Mohamed Essam Fayed

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Website

Linked In   Github

EXPERIENCE

- **Applied Innovation Center (AIC)**   Alexandria
  NLP Assistant R&D Engineer   *Jan 2021 - Now*
  Worked on various NLP tasks to produce high quality models, such as:

  - Instruction Fine-tuned LLMs on Arabic for Document Level Machine Translation and Chat applications.
  - Developed expertise in currently available LLM inference frameworks (Ollama & vLLM) and optimizations (e.g. LoRA & MeZO), and LLM benchmarking tools for multilingual and multimodal settings (e.g. LM-eval-harness & LMMS-eval).
  - Worked on Machine Translation project to build multilingual model with focus on low resource Egyptian Colloquial Arabic using fairseq.
  - Exposed to other NLP tasks to serve the main problems such as indexed data to Elasticsearch for LLM applications and trained Arabic Sentence Punctuation/Tokenization model as a preprocessing step in cleaning Arabic monolingual datasets using Huggingface Transformers.
  - Mentored new comers and interns.

EDUCATION

- **College of Computing, Georgia Institute of Technology**   Online
  Masters of Science Computer Science; GPA: 3.5   *Spring 2023 – Fall 2025 (expected)*

- **Faculty Of Engineering, Alexandria University**   Alexandria, Egypt
  Bachelor Of Science In Computer And Communication Engineering; GPA: 3.44   *Graduated at Spring 2020*

PROJECTS

- **Neural Machine translation**:   The aim of this project is to develop high quality machine translation system for low resource Egyptian Colloquial Arabic.

  - Automated and participated in building highly parallelizable data pipeline including data gathering, cleaning and preprocessing, and automated a lot of repeated tasks including model evaluation, and scores calculations using either Shell Scripts or Python Scripts with libraries such as Pandas in SLURM environment.
  - Investigated the usage of pre-trained models and LLMs in low resource MT.
  - Implemented transformers variations and made some edits in different components in internal version of fairseq framework.
  - Mastered the skill of planning tasks and setting priorities to experiments to transfer research to production and to balance between both goals.

- **TerminalNB**:

  - Designed and Programmed this project to be a terminal alternative to Jupyter Notebook for the blind users since the edit boxes there were not accessible.
  - Runs within iPython sessions on terminal.

ACHIEVEMENTS

- **CITI Training**: This is the PDF for certificate of completion of Group 2 Social / Behavioral Research Investigators and Key Personnel. You can also verify the certificate here.   Sep 2023
- **NVAccess**: NVDA Expert Certification   July 2023
- **LinkedIn**: For full list of certificates related to accessibility, Data Science and Soft Skills, please check "License and Certification" section of my linkedin profile.

PROGRAMMING SKILLS

- **Languages**: Python 3, Shell Scripting, LaTeX, C/C++, R, Ruby, Swift, SQL, Java

- **Frameworks**: pytorch, fairseq, hugging face transformers, ollama, vllm, lm-eval-harness, Elasticsearch, numpy, pandas, regex

- **Technologies**: Docker, Kubernetes, SLURM, Google Cloud Platform, Microsoft Azure, Screen Readers (NVDA & VoiceOver), Vim & Neovim, Jupyter Notebook & Google Colab