

Juncheng Yang

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Education

Master in Computer Science, Department of Mathematics and Computer Science, **Emory University**, 2015 - present

Master in Chemistry, Department of Chemistry, **Emory University**, 2013 - 2015

Bachelor of Science, Department of Chemistry and Chemical Engineering, **Nanjing University**, 2009 - 2013

Skills

- Proficient in Python, and familiar with Java, C, database implementation and SQL.
- Proficient in web crawler and related package/framework like scrapy.
- Familiar with computer security, e.g. reverse engineering and web security.
- Familiar with Unix System API and programming.
- Familiar with JUnit test, selenium, Assembly, Pascal.
- Familiar with data mining algorithms, big data and cloud computing.

Professional Experience

Research

Skyline Query In Database With a Fully Secure Protocol on Cloud Server,

Advisor: Li Xiong, Emory University Oct 2015-Mar 2016

- Proposed a novel fully secure protocol for querying skyline in database on cloud server with no information leakage to any party based on secure multiplication, secure bit operation (OR, AND, NOT), secure bit decomposition and the basic protocols above.
- Devised several basic protocols including secure minimal number extraction and secure domination with paillier as underlying encryption method.
- Implemented the proposed protocol in C with network communication for data exchange.
- Parallelized the computation and obtained a sublinear performance improvement.
- Wrote a scheduler to allow the computation to run on multiple machines with each running multiple threads.

Research Assistant: Social Network Analysis, Emory University

Feb 2015 - Oct 2015

- Cooperated with graduate sustainability group for efficient data collection in the survey.
- Cleaned data and integrated data from different sources, built a bipartite graph matching between unrecognized names and known names then use levenshtein distance and edit distance to evaluate the similarity between names and priority queue to link the most possible matching.
- Used graph theory to explore the relationship between people and how they were connected, then based on this, discovered the most important factor in connecting different people and provided suggestions for better cooperation between people
- Analyzed dissimilarity and similarity (like Euclidean distance and cosine similarity) between different people and predicted new friendship and new trends in the social network

Project

Natural Language Processing(NLP): Keyphrases Extraction and Document Fingerprints Construction from Scientific Documents, Emory University

Sept 2015 – Dec 2015

- Modified Stanford and Berkeley dependency parser to extract the noun phrases (NP) from scientific papers.
- Generated sorted and pruned candidate list of keyphrases by ranking extracted NPs using TF-IDF.
- Used ranked keyphrases as document fingerprint for measuring document similarity based on Word2Vec, which shows great improvement compared with using TF-IDF on keyphrases or using Word2Vec on full text.

Web Crawler: Professor Info, Emory University May 2015 - Present

- Wrote a web crawler using scrapy framework to crawl professors' information like name, research interest, contact, recent papers.
- Provided a list of urls of different universities, for each university, discovered homepage for each department, then used api provided by *import.io* to discover faculty page for each department, and extracted professor information.
- Prepared to use crawled data to provide a search engine for searching professors.

Reference Finder, Emory University May 2015 - Present

- Analyzed pdf files and extracted reference from given research paper using different libraries in Java and C.
- Wrote crawlers using python (beautifulsoup, scrapy) to retrieve basic article information from publisher and stored in database (SQLite and MySQL).
- Will use as a reference finder by receiving a research paper from user and retrieving basic article info like title, authors, abstract etc for each reference and return back to user.

Lab Instructor, Emory University Aug 2013 - May 2014

- Demonstrated experimental techniques and assisted professors with lab lectures.
- Explained challenging calculation and chemical concepts to college students in an entrance level.
- Evaluated homework, quiz, notebooks, exams and held regular office hours to help students.

Other small projects

- Implementation of an operating system with micro kernel. 2016
- Implementation of a Mini Database System (similar to SQLite), Emory University 2015

Work

Emory ECDS: Atlanta Explorer, manager: Michael Page, Emory University Oct 2015 – Present

- Collaboration with other group members on building a model and visualization tool for exploring historic cities, mainly Atlanta from 1880-1930 with focus on information extraction from historical documents,.
- Used LSTM neural network to train a model for recognizing historical documents with high precision.
- Developed a software with client-server model to have students manual editing suspicious character. Server side examines the OCR result using designed rules and OCR probability, client side has GUI and it receives suspicious characters and images to have students proofread.
- Automated the whole process to use proofread images as training samples for OCR model training, then produced new model is used for new documents recognition and proofreading.
- Designed rules from pattern and features of the text to further clean and extract information from the recognized text and matched/linked to existing data.

Honors and Awards

- Emerson Fellowship (\$4000), Emory University. 2013-2014
- Third Place in Green Tech Competition International Part in Taiwan. 2012
- Nominated for "Person of the Year" among all Chinese undergraduates. 2012
- Academic Excellence Awards in the 5th National Undergraduate Innovation Conference. 2012
- Technological Innovation Award, Nanjing University. 2010&2011
- Outstanding student prize, Nanjing University. 2010&2011

Leadership and Team Work Experience

Project Manager, Chinese Students & Scholars Union at Emory (CSUE) 2013 - 2015

- Held university-wide events for all Chinese students and scholars
- Assisted new members in organizing events and coordinated with other organizations.

Leader, "Challenge Cup" Innovated Science and Technology Academic Competition Mar 2013

- Developed new material for organic pollutant decontamination.
- Outstanding Award as a team (the highest award).

Senior Member and Co-Founder, Technical Support Volunteer Team, Nanjing University 2011 - 2013

- Specialized in solving software and system problems, familiar with diagnosing hardware problems.
- Responsible for new members' recruiting and training.
- Held workshop inviting experienced technicians for communication and discussion.

League Branch Secretary, Nanjing University 2009 - 2010

- Organized activities for enriching students' life within and across department.
- Held a series of Career Consulting Workshops for all college students.
- Outstanding League Branch Secretary Award.

Selected Publications and Presentations

- **Juncheng Yang**, Sheng Chu, Yong Guo, Leilei Luo, Fei Kong, Ying Wang and Zhigang Zou. *Chem Commun.*, **2012**, 48, 3533-3535.
- **Juncheng Yang**, Yong Guo, Leilei Luo, Fei Kong, Sheng Chu, Ying Wang and Zhigang Zou. *Advanced Materials Research*, **2011**, Vol. 287-290, 679-682.