HUAWEI

A Bigger, Bolder Future

Huawei Graduate Recruitment 2020

Huawei: Leading Global Provider of ICT Infrastructure and Smart Devices

Bring digital to every person, home and organization for a fully connected, intelligent world

Huawei's end-to-end portfolio of products, solutions and services are both competitive and secure. Through open collaboration with ecosystem partners, we create lasting value for our customers, working to empower people, enrich home life, and inspire innovation in organizations of all shapes and sizes.

At Huawei, innovation focuses on customer needs. We invest heavily in basic research, concentrating on technological breakthroughs that drive the world forward.

188,000

Employees

80,000

R&D employees

170+

Countries and regions

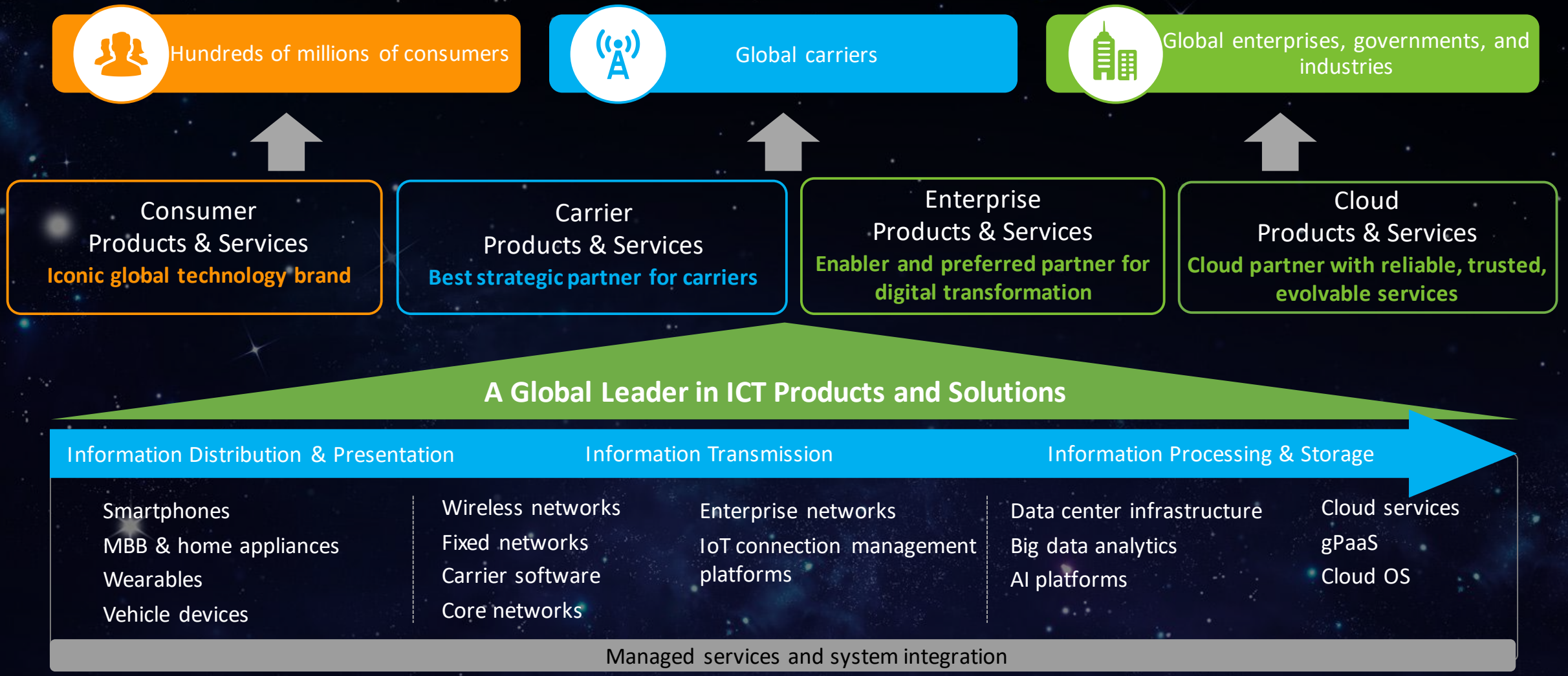
68 in

Interbrand's Top 100 Best Global Brands

61 in

Fortune Global 500

ICT Solutions and Services for Three Customer Groups
Information Distribution & Presentation, Transmission, Processing & Storage



Huawei Research in Russia

- Total 800+ employees, 90%+ recruited locally
- Research cooperation with more than 10+ renowned universities and institutes.

Moscow (2001)

Mathematics Modeling,
Security(system, network)
System Programming
Device OS, Complier
IT Algorithm, Media,
Wireless, Cloud, HPC, AI

St. Petersburg (2017)

IP Software Engineering,
Formal Verification lab
Data Algorithm Center
OS / AI lab
HMS

Nizhy (2019)

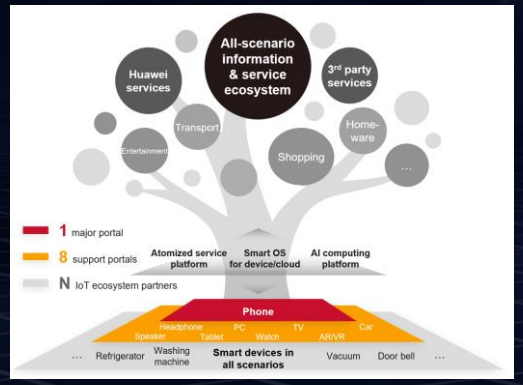
Computer Vision
HPC

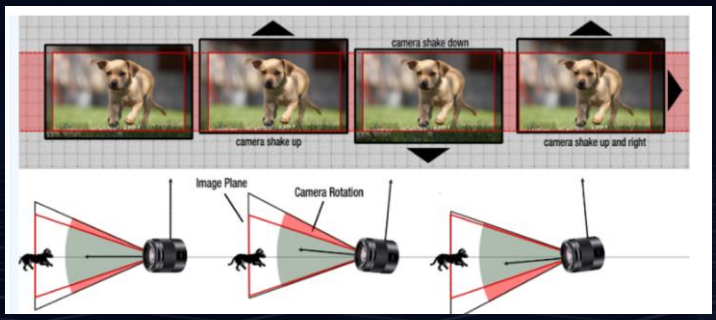
Novosibirsk (2019)

Compiler
Cloud AI

St.Petersburg Research Center

- Main research directions: lossless data compression algorithm, machine-oriented video algorithm, computer vision, speech semantics, OS kernel algorithm, HMS, etc.





OS lab

- OS kernel algorithm
- Compiler algorithm

AI lab

- Multi-lingual R&D : NLU/ASR/TTS
- Model compression & speed-up research
- Search
- HMS

Software Engineering & Verification Technology lab

- IDE
- Software Defects Prediction

Media team

- Improving ISP performance for low-light cases
- Preserving color information (visible range, no IR/NIR)

Ranking Team

Saint-Petersburg

Ilya Bykov

HUAWEI TECHNOLOGIES CO. LTD (Russia)

2020-02-16

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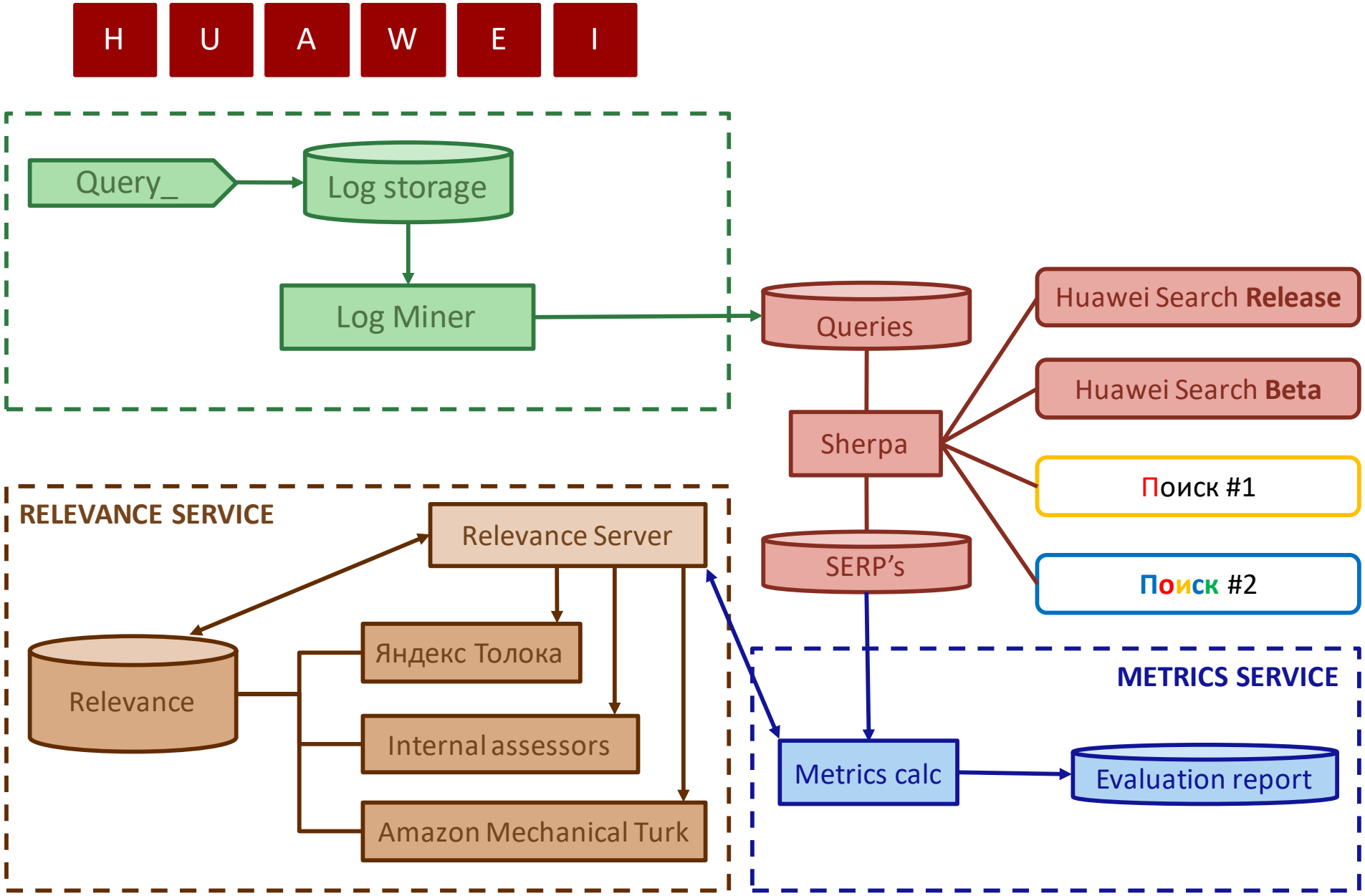
H U A W E I
Query_
Log storage
Log Miner
Queries
Sherpa
SERP's
Huawei Search Release
Huawei Search Beta
Поиск #1
Поиск #2
RELEVANCE SERVICE
Relevance Server
Relevance
Яндекс Толока
Internal assessors
Amazon Mechanical Turk
METRICS SERVICE
Metrics calc
Evaluation report

There are many *query-url* pairs. Example: "*huawei p30*" - *https://shop.huawei.ru/huawei-p30*

There are many relevance scores in the *range [0, 4]*.

Each *query-url* pair is assigned a relevance score.

Most pairs are rated *several times* by different assessors.

Determine the *best score* for each pair.

Please send your result to SRC email: srchr@huawei.com;
email title is: Search_SPb_Ilya_Bykov

Datacom Team

Saint-Petersburg
Semyonov Eugeny

HUAWEI TECHNOLOGIES CO. LTD (Russia)

2020-02-16

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Datacom / Saint Petersburg IP Software Engineering & Verification Technology Laboratory

- What is Datacom in Huawei?

- What are Datacom projects in SRC:
  - Huge number of combinations (platform/product)=>code base grows fast=>standard IDEs can not deal with it effectively => **IDE team**
  - Need to test all these products with various configurations => **network load simulator project**
  - A lot of things in telecom may be described much more compact and clear than C/C++. It will improve traceability and quality => DSL=> **modeling application team**

Datacom / Saint Petersburg IP Software Engineering & Verification Technology Laboratory

Task 1

Describe the process of one university course passing(lectures, practices, control tasks, pre-exam, exam, additional exam) In terms of Finite State Machine. Provide the textual description, image, reference code (at least headers, but implementation will be bonus). Programming language: C++ or Java.

If you decide to provide implementation, you may choose your own logic of the program, but one of the options: program starts and prints the name of the course and current stage (lectures). After some time it announce the control task and proposes to input the resulting mark, then lectures again, during the pre-exam week user is proposed to retake the control tasks, after all of them done—you are allowed to take exam: program proposes to input the mark. Depending on the mark, you may complete course or retake exam after some time.

Task 2

[IDE Project][C/C++] Write clang plugin that prints out number of function calls.

The function name should specified by the command line arguments.

You can start from the following link: https://clang.llvm.org/docs/ClangPlugins.html

Task 3

[IDE Project][TypeScript] Write plugin for VS Code to highlight all #include directives within your code.

The extension should create command to search #include directives in open files with C/C++ code.

The results should be displayed in a tree view in the explorer panel.

You can start from the following link: https://code.visualstudio.com/api/get-started/your-first-extension

Please send your solutions till March 2, 2020

Please send your result to SRC email: srchr@huawei.com; email title is: CDtask_Datacom_Your Name

Data Algorithm Technology Center

Saint-Petersburg

Papiev Ilya

HUAWEI TECHNOLOGIES CO. LTD (Russia)

2020-02-16

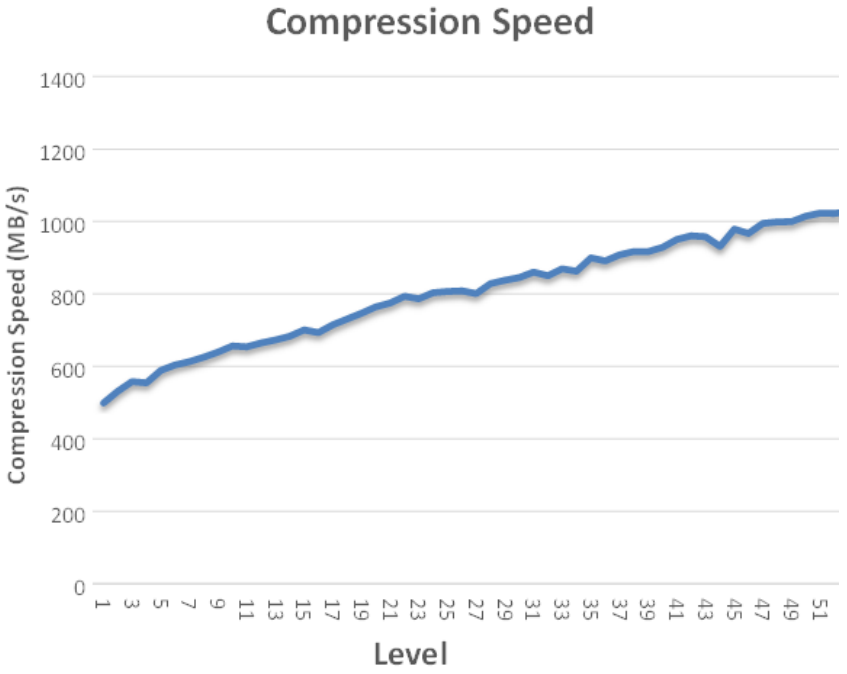
www.huawei.com

Data Algorithm Technology Center

Task

LZ compression algorithm with speed acceleration

- Develop your own simple LZ77 lossless data compression/decompression algorithm:
  - Memory buffers of files can be used as data containers to compress/decompress
  - Compression input is original data
  - Output compressed data is in your own format
  - Decompression input is compressed data. Output is decompressed data equal to original
  - Compressor should have speed acceleration parameter (level):
    - Values from 0 to 100
    - Compression/decompression speed should smoothly increase with acceleration
    - Compression Ratio should smoothly decrease as a speed tradeoff
  - Compression Ratio of a data is calculated as “original size / compressed size”
  - Compression speed calculated as “original size / compression time”, e.g. MB/sec
  - Decompression speed calculated as “decompressed size / decompression time”



- Algorithm can be used as a static/dynamic library with corresponding API or as an application for some OS
- Platform: Windows or Linux. HW: Intel x86 or ARM. Language: C/C++
- Lzbench framework can be used for benchmarking if compression/decompression using memory buffers is done
- Standard public data set can be used for benchmarking

Deadline

3-4 weeks

Please send your result to SRC email: papiev.ilya@huawei.com
email title is: CDtask_DataAlgorithm_Your Name

Cloud BU

Saint-Petersburg

Ivanov Dmitry

HUAWEI TECHNOLOGIES CO. LTD (Russia)

2020-02-16

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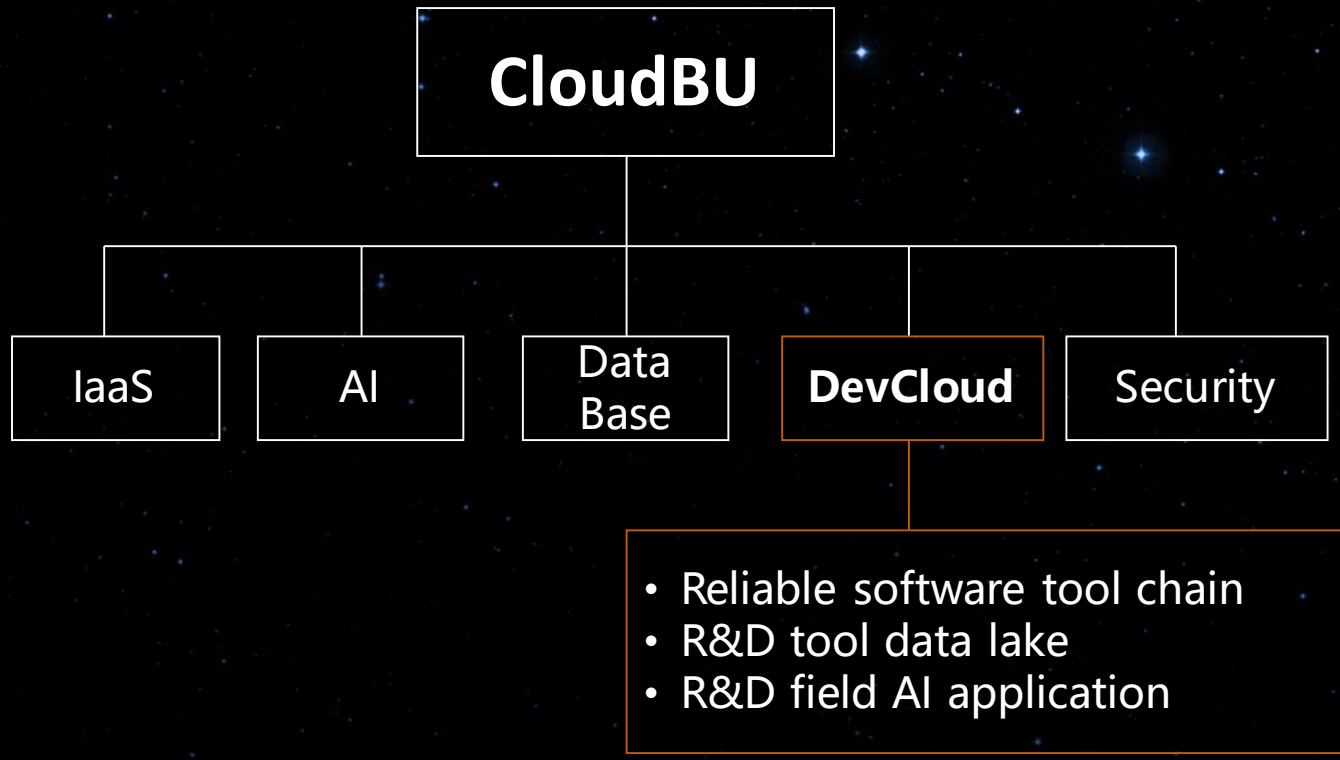
*«Huawei **CloudBU** Department which is a very important branch for Huawei with many offices globally. There will get many collaboration for different teams to develop competitive cloud products. Russia will be most important R&D base for Huawei, based on excellent math and computer professionals here.»*

Some smart guy

Global purposes

- Phones - **DONE**
- Network hardware – **DONE**
- Cloud – IN PROGRESS



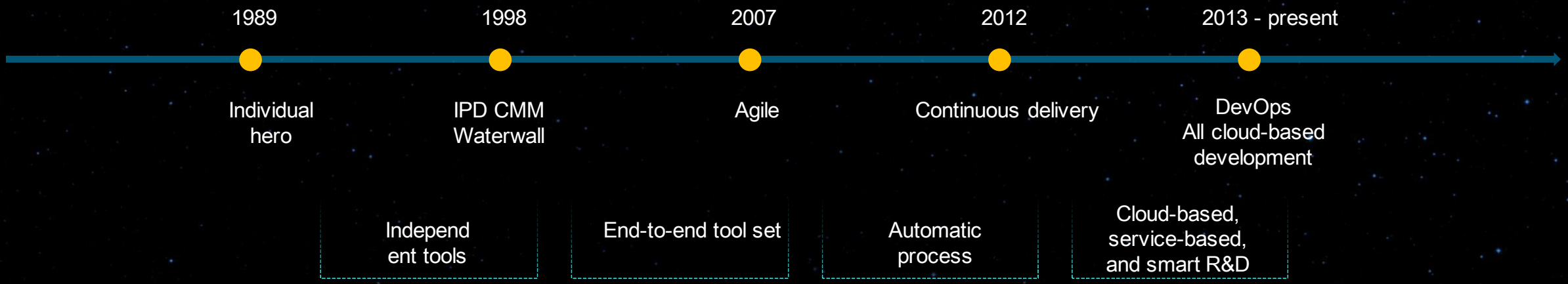
IaaS: resource scheduling related algorithm, System programming, Large-scale cloud network

EI : Scheduling optimization

Database: optimization algorithm

Security: Addition and decryption algorithm, Web application security

Huawei Is Committed to Continuously Improving Quality and Efficiency of R&D Work



Various products	Complicated product development	Large-scale team
• Embedded system • IT/Telecom software • Cloud computing, big data • Mobile terminal, IoT	• Tens of millions of code lines • Carrier-grade quality • Complex scenarios • High requirements on performance and reliability	• Headcount in thousands • Concurrent development • Cross-region collaboration • Multi-cultural background

DevCloud Solution

HUAWEI

Industry customers

- Smart industrial parks and incubators
- Colleges and training institutes
- Internet enterprises
- Software outsourcing companies
- Individual developers

Connection

PC

Mobile

Big Data

Cloud IDE

Tools and IDE

Project mgmt | Configuration mgmt | Code check | Compile & build | Test | Deployment | Pipeline | Release | Integration development

R&D ecology

DevCloud Solution

HUAWEI

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PC

Mobile

Big Data

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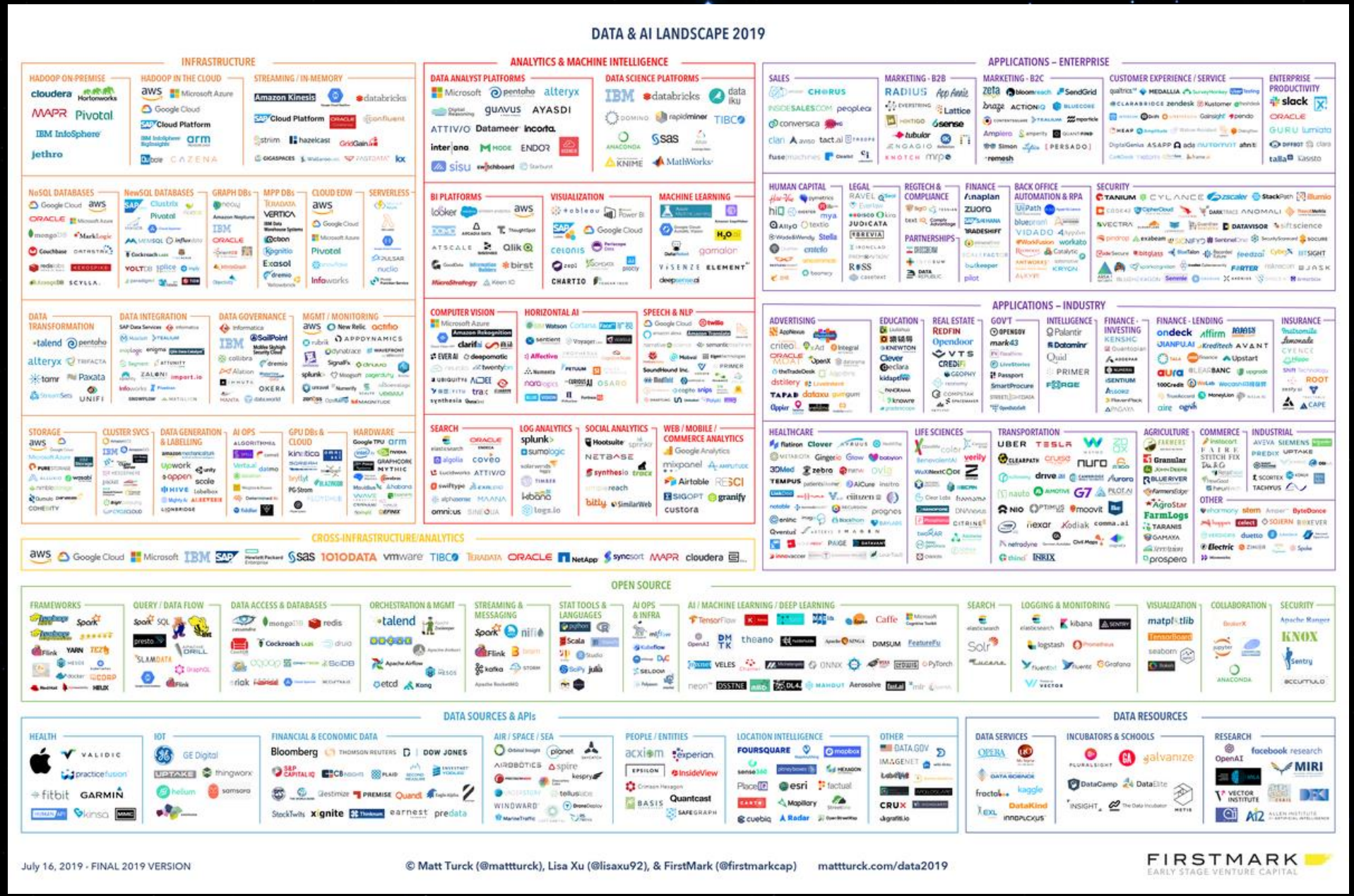
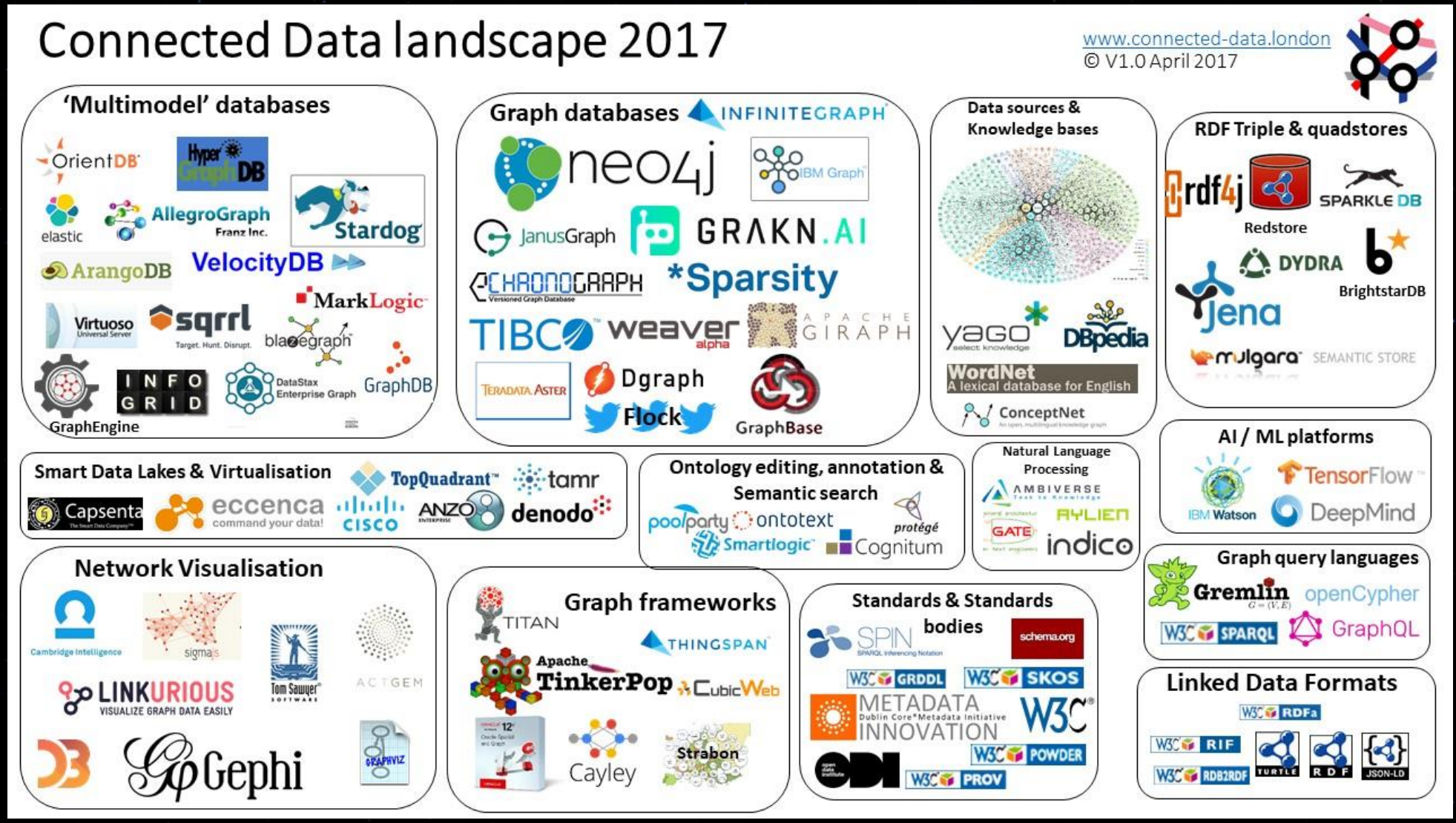
R&D ecology



云智软件 众享未来

HUAWEI


Connected Data landscape 2017
www.connected-data.london
© V1.0 April 2017
'Multimodel' databases
OrientDB
HyperGraphDB
elastic
AllegroGraph
Franz Inc.
Stardog
ArangoDB
VelocityDB
MarkLogic
Virtuoso
Universal Server
sqrrl
Target. Hunt. Disrupt.
blazegraph
INFO GRID
GraphEngine
DataStax Enterprise Graph
GraphDB
Graph databases
INFINITEGRAPH
neo4j
IBM Graph
JanusGraph
GRAKN.AI
CHRONOGRAPH
Versioned Graph Database
*Sparsity
TIBCO
weaver
alpha
APACHE GIRAPH
TERADATA ASTER
Dgraph
Flock
GraphBase
Data sources & Knowledge bases
yago
select knowledge
DBpedia
WordNet
A lexical database for English
ConceptNet
RDF Triple & quadstores
rdf4j
Redstore
SPARKLE DB
DYDRA
BrightstarDB
Jena
mulgara
SEMANTIC STORE
Smart Data Lakes & Virtualisation
TopQuadrant
tamr
Capsenta
eccenca
command your data!
CISCO
ANZO
denodo
Ontology editing, annotation & Semantic search
poolparty
ontotext
protégé
Smartlogic
Cognitum
Natural Language Processing
AMBIVERSE
AYLIEN
GATE
indico
AI / ML platforms
IBM Watson
TensorFlow
DeepMind
Network Visualisation
Cambridge Intelligence
sigma.js
Tom Sawyer
SOFTWARE
ACTGEM
LINKURIOUS
VISUALIZE GRAPH DATA EASILY
D3
Gephi
GRAPHVIZ
Graph frameworks
TITAN
THINGSPAN
Apache TinkerPop
CubicWeb
Cayley
Strabon
Standards & Standards bodies
SPIN
SPARQL Inferencing Notation
schema.org
GRDDL
SKOS
METADATA
Dublin Core*Metadata Initiative
INNOVATION
W3C
POWDER
PROV
Graph query languages
Gremlin
openCypher
SPARQL
GraphQL
Linked Data Formats
RDFa
RIF
RDB2RDF
TURTLE
RDF
JSON-LD

Automatic Unit Test Generation

Skills:

- Algorithms and Data Structures
- Problem solving
- Programming languages
- Code Analysis
- Parallel programming

Get an intern opportunity?

Send your resume to email:

gaoshan17@huawei.com