

Zhida Shen (Lionel)

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Skills

- Real-Time Systems:
- Machine Learning:
- Cloud Computing:
- Others:

- **C++17** [Linux shell, microservices, multithreading]
- **Python3** [NumPy, Pandas, PySpark, PyTorch, Scikit-Learn]
- **AWS** [API Gateway, Cognito, DynamoDB, Kinesis, Lambda]
[Docker, Git, Jenkins, Terraform] [Javascript, PostgreSQL]

Employment

01/2023 - Present

Solo developer

- www.algofolio.io: Curated collection of solutions for algorithmic problems and systems design challenges, documented in a uniform and minimalistic style.
- www.tutoranywhere.link: P2P video and voice PWA with text messaging, screen sharing, and whiteboarding for ad-hoc communication.

Bloomberg LP, New York NY
Software Engineer, Senior
02/2016 - 02/2021

Pricing Services Team (ETOMS Market Maker)

- **Pricing engine**: Led a small work group to upgrade the core execution engine and dependency graph architecture to meet a new major client requirement affecting the entirety of pricing methods, culminating in 4x more permutations in rules and calibrations sophistication and pareto-efficient performance.
Features: hybrid batch-stream topology, async actor model, caching policies.
- **Pricing methods**: Collaborated on cross-team projects to create 5 new pricing schemes, combining the informed use of distributed frameworks, calculation services, data streams, and interactive user inputs to generate live ticks.
Projects: fxgo pricing ladder, sydbank custom formula, scandi custom curve, edsf driver model, aswz bid-ask chaining. Frameworks: bas, blpapi, comdb2.

Bloomberg LP, New York NY
Software Engineer, Contractor
10/2014 - 02/2016

Pricing Engine Team (ETOMS Market Maker)

- **Metrics watchdog**: Introduced abnormality detection and pre-emptive alarming on service deadlocks and delays along with latency and throughput metrics.
- **Message broker**: Enabled safe decoupling of publishers & subscribers in topic discovery and recap recovery workflows in a wrapper library used by 3 teams.

Flextrade Systems, Singapore
Software Engineer
04/2013 - 10/2014

Exchange Connectivity Team (FlexTRADER)

- **Concurrent data feeds**: Designed and implemented a system that is able to simultaneously consume up to 4 identical market data feeds so as to exploit the exchange's round-robin dispatch latencies and gain an information edge.
- **Order routing triggers**: Augmented a gateway adapter to automate monitoring and execution of pre-defined trades of interest so as to gain a speed edge.

Nvidia Corp, Singapore
Software Engineer
03/2011 - 03/2013

Physics Modules Team (PhysX-APEX)

- **Network synchronization**: Devised and demonstrated in a client-server setup a mechanism to compute and synchronize the Destructible's physical and graphical states in real-time at 3 levels of accuracy-bandwidth trade-off.
- **Physics solver**: Formulated a module feature that dynamically assesses a stressed Destructible's support structure in order to effect realistic breakage.

Nvidia Corp, St. Louis MO
Software Engineer, Trainee
02/2010 - 02/2011

Physics Engine Team (PhysX-APEX)

- **GUI editor**: Linked up tuning parameters of digital art assets to game scene so as to reduce artists' turnaround in artwork creation and validation.
- **3D visualizations**: Composed various bounding volumes to help engineers debug physics collisions and computer graphics rendering errors.

Education

National University of Singapore
Masters of Computing
01/2021 - 12/2022

Computer Science

- **Modules include**: Distributed Systems, AI Decision Making, Neural Networks, Data Mining, Big-Data Analytics, Computer Architecture, Operating Systems

Nanyang Technological University
Bachelor of Engineering
08/2005 - 07/2009

Electrical and Electronic Engineering

- **Modules include**: Data Structures & Algorithms, Microprocessors, Computer Security, Computer Networking, Database Systems, Object-Oriented Design