Guillermo Rivera Alfaro

📞 +82 10-3363-9805 ✉ guillermo.rivera.1e@gmail.com ⊙ github.com/guialfaro053

Education

Daewoong AI and Big Data Academy | Yongin, South Korea   **April 2022 – May 2022**
- Graduate-level course on artificial intelligence and data science, covering data analysis, image classification, and natural language processing.
- Extensive study of Pandas for data analysis and Matplotlib for visualization.

Korea University | Seoul, South Korea   **March 2019 – February 2023**
- BSc in Electrical Engineering, graduated with Great Honors (GPA 4.06 / 4.5).
- Title of graduation research project: "Your wish is my (Python) command: Text-to-code generation with FLAN". Obtained a maximum BLEU score of 33.39 on the CoNaLa dataset using FLAN-T5 base model.
- Relevant coursework: Signals and Systems, Probability and Stochastic Processes, Pattern Recognition, Computer Vision, Internet Programming, and Engineering Design.
- 4 Academic Excellence Awards.

Sun Moon University | Cheonan, South Korea   **March 2018 – February 2019**
- Intensive Korean Language Course.
- 2 Academic Excellence Awards.

Research and Work Experience

Ewha Womans University | Seoul, South Korea   **April 2023 and October 2023**
Research Project Mentor
- Mentored a team of senior computer science students on the development of a customized AI chatbot and community app designed to provide essential information for international students at Ewha Womans University.

BEN (acquired Deep Machine Lab, May 2023) | Seoul, South Korea   **August 2022 – Present**
Head NLP Engineer
- Participated in the deployment team, researching Transformer-based models to develop open-domain and task-oriented dialogue systems using deep learning. This was aimed at building commercial chatbots.
- Fine-tuned large language models, including LLaMA-2, RedPajama, OpenLLaMa, T5, BERT, and RoBERTa, for various natural language processing applications such as summarization, machine translation, named entity recognition, and sentiment analysis.
- Utilized Large Language Models (LLM) like LLaMA-2, Falcon, and Mistral to generate synthetic datasets for training smaller ($< 3B$) language models.
- Developed Dockerfile scripts for containerizing LLMs, ensuring compatibility with both GPU and non-GPU setups, and subsequently deployed them on GCP and AWS.
- Converted both encoder-only and encoder-decoder models to ONNX and FasterTransformer, and leveraged open-source like PyTorch, Triton, and Apache TVM to improve model's inference up to 4 times faster.
- Project demos: Led the development of [**BEN demos**], showcasing the capabilities of our advanced chatbot solutions in real-world scenarios.

Daewoong Pharmaceutical | Seoul, South Korea   **April 2022 – February 2023**
Big Data Analyst Intern
- Built web crawlers using Selenium and Beautiful Soup to scrape from online marketplaces and internal Daewoong websites, and performed sentiment analysis on the collected text using RNN and Transformer-based models.
- Conducted research into the development of chatbots using Neural network-based word embedding in Korean language and semantic similarity, with the aim of expanding this approach to other languages.

Intelligent Signal Processing Lab at Korea University | Seoul, South Korea   **July 2021 – July 2022**
Lab Intern
- Studied the fundamentals of machine learning for computer vision and natural language processing.
- Completed deep learning projects involving text classification, image segmentation, and the use of Generative Adversarial Networks for generating faces using PyTorch and TensorFlow / Keras.

Skills

Programming Languages: Python, C++, MATLAB, HTML/CSS, JavaScript, PHP
Developer Tools: VS Code, PyCharm, Git, FastAPI, Celery, Docker, Jira, RASA, Dialogflow ES, Dialogflow CX, Redis
AI Backends and APIs: PyTorch, TensorFlow / Keras, Hugging Face Transformers library, ONNX, Triton, Apache TVM
Infrastructure: Google Cloud Platform, Amazon Web Services, MongoDB, PostgreSQL
Languages: Spanish (Native), English (Near-native), Korean (Advanced)

Awards and Achievements

Daewoong Big Data Scholarship: Selected among foreigner data scientists in Korea to participate in big data projects sponsored by Daewoong Pharmaceutical from April 2022 to March 2023.
Korean Government Scholarship Program (KGSP): 2018 Salvadoran recipient of the KGSP scholarship by the Korean Government granting full tuition and a monthly stipend.
Physics Olympiads: Silver medal at the 20th Ibero-American Physics Olympiad in 2015. Bronze Medal at the 2nd Latin American University Physics Olympiad in 2016 and honorable mention at the same competition the following year.
Test of English as a Foreign Language: TOEFL 111 / 120
Test of Proficiency in Korean: TOPIK Level 5: 213 / 300

Extracurricular

Resident Assistant   **August 2019 − August 2022**
Korea University Dormitory

- I advised and helped residents of the foreigner dormitories in diverse activities, including translation and adapting to life in Korea.

KUISA   **Year 2019 and Year 2022**
Korea University

- Korea University International Student Assistant is a program for foreign students for networking and consists of clubs ranging from sports and dance to language exchange. I played as a midfielder on the soccer team and played guitar in the band club, I also was a member of the Spanish-Korean language exchange group.