Sayed Maqbool Ahmed Inamdar

Personal Details

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Education

University of Essex, Colchester, Essex, UK 2022 - 2023
M.Sc. Computer Games (CSEE) *Percentage: 64*
Relevant Modules: Game Artificial Intelligence, Physics Based Games, Machine Learning, Intelligent Systems and Robotics, Mobile and Social Application Programming, Game Design ...

Visvesvaraya Technological University, Belgaum, India 2017 - 2021
B.E. Computer Science and Engineering *First Class CGPA: 6.86*
Relevant Modules: Engineering Mathematics, Engineering Physics, Software Engineering, Machine Learning, Python Application Programming, Web Technology ...

Pre University Education, Karnataka, India 2017 - 2021
Certification, Government of Karnataka *First Class Percentage: 80*
Relevant Modules: Physics, Chemistry, Mathematics, Biology ...

Work Experience

IT Analyst — University of Essex, United Kingdom Oct 2023 - Present

- Efficiently diagnosed and resolved software and hardware problems for students and faculty, showcasing problem-solving skills essential in tech environments.
- Delivered clear, user-friendly training on university systems and software, highlighting my ability to explain complex technical concepts simply.
- Conducted regular system maintenance, ensuring optimal performance, reflecting my understanding of the importance of system reliability and efficiency.

Retail Sales Assistant- [Part-time] — Primark Colchester, United Kingdom July 2023 - Present

- Crafting engaging displays that speak to the latest trends and encourage customer purchases.
- Providing warm, knowledgeable customer service, ensuring a welcoming shopping environment.
- Managing stock with a keen eye for detail, keeping the store pristine and well-organized.

Activity Leader — St Andrew's College Language School, UoE, United Kingdom July 2023 - Aug 2023

- Successfully led and managed various activities during the summer school camp from St Andrew's College Language Schools at University of Essex.
- Successfully managed unexpected situations with flexibility and a proactive approach, ensuring a seamless experience for all involved.

9th Pixel Technologies India Pvt. Ltd., India Oct 2020 - Sep 2022

- **Involved in three projects as detailed below**:
  - **AI-Powered Adaptive Enemy AI for RPG Game (4 months)**:
    - Developed an AI-powered enemy system for an RPG game using reinforcement learning (RL) algorithms, including Q-learning and Deep Q-Networks (DQN).
    - Implemented dynamic adaptation techniques that allowed enemies to adjust their strategies based on player actions, enhancing game difficulty and player engagement.
    - Conducted extensive testing and optimization to ensure smooth integration with game mechanics, resulting in a robust and challenging AI system.

    - Utilized TensorFlow and Unity ML-Agents to train and deploy the enemy AI.
  - **Procedural Level Generation with AI for Platformer Game (12 months)**:
    - Designed and implemented an AI system for procedural level generation, ensuring levels were engaging and appropriately challenging.
    - Leveraged reinforcement learning techniques to enable the AI to learn and create levels that adapt to player skill levels and preferences.
    - Used TensorFlow and PyTorch to develop and train the AI models, integrating them seamlessly into the Unity game engine.
    - Conducted user testing and gathered feedback to continuously improve the quality and playability of generated levels.
  - **AI-Based Model Testing Automation (8 months)**:
    - Tested an AI-based automated system focused on identifying bugs, glitches, and performance issues across various machine learning models.
    - Evaluated the effectiveness and reliability of the AI testing system, ensuring it could accurately detect inconsistencies and areas for improvement in different models.
    - Collaborated with the development team to address identified issues, contributing to overall model robustness and reliability.
    - Documented testing processes and results, offering insights for refining the AI testing system and improving testing methodologies.
  - Utilized a range of software tools and languages, including Python, TensorFlow, PyTorch, OpenAI Gym, and Unity ML-Agents, to develop and optimize AI systems across all projects.
  - Regularly collaborated with a team of developers and participated in code reviews to ensure high-quality software development standards.
  - Received continuous feedback and mentorship from senior engineers, which honed problem-solving skills and software design techniques, contributing to successful project outcomes.

Software Developer Intern — Sirintel Technologies Pvt Ltd, India Sep 2020 - Sep 2020

  - Underwent an intensive month-long training program, delving deep into Python and its applications in Machine Learning.
  - Led a training mini-project on text extraction from images, utilizing Optical Character Recognition (OCR) algorithms in Python. Achieved text extraction with over 90
  - Familiarized with key Machine Learning libraries and tools.
  - Engaged in group discussions, code reviews, and feedback sessions, enhancing collaborative skills and understanding of best practices.

Mathematics and Physics Teacher — Government Polytechnic College · Part-time, India Sep 2019 - July 2020

  - Taught Engineering Physics and Mathematics to diploma students in English.
  - Temporarily replaced the current teacher due to medical reasons.

Professional Projects

C++ Game Engine (In Progress)

  - Currently developing a game engine from scratch.
  - Utilizing SFML and C++ for development.
  - aim is to provide features like physics, collision detection, audio systems, UI, and more..

Eye Gaze Estimation: Advanced Eye Gaze Estimation Using Machine Learning

  - Developed an algorithm to estimate eye gaze direction using machine learning techniques.
  - Implemented various data preprocessing steps to pair images with corresponding gaze vectors.
  - Utilized scikit-learn for data splitting into training, validation, and test sets.
  - Created and trained models using advanced Recurrent Neural Networks (RNNs) to predict eye positions and gaze directions accurately.

Eye Tracking Enhancement with RNNs

  - Enhanced existing eye-tracking algorithms by integrating Recurrent Neural Network technology.
  - Designed and executed robust data splitting for effective training and validation.
  - Developed a data generator for managing image sequences, optimizing the machine learning workflow.

– Calculated and monitored steps per epoch to improve model training efficiency and performance.

Neural Network Agent for TORCS

– Crafted a neural network agent for The Open Racing Car Simulator (TORCS) as a Master's dissertation project.
– Implemented using the Gym toolkit for developing and comparing reinforcement learning algorithms.

Advanced Facial Recognition Using Deep Learning

– Developed a sophisticated facial recognition system using deep convolutional neural networks (CNNs).
– Implemented multiple layers including convolutional layers, max pooling, dropout, and batch normalization to enhance model performance and prevent overfitting.
– Employed ReLU activation functions, and softmax for multi-class classification across various facial expressions.
– Compiled the model using the Adam optimizer and sparse categorical crossentropy loss function, focusing on improving accuracy metrics.

Real-Time Facial Expression Recognition

– Focused on identifying key facial expressions using deep learning to classify emotions such as anger, disgust, fear, happiness, sadness, surprise, and neutrality.
– Visualized training and validation loss, improving strategies for better generalization on unseen data.
– Generated a confusion matrix and classification reports to analyze model's performance and accuracy.
– Created visual representations of the model predictions to validate accuracy and reliability in real-time scenarios.

Handwritten Mathematical Symbols Recognition Using CNN

– Developed a machine learning model capable of recognizing and interpreting handwritten mathematical symbols using Convolutional Neural Networks (CNNs).
– Processed images for model training by resizing to a uniform size, converting to grayscale, and enhancing image quality for better model performance.
– Implemented model training and validation using a split dataset approach to ensure robustness and accuracy.
– Utilized Python libraries such as NumPy for data manipulation, TensorFlow/Keras for model building, and Matplotlib for visualizing model predictions and performance.
– Designed and deployed a predictive interface that allows for real-time recognition and interpretation of handwritten math symbols from images.

Employee Attrition Prediction Using HR Analytics

– Engineered a predictive model to analyze employee attrition based on HR data, using Python's data manipulation and visualization libraries.
– Preprocessed data through normalization, scaling, and encoding techniques to prepare for effective model training.
– Employed a RandomForestClassifier to identify key factors contributing to employee turnover and predict future attrition.
– Visualized data trends and patterns regarding attrition concerning age, marital status, and business travel, providing actionable insights to HR.
– Applied machine learning techniques to forecast potential employee departures, supporting proactive retention strategies.

Advanced Stock Price Forecasting with LSTM Networks

– Developed a predictive model to forecast stock prices using Long Short-Term Memory (LSTM) networks, leveraging time series analysis techniques.
– Preprocessed and normalized financial data to fit the requirements of the LSTM model, enhancing prediction accuracy.
– Implemented and trained the LSTM model to predict future stock prices based on historical data, focusing on minimizing mean absolute error (MAE).

- Utilized Python libraries such as Pandas for data manipulation, Keras for LSTM network implementation, and Matplotlib for visualization of stock trends and prediction results.
- Evaluated model performance with historical test data, adjusting parameters to optimize predictions.

Advanced Vehicle Detection with CNNs

- Developed a deep learning model using Convolutional Neural Networks (CNNs) to detect vehicles in images, aimed at enhancing autonomous driving systems, traffic monitoring, and security surveillance.
- Preprocessed image data by resizing images to uniform dimensions (64x64 pixels) to ensure consistency across the dataset for both vehicle and non-vehicle classes.
- Designed and implemented a CNN architecture consisting of multiple convolutional layers, a flattening layer, and dense layers using Keras to effectively learn vehicle features from raw images.
- Evaluated the model on test data, visualizing its predictions and analyzing performance through accuracy metrics and a confusion matrix.
- Utilized Python libraries such as TensorFlow/Keras for model construction, NumPy for data manipulation, and Matplotlib for visualizing prediction outcomes.

Machine Learning Model for Wildfire Detection from Satellite Imagery

- Developed a machine learning model to predict wildfires from satellite imagery using convolutional neural networks (CNNs), enhancing early detection and response capabilities.
- Processed and prepared a dataset by downloading and unpacking data via Kaggle, managing image data from structured directories for training, testing, and validation.
- Engineered features by preprocessing images into suitable formats and sizes for neural network input, ensuring data consistency and quality.
- Trained the CNN using TensorFlow/Keras, fine-tuning parameters to optimize performance metrics such as precision, recall, F1 score, and area under the ROC curve.
- Evaluated the model using a structured testing approach, generating a detailed confusion matrix and performance metrics to assess effectiveness in real-world scenarios.
- Automated data handling and model workflows using Python scripts, ensuring robustness and scalability of the detection system.

Crypto Converter Android Application

- Designed an application to convert between different cryptocurrencies.
- Used Kotlin with Visual Studio, submitted as an assignment during my Master's program.

React File Sharing and Management Application

- Technologies: Developed with React.js, Node.js, Express, and JSZip for front-end, back-end, and file compression functionalities.
- Enabled multi-file uploads with automatic zipping for multiple files and a progress bar for upload tracking.
- Built an admin interface for file management, secured with key-based access, featuring file viewing, deletion, and download.
- Implemented responsive design for optimal user experience across devices and advanced error handling for reliability.

Home Food Delivery Android App

- Developed an Android application for food delivery as part of my Bachelor's dissertation.
- Utilized Java with Android Studio, integrated with a XAMPP server for back-end operations.

Rootopia: Tower-Based Game

- Collaborated in a team of five to create a game named Rootopia using Unity and C.
- Contributed to art modeling and sound design.
- Presented at the Global Game Jam 2023 hosted by the University of Essex.

Calorie Tracker GUI Application

- CDeveloped a Calorie Tracking Application using Java, focusing on providing users with a user-friendly interface for daily dietary management.

- Implemented JSON-based Data Management which transitioned the system from text file handling to JSON, improving data structure and ease of manipulation for user calorie intake records.
- Designed an Intuitive UI/UX by utilizing Java Swing components, enabling features such as user account management, real-time calorie tracking, and visual feedback on nutrition goals.

Mini Games with Custom Game Engine

- Developed a suite of five 2D mini-games using a custom game engine provided by Dr. Michael Fairbank.
- Implemented in Java, focusing on the physics of the games and integrating with Box2D for enhanced realism.

Neural Network Pong Game

- Developed a pong game with neural network integration.
- Utilizing SFML and C++ for development.

Skills

Programming Languages:

- **Proficient**: C++, Python, Java
- **Familiar**: C, React, JavaScript and Kotlin

Frameworks and Libraries:

- TensorFlow, PyTorch, Box2D, Gym (reinforcement learning toolkit)

Game Development:

- Unreal Engine, Unity

3D Modeling and Design:

- Maya, Blender, Photoshop

Software and Tools:

- Git, Linux (OS proficiency), MS Office (Word, Excel, PowerPoint), Android Studio, Visual Studio

Other Skills:

- Art Modeling, Sound Design

Achievements

- **Best Boy of the College, 2015**: Honored for outstanding academic and co-curricular contributions.
- **Runner Up, Global Game Jam 2023**: Secured the second position at the event hosted by the University of Essex. Collaborated on the game .

Certifications

- **Software Engineer Intern Certification**: Awarded by Sirintel Technologies for successful completion of the internship program.
- **System Engineering Trainee Certification**: Earned upon successful training completion at Infosys.

Languages

English: Fluent
Spanish: Beginner

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