Sandeep Venkata Kollipara

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About Me

A Software & ML Engineer with 4+ years of experience building software products and big data systems for healthcare analytics, sales force optimization and decision science. Adept in Python/C++, computer vision, CI/CD and cloud integration. Demonstrated ability to lead junior developers on project initiatives. Graduating in Dec 2026 after specializing in machine learning and systems.

Work Experience

Distance Learning Instructor, MIT program (part-time) — Aug 2025 - May 2026
Virginia Tech - Pamplin College of Business — *Alexandria, VA, US*

- Spring 2026: Supported the class of 30 students for BIT 5534 - Applied Business Intelligence and Business Analytics.
- Fall 2025: Supported the class of 61 students for BIT 5524 - Intro to Business Intelligence and Business Analytics.

AI Engineer 1, AIML CoE/Omnichannel Analytics — May 2022 - Aug 2023
IQVIA — *Bangalore, Karnataka, IN*

Relevant Skills: *MLOps (Kubeflow), Data Engineering / ETL pipelines (Snowflake, Salesforce), CI/CD (GitLab), REST API*

- Collaborated in a cross-functional Agile team to develop salesforce sizing products on Orchestrated Analytics (OA) platform.
- Instrumental in delivering Next Best Action connecting sales reps with physicians on Orchestrated Customer Engagement (OCE) mobile app for US clients and setup of pilot for AUS/NZ geography (IQVIA Impact - Silver award, May 2023).
- Salesforce Optimization project: Implemented a proof-of-concept supporting internal consultants on Multiple Time Series Forecasting projects and architected 10x performance boost through parallel processing and cloud migration.

Assoc. Consultant / Analyst, Sales Force Effectiveness (SFE) — Aug 2019 - Apr 2022
IQVIA — *Bangalore, Karnataka, IN*

Relevant Skills: *Python/SAS/R Programming, Machine Learning, Big Data (Hadoop, Spark), Database Management (MSSQL)*

- Member of SFE Benelux team responsible for Patient-Level Studies (PLS), Segmentation & Targeting (S&T), Source of Business (SOB), Projection methodology and Market-Mix Modelling (MMM) projects along with global projects spanning SEA and Asia Pacific regions (Spotlight award, Oct 2021).
- SP Extrapolation project: Reduced 75% workhours by translating the process from R to Python (Bronze award, Apr 2020).

Intern, R&D Flow Cytometry (Fall) + SFE Analytics (Spring) — Jul 2018 - May 2019
Beckman Coulter Life Sciences + IQVIA — *Bangalore, Karnataka, IN*

Education

Virginia (Tech) Polytechnic Institute and State University — Alexandria, VA, US
M.Eng. Computer Science & Applications (GPA: 3.73) — *Jan 2025 - Dec 2026*

Relevant Coursework: *DBMS, ML1/2, CV, Intro to AI/DL, Theory of Algorithms, Compiler Optimizations, Advanced RTOS*

Birla Institute of Technology and Science, Pilani - Goa — Sancoale, Goa, IN
B.E. Chemical + M.Sc. Biology — *Aug 2013 - Jun 2019*

Projects

Project Aria: Gaze-triggered Spatial Inference — Summer 2026
CS 5934 Capstone Project, Virginia Tech [Aria SDK, Gemini, DINOv2, Containers, Firestore Vector Search, GCS, FastAPI]

- Developed a distributed XR system of Meta Aria Gen 2 glasses for real-time gaze-driven object recognition and spatial intel via asynchronous enrichment and persistent object-id matching using image/text embeddings and vector similarity search.

Interprocedural const. propagation via Summary functions — Spring 2026
CS 5544 Compiler Optimizations, Virginia Tech [C++, LLVM IR, LLVM Passes, CMake, GDB, GCC, G++, Linux]

- Extended constant propagation/folding across procedure boundaries using summary-based interprocedural analysis on call graph (handling recursion via SSC coalescing) and compared performance against a baseline and LLVM's IPSCCP pass.

A Study/Deep-dive into Real-time Object Detection — Fall 2025
ECE 5554 Computer Vision / CS 5814 Intro to Deep Learning, Virginia Tech [PyTorch, TorchVision, OpenCV, CUDA libraries]

- Compared real-time object detection methods (Faster R-CNN, YOLO-v3, RetinaNet) on Berkeley Deep Drive (BDD100K) dataset of large-scale driving videos post-training/evaluating on NVIDIA GPUs to achieve AP% within ~10% of benchmarks.

LLM Agents for Interactive Data Analytics — Spring 2025
CS 6604 Advanced Topics in Data and Information, Virginia Tech [Python, LangChain, LlamaIndex, Statsmodels, Git Bash]

- Built a multi-agent data science assistant of ReAct agents (and a preliminary CodeAct agent) to automate data loading, cleaning, exploration, feature selection, and dimensionality-reduction workflows using natural language via OpenAI GPT-4o.

Certifications

AWS Certified Machine Learning Specialty — Oct 2025
AWS Certified Solutions Architect Associate — Oct 2023