

Ji LIU

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ABOUT

I'm a self-learned programmer who has a bachelor's degree in Communications, working across almost the whole life-cycle of modern application development, but especially focusing on Functional Programming and Stream Processing. And with some academic interest in Programming Language Theory and Distributed Systems, read some papers, and do a little bit of research as a hobby. Currently work at Convertlab, a leading digital marketing company in China.

WORK EXPERIENCE

Convertlab Inc.

04/2021 – /

(Data Engineer) Data Team

- Maintain and develop new functionality for the core module of our flagship product - A streaming processing middleware - Reactflow, working independently with Product Manager and Development Manager to discuss client demands and design technical solution and then implement it.
- Assigned directly by CTO and COO for research or experimental projects such like Knowledge Graph application or draft URL handling guide for our development team, working independently research solution and delivery it.
- Design and implement a streaming processing middleware that is responsible for batching and filtering messages and dispatching to different downstream services, by using Akka Streams and Kafka Streams we guarantee the effective-exactly-once delivery semantic for the service itself and decent performance regarding downstream performance.
- During the development of a cooperated project with Tencent, in charge of designing and implementing the integration of Tencent's YouShu data system, including schema design for HBase and writing Spark jobs, etc.
- Certificated Cloudera System Administrator, Writing basic analysis SQL using Impala and design table schema for Kudu.
- Using Grails and Groovy or Spring and Java for routine microservices development.

Convertlab Inc.

06/2020 – 03/2021

(React Front-end Engineer) Application Team

- Application development based on React and Redux, using Typescript.
- Integrate Typescript toolchain into the existing webpack build pipeline, enable our team to migrate to Typescript gradually.
- Develop UI component library based on ant-design.

PROJECTS

Reactflow

A low latency and high throughput streaming processing system, that allows user to define the logic of a marketing campaign(f.e. dispatching coupons according to the amount or type of items bought in realtime), automate marketing strategy.

- Using Scala and Akka, utilize Kafak to implement reliable delivery, and use MongoDB as storage.
- Consumption rate of Kafak's messages is around 20000/s, running thousands of flows stably.
- As the most important module of our marketing cloud product, it is the selling point of our product.

PERSONAL PROJECTS

AlgebraicGraph

<https://github.com/GreyPlane/algebraic-graph>

algebraic graph implemented in Scala

- Using encoding describes in this paper to build a library for constructing the topology of our Flink-like component programmatically, is an elegant solution because the good algebraic properties holds by the encoding, implement both TypeFamilies-based and ADT-based encoding in Scala.

SKILLS

- **Program Language:** multilingual (not limited to any specific language), especially experienced in Haskell Type-script Scala, comfortable with Java Groovy (in random order).
- **Functional Programming:**
 - Capable to adapt functional programming technique in the real world project.
 - Able to solve the complicated problem that involves advanced topic about type theory or category theory.
- **Backend:**
 - Using Akka ecosystem's most commonly used components like actors, streaming, HTTP, etc. and also Akka contributor.
 - Experienced in Cats ecosystem libraries, Knowing how to do generic programming by using Shapeless.

- Understanding Microservices and containerization technology like K8S and Docker, can delivery whole project independently.
- **Web Frontend (React):**
 - Experienced in React and Hooks API.
 - Experienced in Typescript
 - Experienced in the ecosystem around React, includes but is not limited to routing, state management, query library, can delivery project independently.
- **BigData:**
 - Understanding basic topics about the distributed system such like consensus algorithm, delivery semantic.
 - Have Deep knowledge of Kafka and general streaming processing framework, have experience of developing real-time data processing pipeline.
 - Use components in Hadoop ecosystem like HBase, Impala, Kudu.
 - Have a basic understanding of Spark.
- **CS Basic:** learned CSAPP and SICP, has solid CS foundation, also learned some PL theory.
- **Development Tool:** Can adapt to any editors/OSs, usually use Vscode, IntelliJ, Emacs under MacOS.
- **Evangelist:**
 - teaching Typescript and Scala for colleagues, helping them to solve problems associated with types.

EDUCATION

College of Publication, **Shanghai Publishing and Printing College** 08/2015 – 06/2018
Bachelor of Communications, **University of Shanghai for Science and Technology** 08/2018 – 06/2020

MISCELLANEOUS

- Languages: English - fluent
- **3 kyu** on CodeWars, primarily in Haskell, Agda and Idris