Yukun (Vincent) Zeng

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EDUCATION

Texas A&M University — **College Station, TX**
Master of Science in Computer Science — *Aug. 2016 - Aug. 2018*
GPA: 3.57/4.00

Harbin Institute of Technology — **Weihai, China**
Bachelor of Engineering in Software Engineering — *Sep. 2012 - July 2016*
GPA: Overall 3.45/4.00, Major 3.70/4.00

WORK EXPERIENCE

Teaching Assistant — Texas A&M University
College Station, TX — *Jan. 2018 - Present*

Big Data Engineer Intern — Big Data at AT&T
Dallas, TX — *June. - Aug. 2017*

- Frauds detection by mining millions of billing records with **Hive** and **PySpark**, total profits ~$1.4M.
- Index results using Apache **Solr** and visualize billing deviations with customizable plots (e.g., Heatmap) on Banana.
- Deved National Access Mgmt. case tracker (full stack) with nice **Bootstrap** frontend that supports **AJAX** loading and autocompletion, **RESTful Java EE** backend and integrated it onto AAT Platform.
- Workflow automation with **Jenkins**, programming and debugging experience on **Hadoop**, **Spark** and **Tez**.

Grader — College Station, TX
Texas A&M University — *Sep. 2016 - Dec. 2017*

- Test case development and test automation for CSCE 410 Operating Systems, involving frame management, memory paging, virtual memory, thread scheduling, device driver and file systems.
- Automated grading of CSCE 312 Computer Organization coding assignments with **bash** scripts.

Software Engineer Intern — ARRIS Technology Co., Ltd.
Shenzhen, China — *Jan. - May 2016*

- Network programming with **C** in **embedded Linux**, **iptables** chain control, modem performance benchmarking.

Technical Solution Intern — Neusoft
Dalian, China — *July 2014 - Aug. 2014*

- Neusoft IM dev in Java with **socket**, **multithread** chating, chat history storage using **Oracle DB**.

SELECTED PROJECTS

D2Rec - Dota2 Hero Item Recommender System — Team Leader

- Crawled and preprocessed over 60,000 match records based on **OpenDota**, analyzed and visualized hero-item correlations with **Jupyter Notebook**.
- Proposed **baseline recommender** purely based on **weighted item frequency** among matches, which performs pretty well in recommending general items that fit heroes' personality.
- Proposed **TDIPV** (Team Draft based Item Preference Variation) model to capture the **use-against** and **benefit-from** relations between enemies/allies and items.
- Applied item classification and **item combination process tracking** to focus on combined/final items while diminishing significance of intermediate/basic items thereby ensuring the **quality of recommendation**.
- Evaluated the system performance through both aspects of necissity and sufficiency, histograms and cumulative distributions show that with higher similarity an actual team's item is to our recommended item set, the chance of winning raises. An improvement from **0.68** to **0.83** is shown comparing TDIPV with baseline.
- Preliminary work in correlating **temporal effects** and **team situation** with item purchase.

Hi-Responsive Scheduling with MR Performance Prediction on Hadoop YARN — Research Assistant

- Pwd-less accessibility for scalable Hadoop cluster setup and job history tracking using **Hadoop REST APIs**.
- Benchmark Hadoop cluster with FaceBook trace (~6k Jobs) and heterogeneous MapReduce/Spark/Tez workloads.

- Size-based scheduler with **Linear Regression** job size prediction achieved **10x** faster response when heavily loaded.

EmuEdge - Realistic Edge-Clouds Emulation with SDN on Xen Research Assistant

- Logged networking trace with **tc** and **iperf**, developed Android services for detailed sensor and wireless network data collection, such as accelerometer, lighting condition and wireless signal strength under a disaster scenario.
- Leveraged **Open vSwitch** and Linux Kernel forwarding for comprehensive **Software Defined Networking** within a single server, including network shaping, topology customization that supports hierarchical and realistic network for VMs running on Xen.

Flash Vocabulary - Lightweight website for boosting vocabulary online Leader

- Deved a front-end library in **CSS** to create a universal UI, avoided unneccesary page reloading through **AJAX**.
- Vocabulary pseudo-shuffling, reciting period arrangement based on **Ebinhaus** memory rules.

Jizhi Tutor Service - Online edu platform on Cloud Co-Leader

- Applied **HTML, CSS, Javascript (JQuery)** to the front-end dev, used complex **SQL Server** database (with **triggers**, **view**, **stored procedure**, etc) and **.NET** platform for data storage and business logic.
- Lead the entire platform dev from designing, implementation to Cloud deployment and maintenance.

General Coding - An APP to improve programmers' productivity Key Developer

- Used **fuzzy query** algorithm (Levenshtein Distance) to recommend similar APIs in our full-text API search engine.

CSCE 614 Computer Architecture advised by Prof. Daniel A. Jimenez

- Cache behavior simulator with **LRU** and **random replacement** policies.
- Fast path-based neural branch predictor with **perceptron**.
- High performance cache replacement using re-reference interval prediction (RRIP).

ACADEMIC EXPERIENCE

Graduate Researcher College Station, TX
Parasol Lab, supervised by Prof. Nancy M. Amato *Sep. 2016 - May 2017*

- Worked with fundamental **C++** robotics libraries, like VIZMO++ and parallel computing library STAPL.
- Generalizing embedding graph, flow graph and dynamic region utilities used in Dynamic Region-biased RRT.

Team Leader Weihai, China
HIT Robot Innovation Lab *May 2015 - Jan. 2016*

- Introduced matrix-based data structure for storing robot engine parameters and developed a stable gait planning system to produce RoboBasic codes for controlling engine motions.

PUBLICATIONS

[1]Yang Liu, **Yukun Zeng** and Xuefeng Piao. "High-Responsive Scheduling with MapReduce Performance Prediction on Hadoop YARN." Embedded and Real-Time Computing Systems and Applications (RTCSA), 2016 IEEE 22nd International Conference on. IEEE, 2016.

HONORS&AWARDS

Best Paper Award for Outstanding Bachelor Dissertation July 2016
Meritorious Winner(1st Place) in National Robot Championship July 2015
Honorable Mention in Mathematical Contest in Modeling (MCM) Apr. 2015
2nd Place in HIT Software Design Competition Mar. 2014
People's Scholarship 5 times Oct. 2013, Oct. 2014, May 2015, Oct. 2015, Apr. 2016

PROFESSIONAL ACTIVITIES

Student Volunteer Weihai, China
HIT-MSRA Human Language Technology Summer School *July, 2013*

Peer Reviewer College Station, TX
IEEE Transactions on Robotics (T-RO)
IEEE Robotics and Automation Letters (RA-L)
Springer Journal of Intelligent & Robotic Systems (JINT)
ACM Transactions on Spatial Algorithms and Systems (TSAS)
IEEE International Conference on Robotics and Automation (ICRA) *Sep., 2016 - May, 2017*