HAI-LIANG **HAL** WANG

Technical architect focused on delivering scalable and reliable solutions that bring strategic vision to reality. Senior backend lead 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

Present | 2018

Senior Architect at Tik Tok/Musical.ly

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
- Implemented major features: nearby feed, global advertising push, antispam, API secure signature, user blocking, user profile modification audit, H.265 a/b testing, I18N Tik Tok rebranding
- Technology stack: Go, Python, Thrift, Redis, TMQ, Kafka, MySQL, MyCat, Nginx, Docker, Kubernetes, Bosun, OpenTSDB, ElasticSearch, Kibana, Grafana, Alibaba Cloud

2018 | 2015

Backend Lead of R&D

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)
- Designed continuous delivery tools to automate our DevOps practice (based on Saltstack, Linux/Systemd, Nginx & Go)
- Technology stack: Go, Protocol Buffer, Kafka, MongoDB/BadgerDB, Nginx, Linux/Systemd, AWS, Saltstack

2015 | 2011

PhD Student of Systems Engineering

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 nearly 200 stars on Github
- Wrote a functional-style HTML DOM parser in Go (h12.io/html-query) to extract structured data from web pages efficiently

CONTACT INFO

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- 🅢 skype@h12.io
- 🌐 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

- Published *Exploring the Efficiency and Mechanism of Whistleblowing System on Social Networking Site* on IEEE ICC 2014 Conference

2011 | 2009 ● **Software Engineer at SPSS Data Collection**

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
- Technology stack: C#, C++

2009 | 2006 ● **Software Engineer at Wafer Testing Team**

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
- Technology stack: C++, Python, Ruby

⚙ OPEN SOURCE

2017 | 2015 ● **Realtest**

h12.io/realtest

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

2017 | 2015 ● **json-schema**

h12.io/json-schema

- a generator from JSON Schema specification to Go struct

2017 | 2014 ● **GSpec**

h12.io/gspec

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

2015 ● **Aliyun-oss-go-sdk**

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

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

2014 ● **Gombi**

h12.io/gombi

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

🎓 EDUCATION

2007 | 2004 ● **Master of Science in Systems Engineering**

Xi'an Jiaotong University

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

2004 | 2000 ● **Bachelor of Science in Information Engineering**

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