Chloe Tran

Murray, Utah, USA chloetran.cs@gmail.com Website GitHub Google Scholar

SKILLS

Skills — Python, R, ShellScript | Numpy, Pandas, Matplotlib, Seaborn, Seurat | ML/AI | Skikit Learn, PyTorch | React, Node.js, Vue js, Node js, Streamlit, , MATLAB | Linux, Slurm

WORK EXPERIENCE

Bioinformatics Data Analyst, *Huntsman Cancer Institute* 05/2024 – present | Salt Lake City, Utah

- **Computational Drug Discovery in Tumor Microenvironment Using scRNA-seq:**
  - Developed a semi-supervised framework to track resistance in tumor/immune cells from serial scRNA-seq data (pre-, on-, and post-treatment).
  - Used the iDEA algorithm and integrated DSigDB/DREIMT databases to predict drug candidates for tumor and immune cells.
  - Identified two promising therapies (CDC7/CDK9 and MELK inhibitors) and validated them in cell lines; also prioritized potential immunomodulators.
- **Full-Stack Web Development**: Developed a web application for visualizing and analyzing scRNA-seq data using React.js, Node.js, HDF5, Docker, and Linux, enabling efficient data exploration and insights.
- **Single-Cell Data Analysis**: Conducted statistical analysis of scRNA-seq data to identify significant gene expression differences across cell types and time points, leveraging two-way ANOVA for interactive term analysis.

Software Engineer, *Rakuten Mobile Inc* 04/2022 – 05/2023 | Tokyo, Japan

Designed and developed an **auto-monitoring dashboard** for real-time Linux server health management, particularly for 4G and 5G Radio Access Network (RAN) **data analysis**, to improve monitoring, enhance network performance, and facilitate informed decision-making. This includes:

- Designed an automated system to log in, collect health data, and capture resources, users, and connectivity every 4 hours.
- Analyzed and visualized data on a Streamlit dashboard.
- Summarized weekly KPIs for cluster status and connectivity, and identified anomalies for troubleshooting.

Research Assistant, *Hosei University* 04/2021 – 03/2022 | Tokyo, Japan

Developed computer vision-based **student engagement detection** in online classes.

- Performed face detection using MTCNN and emotion detection using Mini–Xception.
- Analyzed the final results and created a dashboard called MOEMO to visualized the result in more interactive way.
- Generated after-class report that report comprehensively details students' affective states, concentration, engagement, and intervention time for each student.

EDUCATION

Master of Science and Engineering, *Hosei University* 2019 – 2021 | Tokyo, Japan

GPA: 3.51/4.0

Thesis: Bi-directional intra prediction for compressive sensing images

Bachelor of Computer Science, 2014 – 2019 | Ho Chi Minh City, Vietnam

Vietnam National University of Information Technology

GPA: 3.20/4.0

Thesis: A Computer vision-based system to find people in surveillance camera network

PROJECTS

Kidney Pathology Image segmentation

Performing **kidney pathology image segmentation** to segment chronic kidney disease (CKD) glands in patch images by training and testing multiple baseline CNN models (UNet, Attention UNet, RegNet, DynUNet) and Transformer models (UNetR, Swin UNetR) using the MONAI (Medical Open Network for AI) network architecture. Evaluate the accuracy of network combinations (CNN and Transformer) against the baseline models.

Image Search In Context with Contrastive Language–Image Features

Developed a web-based noun learning system utilizing the **CLIP** (Contrastive Language–Image Pre-training) model for image recommendations, Azure speech to text, translation APIs for user voice input and translation, leveraging Streamlit for a user interface.

Surveillance network locates individuals using computer vision

Developed a real-time system that can search a person by their face/ attribute in multiple cameras. Collected and preprocessed the real data from the university surveillance cameras. Implemented face detection using **MTCNN**, and pedestrian detection using **YOLO,** face cluster by **K-mean**.

Chat conversation
Using pre-trained **Large Language Models** from Hugging Face API to create a chat conversation. The chat agent tokenizes the text input, generate the embedding output, then, decode the embedding vector to create the text output.

Encoder Enhancement For Compressive Sensing
Designed a new encoder method for compressive sensing images by exploring the Walsh Hadamard matrix structure, resulting in a **19%** reduction in file size and enhancing compression image quality.
Proposed a Triangle Quantization method for compression rate control that allows the system to adjust the image quality upon the internet bandwidth.

PUBLICATIONS

Bi-directional intra prediction-based measurement coding for compressive sensing images.
Thuy T. T. Tran, J. Peetakul, C. D. K. Pham, J. Zhou, IEEE 22nd International Workshop on Multimedia Signal Processing (MMSP) 2020

Frame Adaptive Rate Control Scheme for Video Compressive Sensing
Fuma Kimishima, Jian Yang, **Thuy T. T. Tran,** Jinjia Zhou, International Conference on Image Analysis and Processing (ICIAP) 2022

Students' Emotion extraction and visualization for engagement detection in online learning
Mohammad Nehal Hasnine, Huyen T. T. Bui, **Thuy T. T. Tran**, Ho Tan Nguyen, Gökhan Akçapınar, Hiroshi Ueda, 25th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems (KES) 2021

Briefing and Geo-visualizing on International Practices of Learning Analytics in Higher Education
Hiroshi Ueda, Ho Tan Nguyen, Huyen T. T. Bui, **Thuy T. T. Tran**, Hisashi Hatakeyama, Mohammad Nehal Hasnine, The 21st IEEE International Conference on Advanced Learning Technologies (ICALT) 2021

Can Sakai Log Data Improve Learning Analytics? Findings from a Preliminary Survey
Mohammad Nehal Hasnine, Ho Tan Nguyen, Huyen T. T. Bui, **Thuy T. T. Tran**, Hisashi Hatakeyama, Hiroshi Ueda, 33rd Education and Learning Support Information System Research Presentation, 2021

A Real-Time Learning Analytics Dashboard for Automatic Detection of Online Learners' Affective States
MN Hasnine, HT Nguyen, **Thuy T. T. Tran**, HTT Bui, G Akçapınar, Hiroshi Ueda, Sensors 23 (9), 2023

Exploring the Use of CLIP Model for Images Recommendation in Noun Memorization using Various Learning Context
MN Hasnine, **Thuy T. T. Tran**, Hiroshi Ueda, Bulletin of Research Center for Computing and Multimedia Studies, Hosei University, 2023

CERTIFICATES

Google Data Analytics Certificate — 07/2021 (Coursera course) • **The Machine Learning Pipline on AWS** — 12/2021 • **Practical Data Science with Amazon SageMaker** — 12/2021

SCHOLARSHIP AND HONORS

07/2020
The 100th Year Anniversary Scholarship, *Hosei University*

10/2019
Japan Student Services Organization (JASSO) Scholarship, *JASSO*

09/2019
Daddy Longlegs Scholarship, *Hosei University*

03/2016 – 09/2019
Scholarship for high performance student, *University of Information Technology*