Shuning Jiang

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Seeking entry-level software engineer position. Skilled with hands-on experience in visualization, data analysis, deep learning, and full-stack development demonstrated through diverse research projects.

Education

- **The Ohio State University, Computer Science and Engineering** *08/2019 - current*
  - Cumulative GPA: 3.52
  - Research Assistant: Interactive Visual Computing Lab
- **B.S., University of Electronic Science and Technology of China, Software Engineering** *09/2015 - 07/2019*
  - Thesis: Automatic Vehicle Detection and License Plate Recognition System

Selected Research Projects

- **Pathologists' gaze analysis** | *JavaScript, OpenSeadragon, Python, PyTorch* *09/2022 – current*
  - Engineered a toolkit for tumor annotations while simultaneously tracking pathologists' eye movements. Visualized pathologists' eye gaze data and analyzed the gaze pattern. Removed noisy data based on pattern analysis.
  - Designed an algorithm that extracts pseudo ground truths from gaze data and demonstrated the feasibility of training neural networks using pseudo ground truth alone while maintaining comparable accuracy.
- **Quantifying image complexity** | *JavaScript, Node.js, PHP, MySQL, Nginx, Python* *06/2023 – current*
  - Built a full-stack online experiment platform using jsPsych and MySQL. Used Nginx for load balancing to support tens of thousands of concurrent requests and easily scale up.
  - Calculated images' complexity scores using TrueSkill algorithm. Categorized the factors that make images complex such as shape/color diversity and clutters.
- **Brain imaging annotation toolkit** | *C++, Qt, OpenGL, OpenVR* *08/2019 – 02/2023*
  - Developed a toolkit on top of Vaa3D for evaluating participants' annotation speed and pattern in virtual reality or desktop environments.
  - Compared accuracy in both environments and found that annotation in VR environment is 12.9% more accurate.
- **Similarity-based pathology image retrieval** | *Python, TensorFlow, OpenSeadragon, D3.js* *08/2020 – 09/2021*
  - Benchmarked multiple image feature extraction algorithms and retrieved similar images in the database.
  - Developed a web application enabling users to select custom areas of whole-slide images and receive recommendations of similar images.
- **Online vape shop scraping** | *Python, BeautifulSoup, Selenium, PyTorch, spaCy* *02/2021 – current*
  - Scraped online vape products using various tools and techniques, such as Selenium for structured HTML content, YOLO and OCR for images, and spaCy and LLM for unstructured textual information.
  - Identified 134 new terms and phrases of flavor descriptions using spaCy and LLM.
- **Graphical perception with CNNs** | *Python, Keras* *08/2019 – 02/2023*
  - Evaluated convolutional neural networks' performance on graphical perception tasks and fairly compared it to human performance. Quantified the effect of data sampling on CNNs' accuracy.
  - Revealed that CNNs have no human-like chart preference, cannot extrapolate, and are not robust to short bars.
- **Automatic vehicles detection and recognition system** | *Python, OpenCV, Keras* *01/2019 – 04/2019*
  - Implemented a system utilizing convolutional neural networks to automatically detecting and re-identifying vehicles based on license plate, vehicle model, and color.

Skills

- **Programming Languages:** Python, C/C++, JavaScript, HTML/CSS, Java, R
- **Framework/Libraries:** TensorFlow, Keras, PyTorch, OpenCV, Qt, OpenGL
- **Tools:** Git, Linux, MySQL, Nginx, Selenium, Unity