# HAI-LIANG **HAL** WANG

Technical architect focused on delivering scalable and reliable solutions that bring strategic vision to reality. Senior backend developer with specialty in designing distributed systems: API protocols, microservices, messaging systems, database engines and real-time analytics. Go expert, open source author and contributor of dozens of projects

## 💼 EXPERIENCE

### Senior Developer

**Present — Sept 2018**

StorageOS    📍 London

- Helped to bring StorageOS to v1.0.0, which is enterprise persistent storage for containers, supporting fast orchestration and high availability
- Designed a goroutine orchestration framework for graceful error handling
- Wrote a reflection-based help doc generator for Go template variables
- Refactored licensing API and wrote product documentation for licensing
- Fixed a panic issue in logrus (PR #857)
- Solved gossip health detection failure under disconnected networks
- Troubleshooted goroutine and memory leaks

### Senior Architect at Tik Tok/Musical.ly

**Aug 2018 — Mar 2018**

ByteDance    📍 Shanghai

- Tik Tok/Musical.ly is the most popular music video community globally with over 200 million daily active users
- Optimized Discovery Page by porting it from Python to Go: latency from 839ms to 187ms and error rate from 1.3% to 0.0004%
- Designed and implemented I18N service, efficient server & client that provide every other service multilingual templates
- Wrote New Backend Engineer Orientation Wiki Portal, helping new employees cope with their work challenges
- Organized stand-up meeting every morning in a team of 8 developers to track work in progress and technical issues

### Backend Lead of R&D

**2018 — 2015**

Appcoach    📍 Shanghai

- Led the development of Appcoach Market: a multi-regional, horizontally scalable and fault tolerant ad network
- Built API with high availability, high throughput and low latency (latency < 10ms & QPS > 2K per core)
- Wrote a Kafka Client (h12.io/slide/kpax) for troubleshooting and tracing message delivery
- Implemented our own distributed messaging system (h12.io/sej) for fine-grained control over latency and reliability
- Developed instant reporting capability with distributed real-time analytics based on SEJ & BadgerDB
- Enabled responsive campaign strategies with in-memory database & rule engine in Go (CQRS architecture)

### PhD Student of Systems Engineering

**2015 — 2011**

Xi'an Jiaotong University    📍 Xi'an

- Open source programmer since 2012 (github.com/h12w)
- Designed a concurrent, simple and extensible web scraping framework (h12.io/getgo) to collect data from online social networks
- Developed a SOCKS client package (h12.io/socks) for parallel web crawling, which has gained over 200 stars on Github

## CONTACT INFO

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- 🌐 h12.io
- ⓖ github.com/h12w
- in hal-wang

## SKILLS

**System Architecting**
Scalable System Design
Reliability Engineering
Performance Optimization

**Writing Clean Code**
Requirements Analysis
Unit Testing
Refactoring

**DevOps**
Continuous Delivery
System Monitoring
Automation
Linux

**Languages**
Go
Python
C#
C
SQL

**Microservices**
gRPC/Thrift
Consul/etcd
Boson/OpenTSDB
Docker/Kubernetes

**Cloud Computing**
Amazon Web Services
EC2, S3, ELB, RDS MySQL
CloudFront, Route53

**Realtime Analytics**
MongoDB
BadgerDB

- Wrote a functional-style HTML DOM parser in Go (h12.io/html-query) to extract structured data from web pages efficiently
- Published *Exploring the Efficiency and Mechanism of Whistleblowing System on Social Networking Site* on IEEE ICC 2014 Conference

### Software Engineer at SPSS Data Collection

2011 | 2009

IBM      📍 Xi'an

- Data Collection is used by customers worldwide (like Nielsen and P&G) to analyze people's attitudes, preferences and opinions
- Rewrote visual filter editor of survey reporting with recursive descendant parser and functional pattern matching

### Software Engineer at Wafer Testing Team

2009 | 2006

Qimonda      📍 Xi'an

- Developed testing system for DRAM wafer in C++ & assembly
- Designed a Ruby DSL to specify test instructions that can be translated for both simulators and test machines

## ☺ OPEN SOURCE

### Realtest

2017 | 2015

h12.io/realtest

- Real test environment for Go unit testing based on Docker
- Supported services: MySQL, MongoDB, Kafka and Redis

### json-schema

2017 | 2015

h12.io/json-schema

- a generator from JSON Schema specification to Go struct

### GSpec

2017 | 2014

h12.io/gspec

- An expressive, concurrent and extensible Go test framework that makes it productive to organize the mind model of software

### Aliyun-oss-go-sdk

2015

github.com/aliyun-beta/aliyun-oss-go-sdk

- Winner in the contest for developing Alibaba Cloud OSS Go SDK

### Gombi

2014

h12.io/gombi

- combinator-style scanner & parser in Go
- DFA scanner for Go syntax is 50% faster than the official package

## 🎓 EDUCATION

### Master of Science in Systems Engineering

2007 | 2004

Xi'an Jiaotong University

- MS Thesis: *An Efficient Approach to Spam Filtering and its Implementation in Email System*

### Bachelor of Science in Information Engineering

2004 | 2000

Xi'an Jiaotong University

- Won First Award of the National Undergraduate Electronic Design Contest

h12.io/sej
Kafka

**Parser & Generator**
h12.io/gombi
h12.io/ua
h12.io/xsd
h12.io/html-query
h12.io/json-schema
h12.io/schemata

**Web Technologies**
HTML
CSS/SASS
GopherJS
Markdown