BILAL HAMEED

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EXPERIENCE

- **MTBC CareCloud Inc.** — Islamabad Pakistan
Jr. Data Scientist (Full-time) — *Feb 2022 - Present*

PROJECTS

- **Chart Review Bot**: Designed & Developed Chart Review Bot - A Patient Charts Auditing System, which reads through the patient appointment reports and assigns scores to component like (HPI, PLOF, Patient baseline-status etc) using natural language processing. (Bio-BERT V1.1, RASA, Pytorch Spacy, NLTK, Fitz, Python Flask-backend).   foxauditbot.com

  * **Chart-Review Bot Document Parser API**: Designed & Developed a generic Data Extraction end-to-end pipeline, for Chart-review bot using complex (Plain + Tabular) Patient PDF document Charts. (PyMuPDF, Fitz, NLTK, Spacy, OOP, Python-stack).   GitHub

  * **Delay Reason Extraction Model**: Developed Delay Reason Extraction Model, which analyze the document and extracts the reason for Patient delay in Appointment (BERT, Tensorflow, HuggingFace Trainer API).   GitHub

  * **Patient Most Recent Treatments Similarity Measuring**: Use Sentence Transformers to fine-tune a pre-train model BioBert on a downstream task. This model analyze the document containing information about a patient's most recent treatments and measure the similarity in between them. Use encode function to obtain sentence embeddings, followed by computing similarity scores using the Cosine Similarity method. (SentenceTransformer, DNN, BioBert, Cosine Similarity, Encode)).   GitHub

  * **Brief Reviews Of Gain Prediction Model**: The Gain Extraction Model analyzes Patient Discharge Summaries and predicts the progress of a patient's health. Gain Extraction Model can determine whether a patient has made any improvements in their health and if they have met their goals. This model offers an efficient and effective way to track a patient's progress and ensure that they are receiving the best possible care. (BERT, Tensorflow, HuggingFace Trainer API).   GitHub

- **Headstart School Rosetta Stone English Learning**: The Headstart School Rosetta Stone English Learning platform has been developed to provide children with an interactive and engaging way to learn English. The platform features speaking, pronunciation, question answering, vocabulary, and grammar learning modules. The Automatic Speech Recognition (ASR) component of the platform has been implemented using OpenAI's Whisper Large Model, while the REST APIs have been developed using the Django REST Framework. Additionally, the platform utilizes the fuzzywuzzy library for text similarity and is programmed in Python (Whisper, Django, fuzzywuzzy, Python).

- **Virtual Front Desk**: Developed a virtual front desk chatbot using Rasa, designed specifically for medical reception services. The chatbot is voice-based and is capable of performing a variety of tasks, such as scheduling new appointments, rescheduling existing appointments, cancelling appointments, handling prescription refill requests, processing report result requests, and fulfilling requests for report copies. The chatbot includes both urgent and normal request handling capabilities. To enhance accuracy and performance, we have incorporated the Whisper model for automatic speech recognition (ASR). Additionally, we have used Django for developing a robust REST API. (Whisper ASR, Django REST Framework, RASA, Python).

- **Urdu to Eng Machine Translation**: Developed a machine translation model for Urdu to English by fine-tuning a pre-trained model using the Hugging Face Trainer API. This model is based on the Sequence-to-Sequence architecture and incorporates an encoder-decoder framework. Additionally, we have used the Hugging Face pipeline for easy integration of the model into various applications. (Seq2Seq, Encoder Decoder, Huggingface Pipeline).   GitHub

- **News Classification Model**: We have developed a news classification model by fine-tuning pre-trained models, GPT-2 and BERT-base-cased. This model was trained to classify news articles based on their content, using techniques such as transfer learning and fine-tuning to improve its accuracy. The GPT-2 and BERT-base-cased models were chosen for their effectiveness in natural language processing tasks, making them ideal for this particular application. (NLP, GPT2, TensorFlow, PyTorch, BERT, HuggingFace Trainer API).   GitHub-BERT-base-cased   GitHub-GPT2

- **ConstRoot Systems Inc.** — Islamabad Pakistan
Web Developer (Full-time) — *Sep 2021 - Feb 2022*

PROJECTS

- **ConstRoot**: Developed a construction management solution tailored for general contractors, built on a robust tech stack comprising Php Laravel, MySql, JQuery, HTML, and CSS. This solution offers a comprehensive set of features to help contractors effectively manage and oversee their projects, including project planning and scheduling, resource management, budget tracking, and communication management. With its user-friendly interface and reliable technology stack, this solution offers a seamless and efficient construction management experience for contractors.   constroot.com

- **ADMK Sokutions.** — Islamabad Pakistan
Web Developer (Full-time) — *Sep 2020 - Aug 2021*

PROJECTS

- **NWSFD**: We have designed and developed a news website bot, built using Php CodeIgniter, MySql, JQuery, HTML, and CSS. This bot offers a range of features, including the ability to read email bodies from an open webmail/gmail account using IMAP, and create a list of news links from unseen emails. To optimize this process, we have implemented a job scheduling feature. The bot then visits each news link recursively, fetching title, description, and images, and stores the data in a database. Finally, the collected news data is displayed on the front-end of the website, providing users with up-to-date news in a seamless and user-friendly format.   nwsfd.com   GitHub

- **Schools Management System**: We have designed and developed a comprehensive school management system for our KSA client, utilizing state-of-the-art technologies, such as Php Laravel, MySql, JQuery, HTML, and CSS. This system provides a robust set of features, including block management, branch management, class management, grade management, issue management, report management, school management, student management, teacher management, and a super admin section. With its intuitive interface and reliable technology stack, this school management system offers a seamless and efficient experience for managing various aspects of school operations.   GitHub

- **Newface**: We have designed and developed a web-based job portal using the latest technologies, including Php CodeIgniter, MySql, JQuery, HTML, and CSS. This job portal provides a comprehensive platform for job seekers to search for and apply to job opportunities, as well as for employers to post job listings and manage the recruitment process. With its user-friendly interface and robust technology stack, this job portal offers a seamless and efficient experience for both job seekers and employers.   newface.mk   GitHub

SKILLS SUMMARY

- **Deep Learning and NLP**: PyTorch, TensorFlow, Keras, CNN, RNN, LSTM, GRU, Transformers, BERT, Spacy, Gensim.
- **Machine Learning**: Classification, Regression, Clustering, PCA, Ensemble methods (Bagging, Boosting etc).
- **Languages**: Python, PHP, C++, JavaScript, SQL, Bash, JAVA.
- **Frameworks**: Django, Flask, Scikit, NLTK, SpaCy, Sentence-Transformers, TensorFlow, Keras, Laravel, Java Swing, Java Fx.
- **Tools/IDEs**: Vim, VSCode, Jupyter Notebook, GIT, PostgreSQL, MySQL, SQLite
- **Version Control**: Git, Jira, Azure
- **OS**: Linux, Ubuntu, Windows.
- **Front-end Technologies**: HTML, CSS, Jquery.

SPECIALIZATION / CERTIFICATION

- **IBM Data Science Professional Certificate**:   July 2021 - Sep 2021   View Certification
- **AWS Fundamentals Specialization**:   Sep 2022 - Jan 2023   View Certification

EDUCATION

- **BS Computer Science (International Islamic University Islamabad)**   GPA: 3.59
  August 2016 - August 2020