Shounak Shastri

Email: shounak.shastri@gmail.com https://www.linkedin.com/in/shounak-shastri/
Mobile: (+91) 86809 31795 Address: Chennai, Tamil Nadu, India 600041

Summary

Software Engineer with a Ph.D. and 4 years of experience designing and deploying scalable Machine Learning solutions using Computer Vision, Natural Language Processing, Large Language Models, and Generative AI. Delivered measurable results (23% productivity gain, 81% compliance improvement) through cross-functional collaboration, full ML lifecycle development and technical mentorship.

Core Competencies

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

Experience

KamerAI Pvt. Ltd. (Website) Chennai, TN, IN
Senior Software Engineer (4 years) / Technical Analyst-Data Science (Current) *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.
- Developed scalable data-mining pipeline for 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 and production deployment of data-driven ML solution for business applications at factories of 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 and algorithm development processes 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 for business applications for 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*

- Research on Steganography algorithms for secure communication resulting in 7 peer-reviewed publications.
- Taught courses to classes of over 60 students and assisted the professors in practical 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 production deployment of the KamerAI Productivity Solution for 2 major manufacturing clients 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
- **ML and Data Science Toolkits:** TensorFlow, Pytorch, Numpy, Scipy, Scikit-learn, Pandas, Matplotlib
- **Core Concepts:** Software Development, Algorithm Development, Data Mining, Production Deployment, Numerical Optimization, High-Performance Computing, Model Deployment
- **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, SageMaker – model training and deployment).

Key Achievements

- **Business Impact:** 80% reduction in manual document processing, 81% improvement in safety compliance, 23% increase in manufacturing productivity
- **Research:** 7 peer-reviewed publications in international journals and conferences. ORCID Link
- **Awards:** 2 research awards during doctorate program.
- **Mentoring and Leadership:** Successfully mentored 30+ students and multiple trainees/interns in machine learning and data science.