Haowen Lin

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Education:

University of Southern California

B.S. Computer Science — Expected Graduation Year: May 2019
Minor: Business Finance
Cumulative GPA:3.97
Coursework: Data Mining, Data Structure and Object-Oriented Programming, Algorithms, Professional C++, Accounting, Machine Learning

Skills:

Python, Java, C++/C, Scala, JavaScript PHP, CSS3, HTML5, MySQL, Bootstrap
GitHub, Agile development

Research Experience:

Student Research Assistant, USC Spatial Sciences Institute — Fall 2016 - Present

Historical Map project, supervised by Professor Yao-Yi Chiang

• Automatically extracted Phrase-Level map labels from historical maps using Support Vector Machine. The algorithm combined single words extracted from historical maps into meaningful phrases, which represent complete location descriptions and can be used to link historical sites to other datasets.
• Built the back-end with Python and Postgres.
• Won First Place of **ACM SIGSPATIAL Student Research Completion**.

An Uncertainty Aware Method for Geographic Data Conflation, supervised by Professor Yao-Yi Chiang

• Analyzed uncertainty generated in the vector to vector conflation of geospatial sources. The uncertainty information improved the accuracy and avoided manually setting the buffer size for vector data in data conflation.
• Integrated the uncertainty from a geographical feature recognition model that using Convolutional Neural Network and centerline extraction of linear feature to improve the conflation result.
• Submitted a paper to ACM SIGSPATIAL BIG SPATIAL DATA workshop.

Student Research Assistant, USC Information Sciences Institute

Row-convexity constraint solver, supervised by Professor Satish Kumar Thittamaranahalli — Summer 2018 - Present

• Analyzed and implemented a randomized algorithm to solve connected row-convexity constraint (CRC) problems in C++.
• Implemented an algorithm to automatically generate valid connected row-convexity constraints.
• Compared the result with none-randomized algorithm.

Capstone Project, USC Information Retrieval and Data Science Group, Los Angeles

Facebook chatbot for 211 County and language translation — Spring 2018

• Developed a Facebook Chatbot for 211 LA County, a non-profit organization which provides information and referrals for all health and human services in LA County. Extended functions to query and return the data from database based on the taxonomy of each service. https://www.facebook.com/211lacounty
• Tested Chatbot's referrals on different locations by optimizing the best-fit taxonomy for each service from 211 website.
• Automatically converted the phone-call recordings into text by using Kaldi, a speech recognition toolkit written in C++.

Working Experience:

C++ Teaching Assistant, University of Southern California — Fall 2017

• Taught fundamentals of C++ syntax and semantics including function prototypes, overloading, memory management.
• Mentored 60+ students in class, held regular office hours and graded weekly lab and exams.
• Collaborated with professors to verify correctness and ambiguity.

Software Development Teaching Assistant, University of Southern California — Spring 2018

• Peer-tutored 130+ students about concepts of project management, architecture, design, testing and maintenance phases.
• Held regular office hours and answered programming questions about JavaScript, PHP, Cucumber/
• Graded project documents, midterm and final exams.

Project Experience:

ScholarCloud App (JavaScript, PHP, CSS) — Spring 2017

• Developed a paper searching website that uses data from ACM and IEEE papers. Users can search the paper by keyword and author name and download the paper with highlighted keyword.
• Implemented a word cloud for data visualization including webpages with d3-rendered data graphs using **d3 JavaScript library**. Used PHP to handle the data request from webpages. **Agile** methodology and **Test-Driven Development** adopted.

Factory Simulation (Java, MySQL) Fall 2016
• Created a simulated Factory where workers update storage and build materials in a panel using **Java Swing.** Built the factory-info service & task post with **Java** and **MySQL**.
• Engaged in **multithreading** and **network programming** to communicate and transform factory materials

Hamiltonia Traveling (Java, JavaScript, CSS) Fall 2016
• Built a website that allows user to individually generate their travelling path by drawing the path on the google map and the web application would generate the most popular cities for references.
• Used **Amadeus API** and **google API** to get traveling information to generate popularity rate for each city.
• Implemented all the webpages with **HTML5**, **JavaScript** and **Bootstrap.**

Happy Farmers (JavaScript, Python**)** Spring 2017
• Created an interface for people in Morocco to recommend farm land and provide prediction insights for next year's Wheat and Barley production and consumption. **Win Expedition Hack 2nd Place.**

Publications

Lin, Haowen, and Yao-Yi Chiang. "SRC: automatic extraction of phrase-level map labels from historical maps." SIGSPATIAL Special 9.3 (2018): 14-15.

Honors & Awards

First Place of Student Research Competition in ACM SIGSPATIAL	Fall 2017
USC Provost Research Fellowship	Spring 2017 - Present
Expedition Hack 2nd Place	Spring 2017
Cal Hack 3.0 “Best Traveling application”	Fall 2017
Morning Light Foundation Domestic Scholarship of $5000	Spring 2018
USC Academic Achievement Award	Fall 2016 - Present
The Dean’s List of Viterbi School of Engineering, USC	Fall 2015 - Present
Member of Phi Kappa Phi all-university Honor Society	Fall 2017 - Present
Member of Golden Key International Honour Society	Fall 2017 – Present
USC Undergraduate Research Apprentice Program (URAP)	Summer 2018

Professional Activities

Association for Computing Machinery (ACM) student member	Fall 2016 - Present
Society of Women Engineers (SWE) student member	Fall 2017 - Present
Center for AI in Society’s student branch (CAIS++)	Fall 2017 - Present

Organizations and Activities

IT Department Chair– USC CSSA Fall 2015 - Present
• Provided technical support, updated and maintained organization website and forum of USC CSSA.
• Hold regularly meeting and plan on upcoming events
• Assisted in organizing Research/Internship panel by inviting senior students to share their experience to the CSSA member

Volunteer – HackSC
• Taught elementary school students programming in Scratch and basic programming concepts such as control flow statements
• Coordinate with other volunteers and help signing in for the programming competition.

Links

https://www.linkedin.com/in/haowen-lin (Personal website on Linkedin)
https://spatial-computing.github.io/ (Research group page of Spatial Science Institute)
https://irds.usc.edu/ (Research group page of Information Retrieval and Data Science Group)
https://src.acm.org/binaries/content/assets/src/2018/haowen-lin.pdf (SRC paper abstract)
https://spatial.usc.edu/spatial-computing-successes/ (News report on receiving ACM student research competition)