Shounak Shastri

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Summary

Ph.D. with 4 years of experience developing end-to-end Machine Learning solutions (Computer Vision, Natural Language Processing and Generative AI) that deliver measurable business results (23% improvement in productivity, 81% reduction in compliance violations) in industrial settings. Strong background in Python, statistical modeling and full ML life cycle development–from ideation to monitoring–in a fast-paced environment.

Core Competencies

Machine Learning, Computer Vision, Data Analytics, Python, Statistical Modeling, Experimental Design, Natural Language Processing (NLP), Generative AI, Cross-functional Leadership and Stakeholder Management.

Experience

KamerAI Pvt Ltd.   Chennai, TN, IN

Technical Analyst-Data Science (Current) / Sr. Software Engineer (4 years)   *May 2021 – Present*

- Developed data-pipeline for fine-tuning LLMs to extract structured data from technical documents (2500+ COA documents). Established evaluation metrics and collaborated with business teams on performance dashboards.
- Analysed client-side compliance data and led development of computer vision-based safety monitoring system for PPE compliance, resulting in 81% reduction in violations across client facilities.
- Owned development of data-driven productivity solution for major manufacturing clients. Used statistical modeling and data analysis to determine cause and effect relationships for process inefficiencies and implemented solutions that increased productivity metrics by 23%.
- Created scalable ML training pipelines enabling non-technical staff to collect data, train models, and deploy solutions using AWS EC2 instance and S3 bucket in dynamic manufacturing settings.
- Collaborated with internal engineering and product teams while working closely with clients to design Computer Vision models and LLMs tailored to industrial safety and compliance needs, directly affecting productivity metrics.
- Mentored trainees and interns in model training methodologies and evaluation techniques.

VIT-Vellore   Vellore, TN, IN

Teaching and Research Assistant (4 years)   *Jan 2016 – Jan 2020*

- Researched Steganography algorithms for secure communication resulting in 7 peer-reviewed publications.
- Taught courses to classes of over 60 students and assisted the professors in devising practical experiments, tests and revision sessions. Mentored over 30 undergraduate students leading to conference presentations and prototypes.

Notable Projects

- **GenAI Productionisation:** Designed and implemented end-to-end LLM fine-tuning pipeline for extracting structured JSON data from chemical analysis documents. Defined evaluation metrics to measure extraction accuracy and model robustness. Collaborated with business and engineering teams to integrate results into a live dashboard, reducing manual data entry time by approximately 80%.
- **Kamerai Productivity Solution:** Led development and deployment of the KamerAI Productivity Solution for 2 major manufacturing clients spanning over 25 stages in their production line. Applied statistical analysis to daily cycle and ergonomics data to identify inefficiencies and define areas for improvement. Set up data-pipelines to train Action Recognition models and give insights into the production line in real time. Collaborated with the clients and the KamerAI engineering team to develop productivity and ergonomics dashboards. Achieved 100% error reduction across 7 stages and 23% improvement in overall productivity.
- **Kamerai Safety Solution:** Collaborated with a team to develop Object Monitoring and Compliance application for deployment at the client's warehouses and factories. Leveraged the client's established CCTV network to collect data and monitor PPE and MHE compliance. Trained a Yolo model for object detection to detect violations and reported in real time. Resulted in 81% reduction in overall violations.

Education

- **Vellore Institute of Technology** — Vellore, TN, India
  Doctorate (Ph.D.) in Steganography Algorithms — *Jun 2015 – Dec 2020*
- **Vellore Institute of Technology** — Vellore, TN, India
  Master of Technology (M.Tech.) in Communication Engineering — *Jun 2013 – May 2015*
- **K. J. Somaiya College of Engineering** — Mumbai, MH, India
  Bachelor of Engineering (B.E.) in Electronics Engineering — *Aug 2007 – Jul 2012*

Skills

- **Programming, scripting and querying Languages:** Python, R (basic), Matlab, SQL (basic)
- **ML and Data Science Toolkits:** TensorFlow, Pytorch, Numpy, Scipy, Scikit-learn, Pandas, Matplotlib
- **Computer Vision and GenAI:** OpenCV, Nvidia TAO, Ultralytics, Unsloth
- **Statistical analysis:** Experimental design, confidence intervals, error measurements, A/B testing and hypothesis testing.
- **Tools and platforms:** Linux, Git (version control), Docker (containerization), ClearML (MLOps), AWS (EC2, S3 – model training and deployment).

Key Achievements

- Reduced manual document processing time by approximately 80% through implementation of Generative AI solutions.
- Improved industrial safety compliance by 81% using Computer Vision based monitoring systems.
- Increased manufacturing productivity by 23% through data-driven insights and automation.
- Received 2 research awards while pursuing doctorate degree.
- Published 7 peer-reviewed papers in international journals and conferences. ORCID Link