Yi Li

Address: 1419 Commonwealth Ave, Brighton, MA 02135
Phone: (909) 360-9303   **E-mail:** licds@bc.edu   **Personal Homepage:** licds.github.io

EDUCATION

Boston College   **Chestnut Hill, MA**
B.A. in Computer Science, Minor in Philosophy   Sep 2019 - May 2024 (Expected)
B.S. in Management, Double concentrations in Finance, Accounting for Finance and Consulting
- **Cumulative GPA:** 3.89 / 4.00 (Dean's List First Honors)
- **Relevant Courses:** Algorithms, Computer Systems, Computer Vision, Natural Language Processing, Probability

PUBLICATIONS AND MANUSCRIPTS

- **Li, Y.**, Zhang, R., Qu, D., & Marques Samary, M. (2023). Leveraging LLMs and MLPs in designing a computer science placement test system. Under Review at *CSCI 2023*.
- **Li, Y.**, Zhang, R., Qu, D., & Marques Samary, M. (2023). Mining students' mastery levels from CS placement tests via LLMs. Under Review at *2024 SIGCSE Student Research Competition.*
- **Li, Y.**, He, K., Cho, H., & Ranger, B. (2023). Ultrasound segmentation using deep learning: training on musculoskeletal phantom data and testing on clinical data. *MIT URTC 2023*.

RESEARCH EXPERIENCE

Ranger Lab: Muscle Segmentation from Ultrasound Images   **Chestnut Hill, MA**
Research Assistant (Advisor: Prof. Bryan Ranger)   Oct 2022 – Present
- Generated 4 datasets with a total of 1,700 musculoskeletal (MSK) ultrasound (US) images using tissue-mimicking phantoms for automatic muscle segmentation task
- Successfully demonstrated the effectiveness of utilizing phantom data in training deep learning model for clinical image segmentation
- Compared and analyzed six algorithms (U-Net, Attention U-Net, DeepLab, FCN and the Watershed), and finally selected DeepLab for clinical MSK US image segmentation, achieving a segmentation accuracy of more than 94%
- Currently engaged in exploring the potential applications of GANs and Diffusion models in the realm of US images

Exploring LLMs in CS Placement Test   **Chestnut Hill, MA**
Research Lead (Advisor: Prof. Maira Marques Samary)   Feb 2022 – Present
- Led a team of three to design a Large Language Model (LLM) framework for CS introductory courses (CS0, CS1, CS2) placement test using a mastery learning approach
- Evaluated the generation capacity of LLM from three dimensions (quality of question generation, ability to assess question correctness, and ability to identify related concepts), and design appropriate prompt to tap its potential
- Conducted assessments with 43 participants through our web application and trained multi-layer perception classifiers to predict student's CS placement result, yielding over 83% of accuracy

Incremental Topological Sort   **Chestnut Hill, MA**
Research Assistant (Advisor: Prof. Hsin-Hao Su)   Sep 2022 – Jan 2023
- Conducted a comprehensive analysis of an innovative incremental topological sort algorithm
- Built and executed a meticulous testing program to evaluate the accuracy and speed of the algorithm, providing valuable insights into the algorithm's operational performance and capabilities

PROJECTS

Blossoms AI   **Brighton, MA**
Co-founder   Apr 2023 – Present
- Lead a team of 5 to develop a web application (https://blossoms.ai/) for high school teachers to build student profiles through mastery learning approach, empowering effective personalized teaching
- Currently developing a plugin that seamlessly integrates with Canvas platform to mine students' mastery levels in various concepts through past quizzes and tests, providing personalized recommendations for teachers and students
- Developed a multiple-choice quiz generator (server is currently off-line) for high school teachers based on their subjects

HC18: Fetal Head Circumference Competition   **Chestnut Hill, MA**
Project Lead   Sep 2022 – Dec 2022
- Trained on an existing dataset of ultrasound images using U-Net and its variants, and then used the trained model to estimate fetal head circumference in the test set
- Based on the baseline model, its performance was enhanced with a variety of tricks, and analyzed in detail by ablation experiments in the final research report

MBTI Personality Classification with Performance Assessment   **Chestnut Hill, MA**
Project Member   Sep 2022 – Dec 2022
- Classified different texts used to describe personality to find their corresponding author's MBTI personality type by using state-of-the-art deep learning methodologies
- The results showed that logistic regression was most accurate in E/I and F/T personality pairs (58.4% and 62.1%), while DistilBERT performed best in N/S and J/P personality pairs (73.8% and 71.6%)

Emotional Sentiment Detection   **Chestnut Hill, MA**
Project Member   Feb 2022 – Aug 2022
- Utilized a dataset of 14,000 sentences to train a model to detect emotions (sadness, joy, love, anger, fear, surprise) from user input text, and encapsulated the model into front-end page to improve the user experience
- After exploring a spectrum of techniques including Naïve-Bayes, CNN, and various TF-IDF approaches, the adaptation of Naïve-Bayes with modified TF-IDF method was developed, which achieved an accuracy of 84.5% in emotional sentiment detection task

Eventsletter   **Chestnut Hill, MA**
Project Lead   Sep 2019 - May 2020
- Conceptualized and developed an iOS app for pushing events and improved it based on feedback from 50 students collected during the testing phase
- Executed comprehensive market research, laying the foundation for a robust business strategy that facilitated acceptance into BC's accelerator program and secured $1,500 in funding
- Created an MVP of the web application's back-end by utilizing Ruby on Rails and the Aurelia framework

WORK EXPERIENCE

Liberty Mutual Group Asset Management Inc.   **Boston, MA**
Part Time Finance and Credit Analyst Intern   May 2021– Aug 2022
- Conducted quarterly valuation and analysis on co-investment portfolio, preparing presentations for the PE team
- Built models and instructions to increase efficiency for future finance interns, saving 50% of time used
- Collected daily cash postings, updated foreign and domestic management fee balance, and sent invoices to all entities
- Consolidated PE team's research of the impact of recent news on Chinese GPs and Liberty's investment in Asia, presenting the results to the heads of LMI's Global Partnership
- Initiated equipment rentals investment with 5 names in the sector, provided market insights, models, and rationales

MIT Media Lab Digital Learning + Collaboration Studio   **Cambridge, MA**
Part Time Teaching Assistant   Oct 2021– Apr 2022
- Assisted team over a 5-weeks AI-Generated Media course in collaboration with the Fluid Interfaces Lab, responsible for administrative tasks and data analytics
- Generated reports to identify target students and evaluate lecture performance
- Evaluated the first cohort and feedbacks to improve slack operation for future cohorts

Art XR   **Los Angeles, CA**
Remote Intern   May 2020 - Nov 2020
- Built automatic indexers to collect data from public museums, boosting efficiency by 80%
- Created an app pitch presentation for the company to acquire publishing access on Facebook's Oculus platform

SKILLS & INTERESTS

Languages: Native in Mandarin, fluent in English, conversational proficiency in Cantonese
Programming Skills: Python, C, Java, HTML, CSS, Javascript, R, Swift, Ruby, React
Interests: Contemporary art, playing piano, singing, cooking