Akchunya Chanchal

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EDUCATION

King's College London/Imperial College London   **Oct 2024 - Present**
PhD in Computer Science (Artificial Intelligence)
- Advisor: **Dr. Hana Chockler**
- Member of **UKRI Safe and Trusted AI (STAI) Center for Doctoral Training (CDT)**
- **EPSRC Causality in Healthcare AI (CHAI) Scholar**
- Research areas - **Causal Representation Learning, Causal Explainability**

King's College London   **Sept 2023 - Sept 2024**
MSc in Artificial Intelligence
- **Grade: 84%,** *Distinction*
- **Thesis** - *Explainability Mechanisms for Spectral Modality Applied to Oncology Raman Spectroscopy Datasets.*

American University of Sharjah   **Sept 2019 - May 2023**
BSc. in Computer Science
- **GPA: 3.58/4.0**; *Cum Laude; IEEE HKN Honor Society; Dean's List; Chancellor's List*
- Silver Medal, AUSxUOS Machine Learning Challenge

WORK EXPERIENCE

King's College London   **Sept 2023 - Present**
Researcher - Causal Explainability   *London, United Kingdom*
- Designed and built SpecReX, the first purpose-built XAI tool for the spectral modality
    - Presented at **SPEC 2024;** Initial version of tool invited and submitted to **The Analyst**
        - Name of Paper: Explainable AI for biomedical applications of Raman Spectroscopy: shining a light upon black-box models
    - Designed a novel explanation extraction algorithm and mutation methods tailored for the spectral modality that can extract single or multiple conjunctive or individual explanations
    - Exhaustively validated performance of tool on in-silico and ex-vivo datasets across 900 models.
- Designed and ran experiments to test viability of various XAI tools on Brain MRI datasets
    - Findings submitted to **Nature Portfolio**; Preprint: https://tinyurl.com/ywc3ted9
        - Name of Paper: Explainable AI for the classification of Brain MRIs

Kristal AI   **June 2022 – Sept 2022**
Internship, Machine Learning Engineer   *Singapore*
- Built automated pipelines for scraping, wrangling, and mining of monthly portfolios of 150+ mutual funds.
- Built forecasting models for the Indian technology sector.
    - Built and curated shareholding pattern datasets of mutual funds; Performed regression analysis to determine various correlations and build prediction models accordingly
    - Fine-tuned and validated various language models such GPT-2, FinBERT and XLNet across various documents such as quarterly earnings call transcripts, result reports, news headlines, blog posts etc. to gauge market sentiment

American University of Sharjah   **Jan 2022 – Aug 2023**
Researcher - Semi-Supervised Learning   *Sharjah, United Arab Emirates*
- Built audio-based Semi-Supervised Learning (SSL) schemes for real-time audio-classification.
    - Designed novel audio augmentation pipelines for generation of weak and strong augmentations.
    - Tailored towards use in classroom observation scenarios in foreign languages and for audio-based replay attacks on IoT devices.
        - Findings presented at **CELDA 2022**: **https://eric.ed.gov/?id=ED626900**
        - Name of Paper: Exploring Semi-Supervised Learning for Audio-Based Automated Classroom Observations
    - Examined separation dynamics and existence of law of equi-separation in SSL audio Transformers.

SKILLS & INTERESTS

- **Programming:**   **Fluency:** Python, C++, Java   **Familiarity:** Standard ML, Racket
- **Tools:** Git, LaTeX, Linux, Slurm, Scikit-Learn, PyTorch, Keras/TF, ONNX, Matplotlib, Pandas, Numpy.
- **Mathematics:** Mathematical topics for machine learning research and practice such as Analysis (Calculus), Linear Algebra, Probability and Statistics, Discrete Math, Numerical Methods and Coding Theory.
- **Communication:** English, Hindi.