Mingzhe Du

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Education

Master of Information Technology, University of Melbourne   **2017.10 – 2019.12**
- Specialisation: *Distributed Computing (Honourable dissertation)*
- Subjects: *Knowledge Technologies/ Software Processes and Management/ Cryptography and Security/ Advanced Database Systems/ Declarative Programming/ Distributed Systems/ Web Search and Text Analysis/ Statistic Machine Learning / Neural language Processing*

Exchange Program, Nanyang Technological University   **2019.07 – 2019.09**
- Subjects: *Foundation of Information Analytics/ Entrepreneurial & Marketing for New Ventures / Entrepreneurial Accounting & Finance*
- With an exchange scholarship

Bachelor of Information Security, Central South University   **2013.09 - 2017.06**
- GPA: 82/100
- Excellent scholarships

Experience

National University of Singapore, Institute of Data Science   **2021.08 – present**
- Research Assistant (Supervisor: Prof. See-kiong Ng & Prof. Anh Tuan Luu)
- Question Answering (Transformer & Prompt) / Fact verification (FEVER & SciFact)
- Research on the fields of Machine Reasoning and Artificial General Intelligence.

ByteDance, Tiktok   **2019.12 – 2021.08**
- Designed a new generation general search engine for ByteDance products, which currently supports for Tiktok/Toutiao search services.
- Implemented a high-performance NLP platform library in C++.

Microsoft, XIAOICE   **2018.11 - 2019.03**
- Internship at Microsoft XiaoIce team.
- Designed and developed a scenario detector, which transforming sentences into pictures. This feature has been published in the latest XiaoIce conference.
- Contributed to a Timeline system generating subtitle timelines from source audios. This system currently supports "XiaoIce storybook" aligning audio and subtitle timelines.

BiliBili, Cloud Technology Department   **2017.06 - 2017.10**
- Internship at Cloud Technology Department
- Responsible for developing the "bili-root" service which manages the active distribution of CDNs by active prediction technology (Our team built a recommendation system by accumulated log files, by which the resource hit rate was much better than the previous architecture).

Alibaba Group, Ant Finance   **2016.07 - 2016.10**
- Internship at Financial core clearing team
- Contributed to a core system which supports the Alipay's payment account clearing flow (billions of transactions per day). As our bank partners do not accept live clearing flow, this system needs to merge all orders in a minute-level interval for exchanging data with bank partners.

Tencent Group, Social Network Group   **2016.03 - 2016.06**
- Internship at Backend Strategic Security Team
- Improved and maintained an offline parallel message traffic monitoring system for WeChat and other related social network products.
- Responsible for an URL flow processing platform, which can analyse and detect suspect URL content in the public message traffic for filtrating malicious information.

Abilities

Machine Learning:
- **ML frameworks:** Such as PyTorch and TensorFlow, years of ML research and development experience, able to design and train large-scale networks in the distributed environment.
- **Mathematics Foundations:** Linear Algebra / Probability Theory and Statistics / Multivariate Calculus / Algorithms and Complex Optimization
- **NLP Foundations:** Familiar with N-gram / Word Embedding / Feature Engineering / Sequential Models / Transformers

Engineering:
- **Python:** Proficient; 8 years of development experience, familiar with principles and common frameworks.
- **C/C++:** Competent; with the knowledge of many language-level features and can use them correctly.
- **PHP/JS/ HTML:** Fluent; acquainted with development process. Have built my personal website using these tools.
- **Raspberry Pi / Arduino:** Experienced; Implemented various projects based on it. Competent with Micropython.

Publications

- Yinkui Li, **Mingzhe Du**, Hongyan Li, Xiaolin Wang: Edge Rupture Degree of Graphs. *Int. J. Found. Comput. Sci. 28(8): 993-1006 (2017)*

Awards

- First Prize on the Catalyst 2019: TREKK (A Path Recommendation System based on data aggregation and analysis)
- First Prize on the Codebrew 2019: After Dark (Finding safe and fast routes for pedestrian at night)
- First Prize on The Mathematical Contest in Modelling (MCM, 2014): Study on the wreckage position of Malaysia Airlines plane (MH370)
- Second Prize on the 8th National Information Security Competition (2015): An efficient express system based on hierarchical encryption.
- Second Prize on the Second National Internet of Things Application Innovation Competition (2015): Smart Dormitory Remote-Control System based on Raspberry Pi
- Technology Pioneer Award on Cyberspace Security Talent Development and Entrepreneurship Forum (2015).
- First Prize on the National "TI" Cup Internet of Things Competition in Central China and Southwest Region (2015).
- First Prize on Central South University ACM School Competition (2013)

Hobbies and Other Information

- **Cycling:** Years of Down-Hill experience from high school.
- **Clarinet & Ukulele:** Just for entertaining.
- **Personal website:** www.elfsong.cn *(This blog is more like a note, a diary or a tree hole for me, from which you can find my personal projects and the journey of my life.)*
- **GitHub:** www.github.com/elfsong
- **WeChat:** spirit_song