

# Duo Chai

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## EDUCATION

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**University of Science and Technology Beijing** Beijing, China  
*Major in Computer Science and Technology, Bachelor of Engineering* 08/2013-06/2017  
Awarded Best Undergraduate Thesis

## PUBLICATIONS

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*Inception Neural Networks for Human Activity Recognition using Wearable Sensors*  
Duo Chai, Cheng Xu, Jie He, Shaoyang Zhang and Shihong Duan  
To appear, *Journal on Communications*

## WORK/INTERN EXPERIENCE

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**Qihoo 360 Technology Co. Ltd.** Beijing, China  
*Machine Learning Engineer* 06/2017-Present

- Research and development of **360 Translator** <http://fanyi.so.com>
- Built data pre-processing flow, including Sentence Alignment, Segmentation, Named Entity Recognition, Word Alignment, OOV Replacement, Byte Pair Encoding, etc.
- Built Transformer model with lots of optimizations, including Multi-GPU buckets for training and predicting and Length Normalization using Tensorflow
- Deployed web services for demo and testing
- Designed completed online architecture, including classified cache, classified dictionaries administration platform for rule-based models and bug fixing
- Handled full research and developed cycle: Data crawling and parsing, model training, web services deploying, feedback, bug fixing
- Became an important vertical search channel in **360 Search**, China's second largest search engine, and will soon become the default translation engine for it, handling (expected) 300w PV per day

**EMOTIBOT Co., Limited** Beijing, China  
*Intern as Deep Learning Engineer* 06/2016-11/2016

- Research and development of sentence-to-sentence semantic similarity model for intelligent AI agent
- Built and deployed CNN + bi-GRU model using Keras/Tensorflow/pre-trained Word2Vec
- Achieved 35% lower error rate reduction compared to the previous model
- Deployed deep learning model to production cloud in Docker container
- Handled full machine-learning project cycle: Data labelling/Review, model training, evaluation, deployment and badcase fixing

**JiSuanKe: Online Education Company** Beijing, China  
*Intern as Algorithm Engineer* 04/2015-06/2016

- Developed coding style evaluation and cheating detection system with HMM algorithm and abstract syntax tree
- Setup a new research department and recruited about 20 interns/employees, including ACM contestants and Tsinghua students
- Designed coding contest held in Xi'an city
- Reviewed and corrected C/html+css/js courses
- Translated hundreds of ACM-ICPC problems from English to Chinese

## RESEARCH EXPERIENCE

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### Book Recommendation System for School Library

04/2016

- Crawled ~3 million books' metadata from Douban
- Developed user-based and item-based collaborative filter algorithm for the recommendation system
- Improved results by cooperating user-created labels in the recommendation algorithm
- Solved cold-start problem by analyzing profile and their search patterns

### Ketangdongli (Classroom Power) APP Development

12/2015-12/2016

*Supervisor: Wang Hongbo, Professor*

- Designed an APP on iOS/Android to assist classroom teaching
- Developed backend with Python and Flask and MongoDB
- Designed and implemented REST API

### SRTP: A Text Classification Tool

12/2014-12/2015

- Performed NLP tasks such as Chinese word segmentation
- Experimented with supervised classification algorithms such as SVM and Boosting, and unsupervised learning algorithms such as clustering

### Detection and Recognition of License Plate in Video Streams

06/2014

*Supervisor: Duan Shihong, Associate Professor*

- Used Matlab to do vehicle detection, vehicle license plate recognition, and vehicle identification in video streams

## EXTRACURRICULAR EXPERIENCE

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### HackPKU

05/2017

*Researcher*

- Built Faster RCNN model for lane line detection
- Proposed various innovative ideas and thoughts for detection
- Won the Momenta.ai Enterprise Prize

### HackxFDU

10/2016

*Leader*

- Developed an APP that rates similarity between two short videos
- Recruited team members and led the team in brainstorming and implementation of the project

### Campus Promotion Activities of JetBrains

06/2015-06/2016

*Campus Ambassador*

- Responsible for JetBrains code tool promotion
- Conducted research about JetBrains' market influence
- Optimized JetBrains' network performance in China
- Communicated with the staff from Czech headquarters

### Source Tech Association

05/2015-06/2016

*Vice President*

- Responsible for technical training and day-to-day management

## HONORS & AWARDS

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Second Prize in iCAN Innovation and Entrepreneurship Contest

10/2016

Third-Class People's Scholarship

10/2016

Merit Student

10/2016

Second Prize in "Lanqiao Cup" Programming Contest in Beijing

03/2015

## SKILLS & INTERESTS

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**Technical Skills:** Python, C/C++, Tensorflow/Keras/PyTorch, Matlab, Docker, Linux, Algorithm analysis and design, Software design patterns etc.

**Languages:** Mandarin, English (Proficiency in oral communication)

**Interests:** Chess, Sports, Music (Piano and A cappella) etc.