SIDDHARTH SHARMA

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Work Experience

AI Research And Development January 2025 - Present
TekMonks *Remote, USA*
- Optimized AI model prompts and refined prompt strategies to induce desired behaviors into LLMs, enhancing response accuracy.
- Evaluated and benchmarked multiple LLMs to determine the most effective model for an enterprise AI assistant.

Software Development and DevOps December 2024 - Present
Tiny Archives *Remote, USA*
- Deployed the company's website via AWS, enhancing reliability, while managing Git for streamlined version control and collaboration.
- Implemented mixed cipher file encryption protocols to safeguard user-uploaded files and ensure data security.
- Trained and supported new interns in system setup and development workflows, promoting teamwork.

AI Research And Development - Visiting October 2022 - May 2023
TE Connectivity *Pennsylvania, USA*
- Pioneered an AI-driven automation solution to detect ROI in low-contrast monochromatic images, reducing processing time by 85%
- Constructed a neural network to detect data matrices in low-contrast images of machine surfaces, achieving an accuracy of 93%.
- Generated a dataset of $50,000+$ images to improve model robustness, adapting to diverse lighting and contrast conditions.
- Integrated efficiency enhancements to an established production line, resulting in a reduction of up to 6 months in production time and cost savings of up to $\$100,000$.

AI Research Co-op March 2021 - June 2022
Deep LogicTech *Delhi, India*
- Engineered an Isolation Forest based Machine Learning model to detect anomalies for cyberattack prevention, achieving 90% accuracy in detecting attacks on databases and SSH servers.
- Integrated Natural Language Processing for database querying, reducing data retrieval time and, optimizing data accessibility.

International Student Mentor March 2023 - May 2024
The Pennsylvania State University *Pennsylvania, USA*
- Guided 10+ international students in academic and cultural integration, boosting student satisfaction by 25% and GPA by 15%.
- Spearheaded community outreach programs, achieving a 100% increase in engagement and advancing organizational goals.

Education

THE PENNSYLVANIA STATE UNIVERSITY August 2022 – August 2024
Masters of Science in Computer Science (gpa-3.4/4) *Pennsylvania, USA*
- Teaching and Research Assistant - Assisted faculty in Data Structures and Algorithms, supporting and mentoring $50+$ students.
- **Courses** : Thesis Research, Computation Theory, Adv Algorithms, Adv Database, Adv Operating Systems, Neural Networks, NLP

GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY August 2018 – May 2022
Bachelor of Technology in Computer Engineering (gpa-8.3/10) *Delhi, India*
- Led programming classes for freshman and sophomore students as part of a university sponsored initiative.
- **Courses** : Adv Mathematics, Software Engineering, Data Structures, Algorithms, AI, ML, Computer Architecture, Information Security, Object Oriented Programming, Java, Theory of Computation, Adv DBMS, Software Testing and Quality Assurance

Technical Skills

- **Languages** : Python, C++, C, Swift, JavaScript, Node.js, Next.JS, ReactJS, SQL, MySQL, HTML, CSS, Tailwind CSS
- **Libraries & Frameworks** : TensorFlow, Keras, OpenCV, Scikit-Learn, PyTorch, NumPy, Pandas, CUDA, NLTK, Hugging Face, LLM
- **Skills** : Reverse-Engineering, Mechanistic Interpretability, Data-structures, Algorithms, Git, Artificial Intelligence, Transformer Models, Reinforcement Learning, Generative Models, Image Segmentation, Feature Matching, Statistical Modeling, Predictive Analytics, Data Cleaning, Dimensionality Reduction, Feature Engineering, Machine Learning, Data Science, Consensus Algorithms

Publication and Research

Object/Human tracking in 3D space Using Monocular Vision May 2023 – August 2024
https://etda.libraries.psu.edu/catalog/29519szs7214 *The Pennsylvania State University*
- Conceptualized and designed a novel and robust framework for tracking humans/objects in 3D space using monocular vision.
- Formulated depth estimation equations using vanishing points and perspective projection to increase accuracy in object tracking.
- Developed algorithms grounded in mathematical principles to efficiently process and interpret 2D images for real-time 3D tracking.

A blockchain based private framework for facilitating digital forensics using IoT August 2021 – May 2022
https://doi.org/10.47974/JDMSC-1733 *Guru Gobind Singh Indraprastha University*
- Reverse engineered blockchain to analyze its architecture and applied insights to develop a new blockchain-based application.
- Proposed a private blockchain model to securely and efficiently manage forensic data within IoT environments.
- Created a framework ensuring the authenticity, traceability, and integrity of digital evidence in forensic investigations.
- Developed a blockchain from scratch using the $SHA256$ hashing algorithm and an alpha-numeric substitution cipher protocol.
- Deployed a multi-system communication network using sockets connecting $10+$ devices to implement an asynchronous database.
- Launched a Virtual Private Network (VPN) infrastructure connecting over 10 computers across international locations.
- Implemented encryption and decryption protocols for various file formats by effectively manipulating and securing the file data.