Ikhlas Attarwala
Machine Learning Engineer

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OBJECTIVE

- Applied ML Engineer with a background in Cognitive Sciences & Statistics. Passionate about building successful predictive models by applying machine learning techniques to solve real-world business challenges.

TECHNICAL SKILLS

- Experienced with: Python, Azure DevOps, Git, MATLAB, R, Scheme, SQL, HTML, CSS, JavaScript, Tableau, PDDL
- Py Packages: NumPy, Pandas, Scikit-learn, TensorFlow, PyTorch, Keras, OpenCV, NLTK, Matplotlib, Jupyter, OpenAI Gym

EDUCATION

- M.S. in <u>Artificial Intelligence</u> - Northwestern University, Dec. 2019 - **GPA: 3.7**
- B.S. in <u>Cognitive Psychology</u> - University of Illinois, May 2016 - Minor: Applied Statistics

COURSEWORK

Neural Network Architecture • Algorithms / Data Structures • Reinforcement Learning • Predictive Analytics
Classification / Regression • Clustering • Statistical Modeling • Graph Theory • HCI • Multilingual (5x)

PROJECTS   (* = Solo Projects)

Machine Learning / Deep Learning

1. **Facial Generation** to reduce wrongful convictions in eyewitness identification using variational autoencoders (VAEs). I showed the limitations of VAEs with regard to image fidelity by comparing it with results from NVIDIA's open-source ProGAN/StyleGAN.
2. Computational study of cultural effects on facial expressiveness in South Asians and Caucasians. I created datasets of 20 people from both racial groups portraying different emotions and found statistically significant bias in cross-cultural affect perception as well as **algorithmic bias** in **Facial Recognition** systems such as OpenFace when comparing facial action unit measurements.
3. * **Video Analysis** and object recognition of athletes for NU Football using Convolutional Neural Networks (CNNs). I classified player roles and team formations with NFL's Big Data Bowl dataset, and video stitched virtual maps from multiple cameras.
4. Used the ADNI database to create an **Alzheimer's diagnosis model**. I preprocessed the data for feature selection and tested different models to reveal the most helpful examinations based on disease severity, revealing about 80% accuracy in detection.
5. * Designing a new model for a multi-tiered **Cryptocurrency** and accompanying, decentralized **Blockchain** ledger.

Natural Language (NL)

6. * Built an instructional chess program that **generated narratives** by observing games and imitating eSports commentary.
7. * **Predicting stock behavior** by utilizing progressively-grown networks learning from media content analysis.
8. Compared emotion vs. allegation behavior in the Citizen's Police Data Project using SQL, Tableau, **time-series** and **sentiment analysis**, to observe for immoderate policing activity by individual officers in greater emotional situations.

WORK EXPERIENCE

Startup - <u>Founder / Software Engineer</u>   Oct. 2021 - Dec. 2021
- Set up infrastructure & all required tools for collaborative work using Azure DevOps; created various, prototypical mock-ups.

Nemat International, Inc. - <u>Software Engineer</u>   Feb. 2020 - current
- Building a **targeted advertising system** that employs geolocation and consumer psychographic data to recommend ads.
- Created t-SNE **clustering** visualization maps of ingredient properties in cuisines and fragrances to study compound similarity.
- **Refactored** years of existing, unorganized code in databases; proposed new project scopes w.r.t regulatory compliances.

Deloitte Ltd. - <u>Capstone (Engineering Co-op w/ Northwestern University)</u>   Sep. 2019 - Dec. 2019
- Curated public datasets on the U.S. Opioid Epidemic and through EDA, feature engineering and modeling feature importance, visualized and predicted key drivers of the growing crisis in a unified GUI dashboard with Tableau.

Northwestern University - <u>Graduate AI Researcher</u>   May 2019 - Aug. 2019
- Developed an NLG engine that produced instructional commentary for chess games. Useful strategies, traps and potential misplays were some of the features evaluated using **game theory** (minimax + α/β pruning).

INTERESTS

Stock Market Analysis • Intelligence Augmentation • AI & Law • Conversational Interfaces
Software Scalability • Scuba Diving • Behavioral Biometrics • Environmental Protection • Photography