Yucheng Huang

huangyc96@gmail.com | (+86)135-2015-5841 | Homepage: yuol96.github.io/yucheng-webpage | Github: Yuol96

Education

Peking University Beijing

B.S. in Chemistry, Double major in Economics; GPA: 3.7/4.0 *Expected Jun 2019*

Relevant Coursework: Introduction to Computation, Data Structures and Algorithms, Computer Architectures, Compiler Design, Principles of Software Engineering, Discrete Mathematics, Probability and Statistics, Linear Algebra, Calculus

Coursera Coursework: Concurrent Programming in Java; Operating Systems; Machine Learning (specialization); Neural Networks and Deep Learning; HTML, CSS, and JavaScript for Web Developers

Skills

- **Languages**: Python, Java, C++, JavaScript **English Efficiency**: TOEFL 105
- **Algorithms**: LeetCode 250+
- **Other skills**: MongoDB, git, bash programming; Bootstrap, Angular, NodeJS; PyTorch

Experience

Megvii Inc. (Face++) Beijing

Algorithm Research Intern (Deep Learning) *May 2018 - Dec 2018*

- **SiamRPN**: Siamese Region Proposal Network for one-shot object detection
  - Implemented a data generating algorithm to produce 100k+ training images with objects of different size, angle and skewness.
  - Introduced and trained SiamRPN for one-shot detection tasks; achieved mAP score of 0.62 on the test dataset.
  - Improved model capacity by changing the backbone CNN; introduced *Convolutional Block Attention Module* to further refine the feature map.
  - Proposed a modified hard sample mining strategy to reduce misclassifications and improves the mAP performance by 0.08.
- **Zero-shot Learning**: Conducted research on recent progress in zero-shot learning, especially focused on domain shift and hubness problem. Implemented several zero-shot learning model including DEVISE, CONSE, SAE, LATEM, CMT.

Institute of Software, Chinese Academy of Sciences Beijing

Research Intern | Advisor: Prof. Lei Shi *Apr 2018 - Oct 2018*

- **Eiffel**: Evolutionary Flow Map for Influence Graph Visualization. 118.190.210.193/eiffel
  - Investigated visual influence graph summarization problem; implemented the node summarization method based on Symmetric Nonnegative Matrix Factorization.
  - Developed a new flow map layout and drawing method; designed and implemented the online interface of the *Eiffel* visualization system.
- **t-SNE**: Researched on t-SNE source code in *scikit-learn*; modified and optimized the gradient descent process to shorten the training period from 3 min to less than 1 min while maintaining the t-SNE performance.

School of Electronics Engineering and Computer Science, Peking University Beijing

Undergraduate Researcher | Advisor: Prof. Tong Yang *Oct 2017 - Present*

- **DSAB**: Data Stream Algorithm Benchmark, www.dsab.tech
  - Investigated in more than 20 sketch algorithms for analyzing network data streams; re-implemented these algorithms in C++.
  - Built an online benchmark with Flask and MongoDB on a *Alibaba Cloud* server to support compilation and performance tests of uploaded algorithms. Designed and implemented the front-end user interface using Bootstrap and Angular.
- **Finding Significant Items in Data Streams**: Collected and analyzed datasets from Stanford SNAP project; generated artificial datasets in Python with different distributions and parameters; conducted performance tests on LTC algorithm to find significant items.
- **P4 Programmable Switch**: Conducted an in-depth study of P4 language; implemented *Elastic Sketch* and *QCluster* data stream algorithms on Tofino P4 switch; deployed and updated data plane objects in P4 switch by Tofino control plane API.

Publications

- **Yucheng Huang**, L. Shi, Y. Su, Y. Hu, H. Tong, C. Wang, T. Yang, D. Wang, S. Liang. Eiffel: Evolutionary Flow Map for Influence Graph Visualization. *IEEE Transactions on Visualization and Computer Graphics*, 2019 (submitted and under minor revision)
- C. Zhao, T. Yang, **Yucheng Huang**, Y. Zhang, Q. Liu, B. Cui, T. Wolf. Benchmarking Sketch-Based Data Stream Algorithms, 2019 (submitted to *Very Large Data Bases*)
- T. Yang, H. Zhang, D. Yang, **Yucheng Huang**, and X. Li. Finding Significant Items in Data Streams. In *Proc. International Conference on Data Engineering*, 2019

Additional Experience & Achievements

- 2017 **Top 5%**, Guanghua Scholarship Peking University
- 2016 **Top 10%**, Founder Scholarship Peking University
- 2015 **Top 10%**, Li Huirong Scholarship Peking University
- 2013 **Rank 1**, 1st Prize in National Olympiad of Chemistry, 1 of 50 candidates of national team for ICHO Beijing