Chengharv Pen

+1 514-513-0099 | chengharvp@gmail.com | linkedin.com/in/chengharv-pen | chengharv-pen.github.io

EDUCATION

Concordia University — Montreal, QC
Bachelor of Science in Computer Science — *Sept. 2023 – Present*
- Relevant Courses: Machine Learning, Deep Learning, Big Data Analytics, Computer Networks
- GPA: 3.48/4.30

PROJECTS

Brain-to-Text CNN–Transformer | *Python, PyTorch, Scikit-learn, Docker, GCP, Matplotlib, Seaborn*
- Designed and implemented multiple CNN–Transformer architectures to replace a baseline RNN for neural-signal to phoneme transcription, improving feature extraction and long-range sequence modeling.
- Integrated the new models directly into an existing research codebase, restructuring data pipelines, training loops, and evaluation interfaces for compatibility and reproducibility.
- Built a reproducible Docker environment and mirrored the configuration on GCP VM instances, ensuring consistent execution across local and cloud systems.

50-Object Classifier | *Python, PyTorch, Scikit-learn, NumPy, Pandas, Matplotlib, Seaborn*
- Engineered a 3-layer MLP architecture using Xavier initialization, Batch Normalization, Dropout, and GELU activations to stabilize training and improve generalization.
- Built a full training pipeline without high-level frameworks, using Cross-Entropy loss with label smoothing, gradient clipping, K-Fold validation, random search, and metric tracking.
- Analyzed learning curves, confusion matrices, and misclassified samples to guide architecture refinements and diagnose generalization gaps.

Recommender System | *Python, Scikit-learn, NumPy, Pandas, Matplotlib, Seaborn*
- Developed a product recommender using cosine similarity on a user-user matrix to generate personalized top-N suggestions.
- Applied the Apriori algorithm to discover frequent itemsets and derive actionable association rules to support product bundling strategies.
- Performed user segmentation with K-Means clustering to uncover behavioral groups and improve recommendation personalization.

Social Network Website | *HTML, CSS, JavaScript, PHP, MySQL, Git*
- Developed a full-featured social networking platform with user profiles, posts, chat messaging, friend relationships, and group functionality.
- Designed and optimized database schemas to ensure fast, real-time data retrieval across dynamic features.
- Implemented Role-Based Access Control (RBAC) to securely manage permissions for admins and standard users.

EXPERIENCE

Crew Member — June 2023 – Jan 2024
McDonald's — *Saint-Eustache, QC*
- Worked in a fast-paced, high-pressure environment requiring multitasking and strict time constraints.
- Collaborated within a team to adapt quickly to changing priorities and workload demands.
- Followed standardized procedures while maintaining attention to detail and safety compliance.

TECHNICAL SKILLS

Languages: Python, Java, SQL (Postgres/MySQL), C/C++, JavaScript, TypeScript, PHP, HTML/CSS
Libraries: PyTorch, Scikit-learn, OpenCV, Pandas, NumPy, Matplotlib, Seaborn
Web Frameworks: React, Angular, Express, Spring Boot
Developer Tools: Git, Docker, GCP (Compute Engine), Postman, Maven, VS Code, JetBrains IDE