

Zecheng Zhang

DATA MINING · SCIENTIFIC COMPUTING

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Education and certification

University of Illinois at Urbana-Champaign

Bachelor of Science in Computer Science, College of Engineering

Major: Computer Science Minor: Statistics

- Honors: Edmund J. James Scholar and Dean's List

August 2015 - May 2019

Urbana-Champaign, IL

GPA: 3.98 / 4.0

Nanyang Technological University

International Exchange Program

Related Course: Cyber Security

Summer 2017

Jurong, Singapore

GPA: 5.0 / 5.0

Research Experience

Undergraduate Research Assistant, University of Illinois

Laboratory for Parallel Numerical Algorithms, Professor/Advisor: Edgar Solomonik

- Developed Cyclops Tensor Framework (CTF) Python interface and part of C++ interface. Utilized CTF Python interface to implement graph convolutional network. Wrote paper and experimented by using CTF Python for data analysis and graph convolutional network tasks
- Helped the professor review a paper that about fast inference for convolutional neural network
- Submitted a tutorial for Cyclops Tensor Framework Python interface and drafted a paper on data analysis by using the framework
- Preparing undergraduate senior thesis on data analysis and computing topics

March 2017 - PRESENT

Urbana-Champaign, IL

Undergraduate Research Assistant, University of Illinois

Professor: Tarek Abdelzaher

- Developed a Twitter fake account detection approach by using heterogeneous information network related methods and incorporating analysis of features of Twitter fake account with a Ph.D. candidate
- Leading on parts of projects which use graph convolutional networks and text CNN on GitHub and publication networks; the models recommend papers to GitHub users or recommend GitHub repos to publication authors. Drafting the paper for submission in 2019
- Mined graph and text data from GitHub and Twitter by using the GraphQL and Rest API. Cleaned data and constructed to usable dataset

January 2018 - PRESENT

Urbana-Champaign, IL

Publications

- Huajie Shao, Shuochoao Yao, Yiran Zhao, **Zecheng Zhang**, Lu Su, Zhibo Wang, Dongxin Liu, Shengzhong Liu and Tarek Abdelzaher. *FADE: Fake Account Detection Using Similarity-based Clustering in Social Networks*. IEEE International Conference on Computer Communications (INFOCOM). [submitted]
- **Zecheng Zhang**, Xiaoxiao Wu, Naijing Zhang, Siyuan Zhang, Edgar Solomonik. *A Productive Framework for Parallel Tensor Data Analysis*. [drafted]

Work Experience

ServiceNow, Inc.

Software Engineer Intern at Research & Product Group

- Designed and built a conference-using product where users can post questions and poll lively. Administrator can manage the questions and polls on that platform lively
- Implemented natural language processing module for the platform to filter users' similar questions and questions containing inappropriate words in real-time. Used methods include GloVe and sentiment analysis
- Developed and designed the front-end website and database models for the product. Front-end mainly implemented by using React.js

May 2018 - August 2018

Santa Clara, CA

Teaching Experience

Course Assistant, University of Illinois

Machine Learning (CS 446), Department of Computer Science

- Graded students' homework, which included machine learning problems (coding & written), average 5 hours per week
- Proof read homework and exam (writing & coding) questions and answered students' questions on Piazza
- Managed and gave instructions for students' deep learning cloud computing environment (Azure and Google Cloud)

August 2018 - PRESENT

Urbana-Champaign, IL

Course Assistant, University of Illinois

January 2018 - May 2018

Intro to Algs & Models of Comp (CS 374), Department of Computer Science

Urbana-Champaign, IL

- Graded students' homework, which included algorithm problems (graph & Dynamic Programming etc.), average 6 hours per week
- Helped teaching assistant teach on lab / discussion section (twice a week) and proctored midterm and final exams

Projects

Twitter Project

August 2018 - PRESENT

Python, Pytorch, Javascript, Django

Urbana-Champaign, IL

- Working on a website to present a project for a Twitter surveillance system (deep learning model implemented in PyTorch) with a PhD candidate. Users input their current twitter text data to the website and the back-end will run the trained deep learning model which will return the probability the user will be suspended by the Twitter

Data Mining Project

January 2018 - May 2018

Python, Tensorflow

Urbana-Champaign, IL

- Group of three project on implementing a new pipeline for open domain event extraction. Given raw corpus, the pipeline will cluster sentences with similar event types together. Natural language processing techniques are used such as word sense disambiguation and coreference resolution. Utilized graph convolutional network on embedding events by incorporating events relationships
- Wrote a survey for the open domain event extraction and drafted a paper for the project pipeline. Gave presentation for each of the survey and drafted paper. The survey was selected as one of the best survey paper in UIUC CS 512 class in spring 2018

Website Project

January 2018 - May 2018

React.js, Python, Express.js, Javascript, MySQL

Urbana-Champaign, IL

- Group of four project on creating a website to help UIUC CS students manage their CS classes based on their own computer science tracks and progress. Students also can record their own academic information, goals for semester, GPA and search UIUC CS classes with detailed course information displayed.
- Implemented advanced functions for the project: a simple bi-typed heterogeneous information network based ranking function for professors and classes. Frequent pattern mining on classes based on registration amount. Composing an overview report for the project.

Text Mining Project

January 2017 - May 2017

Python, HTML, CSS, Javascript

Urbana-Champaign, IL

- Crawled reviews of instructors from RateMyProfessor. Cleaned reviews, encoded the text information to vectors, trained and then summarized the reviews into sentiment/emotion words which could represent the reviews
- Crawled text data from Reddit/Subreddit and manually labeled those text; used machine learning models (svm) to learn whether classes or instructors more likely be positive or negative to students
- Constructed a website which provided search functions for users to search instructors and classes and then displayed results generated by aforementioned models

Virtual Reality Projects

January 2017 - May 2017

C#, Unity3D

Urbana-Champaign, IL

- Implemented a flight Simulator game on Oculus VR by using Unity3D and quaternions. The plane can launch missiles and shoot targets
- Developed an injection simulation project on Oculus VR. The implementation was created by using Unity3D. The functions of spread speed and drug concentration level were based on equations from several medical papers. Co-worked with a UIUC medical school instructor on the project.

Technical Skills

Programming languages: Python, Java, C++, C, JavaScript, Bash Script, Haskell, C#, R, CSS, HTML

IoT MySQL, MongoDB, React.js, Express.js, Django, PHP

Python packages: PyTorch, TensorFlow, Scipy, Numpy, Spark

Other: Unity3D, WebGL, MIPS, Verilog, \LaTeX

Related Coursework & Interest

Data & Machine Learning: Data Mining, Machine Learning, Deep Learning, Artificial Intelligence, Text Information Systems, Database Systems, Data Visualization

Algorithm & Numerical: Numerical Methods, Numerical Analysis, Algs & Models of Comp, Graph Theory in Linear Algebra, Tensor Algebra

Other: Computer Architecture, System Programming, The Art of Web Programming, Progrmg Languages & Compilers, Virtual Reality, Interactive Computer Graphics