on experience, specialied in low-latency financial systems

Specialties

Low-latency trading systems | Core banking systems and integration | Product-oriented engineering | A/B testing experiment design | Public API designer and writer | Event-driven systems | Multi-threaded real-time systems | CQRS | Event sourcing | Domain-driven development

Professional experiences

Webinars

- *"Transitioning to Kotlin"* sourcegroupinternational.com/events/transitioning-to-kotlin

Publications

- *"Building a bank? Here's why you should use Kotlin"* content.11fs.com/article/building-a-bank-heres-why-you-should-use-kotlin
- *"Strictly Programming"* jasition.github.io

Community contributions

- quickfixj: github.com/quickfix-j/quickfixj/pull/212

Skills

Languages

Kotlin | Core Java | Bash | SQL | PL/SQL

Frameworks

Spring Boot | Micronaut | Ktor | Arrow | Disruptor | Flyway | Exposed | Jooq | JDBI | Resilience4J | Jupiter | Kotest | Mockk | Testcontainers

Transports

REST | GraphQL | Rabbit MQ | Kafka | Confinity Low-latency Messaging | RFA | TREP | FIX | Quickfix | Kinesis | SQS | SNS | Protobuf | Avro | Json

Databases

Oracle | mySQL | Postgres | Invision | InfluxDB | Metabase

Methodologies

A/B Testing | Functional Programming | SOLID Principles | Event Sourcing | CQRS | Ports and Adapters | TDD | BDD | Scrum | Kanban | Continuous Delivery | Trunk-based development

Source repositories

Github | Gitlab | Bitbucket | Perforce

Build / CI / CD

Gradle | Maven | Docker | Kubectl | Github Actions | Gitlab CI | Jenkins | Bamboo | ArgoCD | Kubernetes | Kustomize | Helm

Infrastructure / Observability

Terraform | CDKTF | Kibana | Splunk | Grafana | DataDog | PagerDuty | Opsgenie

Platforms / OS

AWS | Azure | GCP | Bare Metal | Mac OSX | Linux | Windows

Others

Jira | Confluence | Figma | Miro | Notions | Lucidcharts

Services

Principal Engineer, 11:FS Group | *London* **May 2021 - Present**

Foundry, 11fs.com/products/11fs-foundry

- Implemented the transaction aggregation with persistence
- Platforms - GCP | Infra - Terraform | CI/CD - Github Actions, ArgoCD, Kubernetes | Languages - Kotlin, Scala | Transports - REST, GraphQL, Kafka | Databases - Postgres, H2 | Frameworks - Exposed, Ktor, Arrow, Flyway

Venture project template, 11fs.com

- Implemented a backend project template for future client engagement
- Platforms - Azure | Infra - AKS, Terraform | CI/CD - Gitlab CI, ArgoCD, Kustomize | Languages - Kotlin | Transports - REST, GraphQL, Kafka | Databases - Postgres | Frameworks - Exposed, Spring Boot, Flyway

NYDIG, nydig.com

- Designed and built the Bitcoin saving product with MVB Financial Corp mvbbanking.com
- Integrated with the core banking system via Helix API docs.helix.q2.com, in order that employees' salary was paid in Bitcoin
- Developed the backend-for-frontend service that served onboarding, wallet, buy/sell and account flows
- Integrated with Taxbit apidocs.taxbit.com to report transactions and to download W9 documents
- Configured and implemented retrying anddead lettering mechanism using RabbitMQ
- Platforms - AWS | Infra - Terraform | CI/CD - Github Actions, Kubernetes | Languages - Kotlin, Python | Transports - REST, Kafka, RabbitMQ, SQS, SNS, AMQP, files | Databases - Postgres | Frameworks - JDBI, Micronaut, Flyway

Tech Lead, N26 | *Barcelona* **Mar 2019 - May 2021**

Product Service www.n26.com

- Re-architected the monolithic service that manages premium membership subscriptions and promotes customers the values of premium memberships
- Split the monolithic service into microservices, and each microservice went through CQRS analysis and event storming to re-define the bounded-contexts
- Conducted event-driven design, hexagonal architecture, and domain-driven design principles in the re-architecting
- Designed and run A/B testing in verifying product ideas before fully invested in full solutions
- Platforms - AWS | Infra - Terraform | CI/CD - Jenkins, Kubernetes | Languages - Kotlin, Java | Transports - REST, Kafka, Kinesis, SQS, SNS | Databases - Postgres, Metabase | Frameworks - Spring Boot, Arrow, Flyway

Technical Lead, IG Group | *London* *Jun 2015 - Mar 2019*

Spectrum Markets spectrum-markets.com

- Designed and written the matching algorithms
- Benchmarked matching algorithm using JMH, with latency was down to 9 microseconds for 5-level depth book
- Written the public FIX Rules of Engagement for the Exchange
- Combined Event-Sourcing, CQRS, SOLID Principles, Functional Programming, Full TDD / BDD at all levels in Testing Pyramid
- Used Hexagonal Architecture as application methodology
- Platforms - Bare Metal | Infra - Puppet | CI/CD - Bamboo, Docker | Languages - Java, PL/SQL, Bash | Transports - REST, Kafka, Confinity LLM, RFA, TREP, FIX | Databases - Oracle, InfluxDB | Frameworks - Spring Boot, JMH, Disruptor, Resilience4J

NADEX nadex.com

- Scaled by the exchange system as it finally saturated by trade volume doubled every two years
- Replaced Terracotta FX by local cache
- Replaced Redhat MRG QPID by Confinity LLM
- Boosted quotes throughput from 3000 to 6000 per second, and order latency to sub-milliseconds

- Platforms - Bare Metal | Infra - Puppet | CI/CD - Bamboo | Languages - Java, PL/SQL, Bash | Transports - REST, AMQP, Confinity LLM, RFA, FIX | Databases - Oracle, Invision | Frameworks - Spring, Disruptor

FX price aggregator and smart order routing

- Maintained the public FIX Rules of Engagement for the system
- Connected with 14 liquidity providers (e.g. BAML, Barclays, Morgan Stanley, HSBC) in setting up and onboarding of the new price FIX feeds and new trade FIX feeds
- Performed conformity testing and conducted live test trades with the dealers
- Platforms - Bare Metal | Infra - Puppet | CI/CD - Bamboo | Languages - Java, PL/SQL, Bash | Transports - REST, Confinity LLM, RFA, FIX | Databases - Oracle, Invision | Frameworks - Spring

AVP, Bank of America Merrill Lynch | *London*   **Oct 2013 - Jun 2015**

- Supported front office traders on the Interests Rate Swaps trading application
- Enhanced EURIBOR and LIBOR Interests Rate Swaps real-time trading GUI between the bank and other systems such as iSwap, Bloomberg, and Tradeweb
- Worked as a part of the global team including New York, Singapore and India
- Introduced the feature in the GUI to support Sterling swaps with multi-legs
- Added the support for IMM and MAC swaps
- Fixed urgent bugs and investigated queries from traders
- Worked with traders on urgent issues and GUI upgrade
- Platforms - Bare Metal | Languages - Java | Transports - REST, JMS | Frameworks - Swing, JIDE

Technical Lead, IG Index | *London*   **April 2008 - Oct 2013**

NADEX nadex.com

- Re-written the HedgeStreet system with Terracotta and QPID
- Utilised data grid technology Terracotta to achieve data partitioning and high availability
- Designed and maintained the public NADEX FIX Specifications
- Built the framework for messaging for JMS and FIX
- Profiled java code and debugged memory leaks
- Designed data-driven test framework for order matching
- Designed concurrent and multi-threaded distributed caching mechanism
- Revamped the ledgering component in Clearing House
- Built the frameworks and utilities for Swing GUI using JIDE
- Platforms - Bare Metal | Infra - Puppet | CI/CD - Bamboo | Languages - Java, PL/SQL, Bash | Transports - REST, AMQP, RFA, FIX | Databases - Oracle, Invision | Frameworks - Spring, JIDE

HedgeStreet

- The first internet-based futures exchange regulated by CFTC in Chicago
- This n-tier J2EE system consists of a Designated Contract Market (Exchange), a Derivatives Clearing Organisation (Clearing House), FIX connectivity for Order Entry and Market Data, and a JSP / Servlet website
- Analysed and re-architected to boost trading throughput from 20 orders per second to 1000
- Platforms - Bare Metal, Weblogic | CI/CD - Bamboo | Languages - Java | Transports - HTTP, JMS, RFA, FIX | Databases - Oracle | Frameworks - JSP, Servlet

Systems Analyst, Hong Kong Housing Authority | *Hong Kong*   **Sep 2006 - Dec 2007**

Domestic Tenancy Management System

- Led a team of 4 engineers to analyse, design and develop a n-tier J2EE housing management system using Websphere and DB2, with agile methodologies and Paired Programming
- Gathered user requirements
- Platforms - Bare Metal, Websphere | Languages - Java | Transports - HTTP, JMS | Databases - DB2

Technical Analyst, OOCL Limited | *Hong Kong*   **Jul 2005 - Sep 2006**

Real-time Event Engine

- A Real-time multi-threaded messaging system based on JMS
- Developed a proprietary multiple-read-single-write object cache to boost performance by 50%
- Platforms - Bare Metal, Weblogic | Languages - Java, PL/SQL | Transports - HTTP, JMS | Databases - Oracle

Systems Analyst, Peopleware Systems Limited *Hong Kong*   **May 2004 - Jul 2005**

Clearing House System of the Trans Link Systems

- The national public transport backoffice system in The Netherlands
- Led the team of 2 engineers on this n-tier J2EE system used Weblogic and Oracle
- Enhanced the multi-threaded framework to complete clearing and settlement for 16 million transactions within 2 hours
- Platforms - Bare Metal, Weblogic | Languages - Java | Transports - HTTP, JMS | Databases - Oracle

Software Engineer, Agile Software | *Hong Kong*   **Oct 2002 - May 2004**

Product Lifecycle Management oracle.com/uk/scm/product-lifecycle-management

- Led a team of 3 engineers working on a n-tier J2EE content management system based on Weblogic and Oracle
- Enhanced the proprietary distributed object cache and reduced application response time by 30%
- Platforms - Bare Metal, Weblogic | Languages - Java | Transports - HTTP, JMS | Databases - Oracle

Software Specialist, Intelligence Plus Limited | *Hong Kong*   **Jul 2001 - Oct 2002**

Learning Plus

- A Core Java e-learning system using mySQL, JDBC, Swing, Java2D, multi-threading, and UML
- Languages - Java | Databases - mySQL | Frameworks - Swing, Java2D, Servlet

Education

The Chinese University of Hong Kong | *Hong Kong*   **2004 - 2006**

- Master of Sceience in Computer Science | Average GPA 3.3

The University of Hong Kong | *Hong Kong*   **1998 – 2001**

- Bachelor of Cognitive Science | 2.1 Degree | Average GPA 3.1

Extras

Nationality

- British Citizen

Languages

- English (native) | Cantonese (native) | Mandarin (fluent) | Spanish (elementary)

Availability

- 2 months

Hobbies

- Yoga | Tango