AAKASH PRIYADARSHI

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SUMMARY

A committed Research Assistant, Teaching Assistant, and Lecturer with over four years of experience in AI research, software development, and algorithmic innovation. Areas of expertise include machine learning, inductive logic programming, translation of research results into impactful applications, and AI-powered solutions for society's betterment. Has **4 patents and 1 paper** in AI technology and has authored studies on sophisticated machine learning methodologies, including contributing to an AI-integrated exoskeleton suit, which reduced industrial worker strain and enhanced AI-attached robotic military suit. Worked on several vital works on advanced machine learning methodologies; highly devoted to efforts to push the boundaries of AI research and further AI research that promotes innovation and societal welfare in the real world.

RESEARCH PROJECTS:

Machine Learning Model to Forecast Stock Prices, University of Liverpool   June 2024 - Sept 2024

Supervised by: Andrew Roxburgh, Estelle Varloot, Professor, University of Liverpool   Team size: Individual

- **Objective**: Developed an ML model to forecast company stock prices using a hybrid Facebook Prophet and Linear Regression approach to improve the accuracy of stock price prediction through advanced time-series analysis.
- **Observations/Results**: Demonstrated improved predictive accuracy, with Prophet accounting for seasonality and trends and linear regression providing flexibility for short-term fluctuations. (Currently under review for completion.)
- **Technical Tools/Methodologies**: Facebook Prophet, Python, Linear Regression, finance API for data collection, and Azure for cloud-based deployment.

[Artificial Intelligence Integrated Robotic Military Suit]()   Sept 2021 - July 2024

Independent Research

- **Objective**: Design an AI-powered military suit to assist soldiers with load-bearing and decision-making tasks, enhancing operational safety and performance in combat scenarios.
- The patent has been approved and enlisted by the DRDO, demonstrating the suit's potential for military applications.
- **Tools/Methodologies**: Python, Arduino, Fusion 360, and AI algorithms for sensor data analysis and decision support.

Multimodal Cross-Modal Transfer Learning for Low-Resource Language Processing   Jan 2024 - March 2024

University of Liverpool, UK   **Team size**: 7; **Role**: Project Head

Supervised by: Alexei Lisitsa, Senior Lecturer | Director of Postgraduate Research, University of Liverpool, UK

- **Responsibilities**: Developed the backend using **Node.js** and trained the AI model. Utilized **pre-trained models from Hugging Face** for feature extraction and fine-tuned a custom model using the **GPT API** on a proprietary database.
- **Observations/Results**: The model demonstrated a **20% improvement in BLEU score** for translation quality compared to traditional methods and was published on the **ChatGPT portal**, enabling seamless integration using the API for backend connections.
- **Technical Tools/Methodologies**: Python, Keras, TensorFlow, GPT API, and cross-modal transfer learning techniques for integrating speech and text data.

EDUCATION:

Master's in Science - Computer Science   September 2023 - September 2024

University of Liverpool, UK   CGPA/Percentage: 72.34%

Dissertation: ML Model to Forecast Company Stock Prices using Facebook Prophet Model and Linear Regression

Bachelor's of Technology, Electronics and Instrumentation   August 2016 - August 2020

Galgotias College of Engineering and Technology, India   CGPA/Percentage: 62%

Dissertation: Artificial Intelligence-based Car Parking System to predict empty and filled spaces in a car parking.

INDUSTRY EXPERIENCE:

Wirral Met College, Birkenhead, UK   **Lecturer**   September 2024 – Present

- Teach T Level in Digital Production, Design, and Development to high schools students, focusing on full-stack development concepts. Use **JavaScript** and **Python**, **React.js**, **Node.js**, **MongoDB, MySQL,** and **Express.js** for web and software applications.

- Develop and structure course content, including lesson plans, project outlines, and hands-on lab sessions, ensuring students gain practical web development experience and follow coding best practices.
- Design exam papers and assignments that assess both theoretical knowledge and the practical application of **JavaScript**, **Python**, and related technologies, helping students build a strong foundation in these areas.

University of Liverpool, Liverpool, UK   **Teaching Assistant**   September 2023 – Present
- Teach **undergraduate students** for **Software Engineering 2 (COMP-319)** and **Cybersecurity (COMP-232)** modules.
- Deliver lab sessions and guide students through coding and practical assignments to reinforce theoretical concepts.
- Utilise Java and Python to explain complex subject matter, simplifying the complex while tailoring teaching styles to match the individual student during lab sessions.

Bihari Construction Pvt Limited, India   **Software Developer**   April 2021 - August 2023
- Developed and deployed an AI-based Car Parking Management System to predict and manage available parking spaces, improving efficiency by 30%.
- Integrated the system with a MERN stack to provide real-time updates and a seamless user experience.
- Conducted data analysis using machine learning models to optimize parking spot utilization and minimize idle time.
- Collaborated with a cross-functional team to implement system upgrades and ensure smooth operation.

TECHNICAL SKILLS
Languages and Frameworks:- C, C++, Java, Python, JavaScript
Machine Learning & Deep Learning: TensorFlow, PyTorch, Knowledge Distillation, Layer Reuse, Supervised Learning, Causal Inference (Causal Forests, Doubly Robust Methods), Hugging Face, GPT, Multilingual NLP, LLM Safety and Ethical Use.
Web Development:- HTML, CSS, JavaScript(React.js, Angular.js), Node.js, REST Apis
Databases: Oracle Database, MySQL, MongoDB.
Tools:- Git, GitHub, Docker, Kubernetes, Android Studio, X Code
Cloud Technologies: AWS, AzureMicrosoft Azure, Google Cloud, and Firebase.
Other Technical Skills:- API Development, Microservices Architecture, DevOps practices, OOP, Design Patterns

CERTIFICATIONS AND ADDITIONAL COURSES:
- Azure AI Fundamentals - July 2024.
- Intro to Digital Manufacturing with Autodesk Fusion 360 - Autodesk via Coursera - March 2021.
- Launching into Machine Learning - Google Cloud via Coursera - June 2019.
- How Google Does Machine Learning - Google Cloud via Coursera - June 2019.
- Front-End JavaScript Frameworks: AngularJS - HKUST via Coursera - Aug 2017.
- Server-side Development with NodeJS - HKUST via Coursera - Aug 2017.

PRACTICAL EXPERIENCE IN RESEARCH CENTERS:
Galgotias College of Engineering and Technology, Delhi NCR, Research Assistant | Student   June 2018 – Sept 2020
Guided by Dr. Praveen Kumar Maduri, the Head of the Department & Dean of Academics
- Focused on designing and developing an AI-powered exoskeleton suit to assist with industrial heavy-lifting tasks, reducing workers' physical strain and injury risks.
- Conducted extensive testing and iterative design improvements using AI-driven sensor analysis to optimize real-time decision-making and load-bearing efficiency.
- Collaborated with engineers to prototype and implement the exoskeleton, integrating machine-learning models and sensor-based control systems for enhanced functionality and safety.
- Successfully filed a patent, marking it as an innovative contribution to assistive technology in industrial settings.

RESEARCH & PATENTS
1. Artificial Intelligence Integrated Robotic Military Suit – Patent Grant No. 544690, Issued Jul 11, 2024.
2. User Interactive Assistive Learning Educational Content Generation AI Platform – Patent Application No. 202331034145, Filed May 19, 2023. - Link to Published Journal (Page No. 154)
3. Industrial Load Lifting Robotic Arm Exosuit – Patent Application No. IN 202131036513, Filed Sep 3, 2021.
4. STIRRING CYLINDER-TYPE DISSOLUTION APPARATUS FOR GASTRORETENTIVE DRUG DELIVERY SYSTEMS - **UK Patent No. 6403675**, Grant date 18 November 2024 - Link
5. Deep Learning Innovations in Automated Breast Cancer Detection with Integrated Ultrasound Datasets - Research Paper yet to Publish in Journal - **Frontiers in Health Informatics (ISSN: 2676-7104)**