Enhao Zhang

zhang-eh.github.io ✉ enhaoz@cs.washington.edu ☎ (734)882-8895

Education

- **University of Washington** Seattle, WA
  Ph.D in Computer Science *Sept. 2020 – Present*
  - Advisor: Prof. **Magdalena Balazinska**
- **University of Michigan** Ann Arbor, MI
  Bachelor of Science Engineering in Computer Science *Sept. 2018 – Apr. 2020*
  - Overall GPA: 4.00/4.00
  - Advisors: Prof. **Nikola Banovic** and Prof. **Michael Cafarella**
- **Shanghai Jiao Tong University** Shanghai, China
  Bachelor of Science in Electrical and Computer Engineering *Sept. 2015 – Aug. 2020*
  - Overall GPA: 3.97/4.00 **(Ranking: 1st/202)**

Publications

- **VOCAL: Video Organization and Interactive AnaLytics (Vision Paper)**
  - Maureen Daum*, Enhao Zhang*, Dong He, Magdalena Balazinska, Brandon Haynes, Ranjay Krishna, Apryle Craig, Aaron Wirsing. In *12th Annual Conference on Innovative Data Systems Research (CIDR '22)*. January 10-13, 2022, Chaminade, USA. (* indicates equal contributions)
- **Method for Exploring Generative Adversarial Networks (GANs) via Automatically Generated Image Galleries**
  - Enhao Zhang, Nikola Banovic. In *CHI Conference on Human Factors in Computing Systems (CHI '21), May 8–13, 2021, Yokohama, Japan.* ACM, New York, NY, USA.

Honors and Awards

- **Cheng Family Scholarship**, Joint Institute, Shanghai Jiao Tong University, 2018
- **Overall GPA Ranking Top 1 out of 202 (☞ Link)**, Joint Institute, Shanghai Jiao Tong University, 2015 – 2017
- **Interdisciplinary Contest in Modeling**, Honorable Mention, 2017
- **Distinguished Academic Achievement Award (☞ Link)** (Academic performance in the top 2% of class), Joint Institute, Shanghai Jiao Tong University, 2016
- **Undergraduate National Scholarship** (Top 7 students in Joint Institute), Ministry of Education of People's Republic of China, 2016

Research Experience

- **VOCAL** Seattle, WA
  Advised by Professor Magdalena Balazinska *Sep. 2020 – Present*
  - Propose an interactive video analytics system to support compositional queries consisting of multiple spatially and temporally related objects.
  - The system automatically learns compositional query specifications from user feedback, while minimizing the user's labeling effort

- **GAN Explorer** Ann Arbor, MI
  Advised by Professor Nikola Banovic *Sep. 2019 – Sep. 2020*
  - Designed an interactive tool for Generative Adversarial Network (GAN) exploration, where users can assess capabilities and limitations of a GAN via interactive visual examination.
  - Used a Markov Chain Monte Carlo (MCMC) method for automated image gallery generation, which enabled quick creation of many diverse, photo-realistic image galleries to support qualitative evaluation of GANs.

- **Video Database Analytics System** Ann Arbor, MI
  Advised by Professor Michael Cafarella *May. 2019 – Jan. 2020*
  - Researched and optimized a video database system supporting binary content-based queries, by constructing CNN classifier cascades in replace of the complex user-supplied classifier and constructing a multiresolution video dataset from the original dataset.
  - Tested the database system on a dashcam dataset and achieved 5x speedup with 5% accuracy tradeoff.
  - Implemented a graphical user interface with Streamlit for the system.

- **Economic Product Price Prediction** Ann Arbor, MI
  Advised by Professor Michael Cafarella *May. 2019 – Jan. 2020*
  - Predicted prices of economic products, from highly imbalanced dataset, based on product descriptions that were not human interpretable and category names.
  - Preprocessed and cleaned data with inconsistent quality; explored different bin ranges for each category.
  - Built and fine-tuned a price predictor using LSTM for each category, with 82 categories in total.

- **Study of Personalized Active Learning** Ann Arbor, MI
  Advised by Professor Nikola Banovic *Jan. 2019 – Nov. 2019*
  - Investigated user-computer interaction in machine learning algorithms, where user provides training labels to machine-end and machine learning method realizes user personalization.
  - Designed and developed a query-based image retrieval system using active learning strategies with various functionalities, including extracting photos from user's social media account, querying images and updating alternate texts.

Project Experience

- **Substring-Searchable Symmetric Encryption** *Mar. 2019 – Apr. 2019*
  - Investigated a modern searchable encryption scheme used for databases by analyzing its security properties and potential security issues due to cryptographic implementations.
  - Simulated a client-and-server interaction where client queries a string and server returns the result using substring-searchable symmetric encryption scheme. (☞ Link)

- **Spherical Following Robot** (Patent: CN108297108A) *Nov. 2016 – Nov. 2017*
  - Proposed a spherical following robot equipped with multi-microphone annular array that realized sound source localization in a household environment, based on Time Difference of Arrival (TDOA) sound locating method. (☞ Link)

- **High-Speed Photography Assistant** *Jun. 2016 – Aug. 2016*
  - Proposed an affordable and multifunctional Arduino-based device to shoot high-speed photographs of water droplets. (☞ Link)
  - Led the team and won **Best Technology Award** out of 40 competing teams in the design expo.
  - Gave presentation at the 2016 JI Open Day as the only freshman team.

Professional Service

- **Current Undergrad students:** Lyons (Daoyi) Lu, Yichi Zhang
- **Past Undergrad students:** Brian Yao, Chongjiu Gao
- **Past High school student:** Anish Chaudhuri

Mentoring Experience

- **Reviewer** – CHI 2022, CSCW 2022

Tutoring Experience

- **Grader for EECS 370** – *Intro. to Computer Organization*, UM *Winter 2019*
- **TA for VY200** – *Academic Writing II*, instructed by Cynthia Vagenitti, SJTU *Spring 2017*
- **TA for VY100** – *Academic Writing I*, instructed by Cynthia Vagenitti, SJTU *Fall 2016*

Skills

- **Language:** Mandarin (Native), English (TOEFL iBT: R29+L27+S24+W28, GRE: V163+Q167+AW4)
- **Computer:** Python, C/C++, SQL, HTML, JavaScript, MATLAB