HeYang Yuan

Résumé

PERSONAL DETAILS

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EDUCATION

York University, Toronto, Canada 2019 - 2024

Honours Bachelor of Science – Computer Science

Main Coursework: Machine Learning and Pattern Recognition, Data Mining, Mathematics of Cryptography, Design and Analysis of Algorithms, Professional Practice in Computing, Database Systems, Fundamentals of Data Structures, Computer Organization, Advanced Object Oriented Programming, etc.

SKILLS/ STRENGTH

- **Programming Languages**: Python, C, Java, JavaScript
- **Tools & Libraries**: Pytorch, SQL, Matplotlib, Tensorflow
- **2D/3D Software:** Cinema 4D, Autodesk Maya, Unity
- **Other Software:** Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Adobe AfterEffects, Adobe Premiere Pro, Adobe Photoshop
- **Language**: English, Mandarin
- **Strength**:
  - ***Excellent Problem Solving Skills*** : Identify issues, analyze information, and implement effective solutions when group project is occurring unexpected error.
  - ***Quick Learner*** : Showing a strong aptitude for learning especially during JSL project since there is a very short time frame to learn the tools.
  - ***Highly motivated*** : Strong work ethic and high performance in various tasks and responsibilities, even during peak hours and demanding shifts.
  - ***Multitasking*** : Able to work multiple tasks simultaneously, ensuring high-quality results while maintaining efficiency, consistently submitting all work on time throughout the university studies.
  - ***Detail Oriented*** : Always to focus on the small but important details, also ensuring complete work in fast pace and high quality.
  - ***Time Management*** : Ensured all tasks were completed within project deadlines, consistently submitting all work on time throughout university studies, with no missed deadlines.
  - ***Good Team Collaboration*** : Effectively collaborated with diverse teams, including both students and professionals, in a multicultural research project.
  - ***Adaptability*** : Flexible in adjusting to changing requirements and environments, such as modifying the JSL project model based on instructor feedback.
  - ***Proven Analytical Skills*** : Evaluated time expenses, tool uses, and methods for the JSL project, summarize and developed a successful final solution.
  - ***Perseverance*** : Have two years of calligraphy practice and several years of drawing experience.

PROJECTS/ PROFESSIONAL EXPERIENCE

Graduate Research Project: Gloss-Free Transformation: Converting Japanese Text into Sign Language Videos Sept-Dec 2023

Instructor: Aijun An, Project by NHK(The Japan Broadcasting Corporation)

- **Design:** Develop a model to directly translate Japanese text into JSL videos without relying on gloss annotations, aimed at solving the real-world problem which the goal was to increasing accessibility and reducing human translator costs.
- **Roles:** Data Pre-processing, Data Post-processing, LSTM Model, Visualization
- **Implementation:** BlazePost and MediaPipe were used to extract vertex data from open-source videos. Develop and trained two models (**LSTM** and **GRU**) using **Python** for vertex classification and prediction. **OpenPose** and **MediaPipe** were used for animation generation, and **PyTorch** is used for GPU computation which boosting the efficiency by reducing 70% runtime compare to CPU computation. Integrated data mining and machine learning techniques to optimize model performance.
- **Testing & Deliverables:** Delivered unit tests for individual components, and end-to-end testing for final video generation. Successfully delivered a functional model ahead of schedule, conducted a social survey where non-expert users evaluated the project outcomes and provided ratings for the model's performance, becoming the only team that has results delivered before deadline.

Data Mining Project: Comparative Analysis of Sentiment Classification Approaches for Yelp Reviews: Bag of Words vs. Text Embedding Sept-Dec 2023

- **Design:** Planned a comparative analysis framework to evaluate **Bag of Words (BoW)** and **Text Embedding** models for sentiment reviews classification and prediction on a dataset of more than 120k Yelp reviews.
- **Roles**: Text Embedding and part of BoW, GPU model training for both
- **Implementation:** Mainly use **Python** to build both models. **PyTorch**, and **TensorFlow** are used for GPU computation. Each model has different methods such as **CountVectorizer** and **TfidfVectorizer** for **BoW** , **Sentence Transformers** and **Bert** for **Text Embedding**
- **Testing & Deliverables:** Conducted extensive unit and stream tests to evaluate model accuracy and performance based on different methods. Delivered detailed performance reports

Machine Learning Project: Course Recommendation Application Jan-Apr 2022

- **Design:** An application for a course recommendation, outlining the use of **decision tree algorithms** to analyze student preferences and past courses. Created deliverables detailing the data sources and flow.
- **Roles**: Dataset collection, Model training
- **Implementation:** Implemented using **Python** and **decision tree algorithms** to processing student enroll history and preferences to generate personalized recommendations. Developed a structured recommendation path for academic planning. Then use third party library **Sklearn** to visualize the output.
- **Testing & Deliverables:** Validated the system through unit tests and integration testing to ensure accurate course recommendations. Delivered a fully functional recommendation model, and visualized tree with documentation covering design, implementation, and testing results.