**SERGIY SANIN**

**Profile Summary:**

Software developer with over 16 years of experience, most of them in C++/Java/Python with background in Applied Mathematics, experienced in electronic trading systems development. In financial IT since 2009.

Have experience with developing different aspects of electronic trading systems, exchange connectivity and test automation with challenging non-trivial software systems configurations. Worked with majority of existing programming languages in different software development domains in past including computer gaming and accounting.

**Experience:**

**Tower Research Capital, Singapore 08/2019-now**

**Software Developer, Trading Systems**

Developing a medium frequency trading system with Java-based platform (internally based on OpenHFT/Chronicle).

Areas of responsibility:

1. Platform architecture, correctness and stability

* Implementing core components responsible for order flow, order transformation, risk checks, recovery, etc
* Platform integrity – implementing high level integration testing framework (Cucumber-based automated end-to-end integration tests that cover all possible order flow scenarios, plus exceptional scenarios like out-of-order acks and fills received from downstream), data collecting scripts, database coherence checks
* Adapting existing company’s order management gateway (C++ to Java vi protobuf/JNI)
* Responsible for presenting to audit team existing order/price limit checks, proving audit requirements are met before going live, constructing and presenting evidence of system behavior correctness for key markets.
* Support (working with support team on support tasks automation, incident investigation, process monitoring, bug analysis, reproducing and fixing defects)

2. Python-side API

* Data streaming from Java-based platform via RESTful interface
* Python-side API for order transactions and market data subscription
* Data collecting scripts (exchange opening hours, public holidays for exchanges, etc), support automation and deployment to UAT/PROD scripts, smoke test automation.

3. Trading GUI

* Displaying prices, positions, orders
* Order transactions via GUI
* System health and log monitoring
* Back-end – Python Flask/Gunicorn
* Front-end – Bootstrap, jQuery components, Javascript (with plans to move to Angular.js over time)
* Working with traders and support on implementing features (system/log monitoring, trading gui, platform message profiling)

**Credit Suisse, Hong Kong/Singapore 03/2015-08/2019**

**Software Developer, AVP – Electronic Trading Systems**

* As a part of Trade Management participating in development, support and maintaining a host of applications used to communicate data between various internal systems. Communicating with stakeholders, gathering requirements and delivering accordingly.
* As a part of Global Compliance Engine (order validation) team:
* For release automation used natural language processing to tag incoming e-mails with relevant information (change freeze, production error/warning etc) and trigger corresponding actions. Used Latent Dirichlet Allocation technique for topic modelling, analysed availability and derived e-mail clusters, used grid search to tune model’s hyperparameters in order to find an optimal number of principal components and clusters in the topic vector space. Libraries used: genism + Spacy + scikit-learn.
* Developed a natural language-based conversational agent to control deployment system and retrieve information from production environment/UAT (Rasa NLU + Tensorflow)
* Currently evaluating applicability of process mining technologies from application logs (using Kibana/Elasticsearch) to detect abnormalities in application behaviour.
* As a part of market making team developed order flow architecture (order routing, exchange link management, throttling) for electronic trading system with fully automated test suite, contributed in development of data connections to external systems, developed web-based REST service to expose trading parameters and system configuration. Also:
* With different team in different geographic locations negotiated data transfer protocols and arranged transfer channels for the data in production, UAT and development environments
* Worked with other teams to integrate their exchange connectivity into pre-designed extendable order handling system – negotiated timelines, supervised the work flow and was in charge of the delivery.
* Handled RFC requests, participated in release meetings and created support documentation.
* Was in charge of design and led development of high capacity position management system accumulating and publishing positions and limits from various internal systems in unified protocol (Redis-based storage system with business logic in Lua exposed via C++ and Python interfaces).
* Gathered requirements from stakeholders (business and other teams acting as clients to the system) and established iterative development plan – from minimum viable product to first release package and further with 90% test coverage
* Established DevOps infrastructure to bring the system from compilation to production stage as fast as possible (automated unit and integration testing, 3rd party download via Artifactory and automated system setup, installation and smoke tests on production boxes)
* Leading 3 people developed data interfaces to various in-bank systems using various protocol (REST-based JSON requests, IBM Websphere MQ and Oracle Call Interface queue-based links as well as FTP-based polling and other types)
* Acted as Scrum master for the project, arranged Scrum retrospective meetings.
* Acted as phone and face-to-face interviewer for new candidates in Credit Suisse, other teams included, reviewed coding assignment tasks and compiled reports on candidates
* Experience introducing various Agile development principles and development process improvements to non-Agile teams.
* Adopted various non-relational database systems for different projects: MongoDB, Cassandra, Redis

Creating high level automated integration tests for various systems.

Dev Tools: C++, Python, protobuf, Linux, SVN, MongoDB, Cassandra, Redis, JavaScript, Lua, Gherkin (Python Behave), Robot Framework

**Standard Chartered, Singapore 07/2013-01/2015**

**Software Developer, AVP – Test Automation**

* Analysed business requirements and system architecture
* Designed automated test strategy and defined test scope
* Created and maintained automated test tooling, designed test cases and test data
* Closely worked with developer teams and business analysts
* Integrated test suites into continuous build systems
* Automated existing manual tests
* Automated different types of systems(Java, Windows GUI, Web)
* Was part of BDD initiative in the bank

Dev Tools: Java, Python, Windows/Linux, GIT, JavaScript, Gherkin (Cucumber, Python Behave), Selenium, AutoIt, Jenkins/PyBot, Nexus

**Credit Suisse, Singapore 06/2011-07/2013**

**Software Developer, Exchange Connectivity**

* Was part of LLDMA exchange connectivity team: order routing (protocols: OMNet, FIX, proprietary; exchanges: ASX, SGX, NSE, OSE, HKSE, TSE) – multithreading, IPC, TCP/IP, minimizing latency.
* Performance tuning: optimal use of resources, processor cache, memory alignment, parallelizing message flow, automated reporting
* Porting code: Solaris to Linux, (also 32 to 64 bit, big-endian/little-endian)
* Maintenance (bug fixes, additional functionality), L3 client support, arranging test sessions with exchange, contacting exchange support to clarify protocol details and expected behaviour
* SDLC full cycle: requirement negotiation with clients, analysis, implementation, deployment, organizing additional QA if needed and product support
* Global teamwork (Singapore/Hong Kong/Pune/Raleigh), managing remote contract resources in Pune and QA process
* Statistics and reconciliation scripts and utilities (order number/latency statistics collection, measurement, reporting)

Dev Tools: C++, Python, Perl (legacy scripts), bash, Linux (SUSE, Red Hat), C++, Sybase, STL, Boost, SVN.

**Flextrade, Singapore 07/2010-06/2011**

**Software Developer**

* Low latency price feed.
* Software performance tuning and optimization, profiling, statistical measurement, unit testing (maximizing the code coverage).
* Market connectivity OMNet protocol (Singapore Exchange (SGX), Australian Exchange (ASX) derivatives) - direct market access adapter, pricing engines – design, development, support.
* Was involved in implementation and delivery of some multi-asset trading strategies (delta hedging, option pairs trading)

Dev Tools: C++, RedHat Linux, GNU make, cvs, vi, gdb, valgrind

**Solderfield Pte Ltd, Singapore 11/2009-07/2010**

**Software Developer**

High availability implementation, transaction processing system support, business logic scripting with Lua, GUI utilities (wxWidgets)

Dev Tools: C++ on Linux(CentOS, Ubuntu), Python, Lua, SVN, bash, gcc, valgrind,. WxWidgets

**Taewool Entertainment, Republic of Korea 06/2009-11/2009**

**Senior Software Developer Computer Games**

Client side computer game development, network engine.

Dev Tools: C# (client side)/C++ (engine), Windows/Linux, SVN

**Nextplay Corp, Republic of Korea 02/2009-06/2009**

**Software Developer Computer Games**

Porting existing project: 32 to 64 bit platform, designing test framework

Dev Tools: MSVC++, Windows, Perforce VCS, Lua scripting

**Nexon, Republic of Korea 08/2008-02/2009**

**Software Developer, Computer Games**

Performance tuning, system utilities, DevOps (build scripts, debug utils).

Dev tools: MSVC++, C#, Windows, NAnt, AlienBrain VCS

**Altibase, Republic of Korea 07/2007-08/2008**

**Software Developer, Middleware**

Memory manager algorithms (efficient storage, performance and speed tuning), GUI system monitoring tools, enhancement of real-time distributed communication middleware, cross-platform porting.

One of the significant contributions was implementation of Two-Level Segregate Fit allocator with constant allocation cost.

Linux/Windows, 32/64 bit system code porting and tuning

Dev Tools: C++, C, Linux, Windows, bash, gcc compiler, multithreading, TCP-IP, Qt GUI API, SVN.

**ComInTech, Ukraine 02/2006-07/2007**

**Software Developer, Accounting Software**

Accounting system GUI, auto report generation, data processing algos.

Dev Tools: Windows, CAVO, MSVC++, MySQL

**Ukrbudterminal, Ukraine 01/2004-02/2006**

**Junior Software Developer**

Software tools – text messenger, web camera surveillance etc.

Dev Tools: Windows, MSVC++, MFC, DirectX, WinAPI

**Education**

**Donetsk National University** 1999-2004

MSc, Applied Mathematics (part of the thesis was creating a graphical application for constructing and visualizing closed loop control systems with linear feedback, calculating systems’ output equations)

**ITIL V3 Foundation** 2012

**CFA Level 1 (passed)** 2012