Shounak Shastri

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Summary

Ph.D. with 4 years of industry 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 modelling and full ML life cycle development–from ideation to monitoring–in a fast-paced startup environment.

Experience

KamerAI Pvt Ltd. Chennai, TN, IN

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

- Developed end-to-end GenAI pipeline for fine-tuning LLMs to extract structured data from technical documents (2500+ COA documents), establishing evaluation metrics and collaborating 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 data-driven productivity solution for major manufacturing clients. Used statistical analysis to identify 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 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. Credited with 6 publications in reputed 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 multiple 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 imporvement. Set up and optimized a pipeline 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:** Worked as part of a team to develop Risk Detection, Object Monitoring and Compliance application for deployment at the client's warehouses and factories. Leveraged the client's established CCTV network to collect data for monitoring PPE and MHE compliance. Trained a Yolo model to detect violations and report in real time. Resulted in a 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 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), familiarity with AWS (EC2, S3).

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 6 peer-reviewed papers in international journals and conferences. ORCID Link