

# 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.

### 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.