HeYang Yuan

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EDUCATION

York University   **2019-2024**
Honour Bachelor of Computer Science

- Relevant Coursework: Machine Learning and Pattern Recognition, Data Mining,Design and Analysis of Algorithms, Database Systems, Data Structures, Computer Organization, Advanced OOP, etc.
- 2024 Winter: Member of Dean's Honour Roll

TECHNICAL SKILLS

Programming Languages: Python, C, Java, Django, JavaScript, C++, Typescript, Ruby
Database & Frameworks: MySQL, Django, MongoDB, jQuery, SQL, Pytorch, Tensorflow
Web Development: HTML, CSS, JavaScript, Node.js, Wordpress
Tools & Technologies: Git, GitHub, Agile, Visual Studio, Blazepose, Mediapipe

WORK EXPERIENCE

Undergraduate Researcher (Full-Time Contract)   **Sept - Dec 2023**

Technologies involved: Python, Blazepose, Mediapipe, Pytorch, Tensorflow, MySQL, CSV, Numpy, Bert, LSTM, GRU

- Collaborated with graduate, PhD and under supervision of a world top 2% researcher to develop an innovative translation model that converted Japanese text into Sign Language (JSL) videos without gloss annotations, facilitated easy extensions.
- Delivered a functional prototype within project deadlines, earning recognition as the only team to achieve a working solution.

PROJECTS/PROFESSIONAL EXPERIENCE

Research Project: Japanese Text into Sign Language Videos Translator

Technologies involved: Python, Blazepose, Mediapipe, Pytorch, Tensorflow, MySQL, CSV, Numpy, Bert, LSTM, GRU

- Collaborated with graduate and PhD students to develop an innovative translation model that converted Japanese text into Sign Language (JSL) videos without gloss annotations, facilitated easy extensions.
- Extracted and processed data using OpenCV and Sbert, achieving over 90% accuracy in capture the key gestures by applying linear and median interpolation to handle missing frame tracking points.
- Improved accuracy by 14% by optimizing the LSTM model and data preprocessing instead of GRU model. Reduced rendering time by 73% through the use of BlazePose and MediaPipe for efficient pose detection.
- Successfully delivered a fully functional solution coordinating efforts across diverse technical.

Sentiment Classification of Yelp Reviews

Technologies involved: Python, BoW, Text Embedding, Bert, Pytorch, Tensorflow

- Analyzed over 120k Yelp reviews to predict whether user feedback was positive, neutral, or negative based on comments, addressing challenges in natural language processing and sentiment analysis.
- Used RTX2070s to optimize the model training process by parallelizing operations and applying mixed-precision training in PyTorch, cutting training time by 80% and speeds up model iterations from 2 days to hours.
- Applied advanced NLP techniques, including TfidfVectorizer, Sentence Transformers, and Bert.
- Achieved over 85% accuracy for all classification models, delivering reliable, high-performance results for real-world applications and providing deeper insights into customer sentiment.

Automate Time Management Calendar

Technologies involved: Python, Google Calendar API, pygetwindow

- Provided users with a clear view of software usage trends, including active programs' duration and daily totals, enabling better time management and productivity analysis.
- Utilized the pygetwindow library to precisely capture the active window, addressing the challenge of program switching and background execution. Implemented a polling mechanism to track the start and end times of each application with second-level accuracy.