

# Sandeep Chahal

AI Scientist | ML Engineer | Data Scientist

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GitHub: [github.com/chahalsandeep](https://github.com/chahalsandeep)

Chicago, IL, USA (Open to relocation)

Portfolio: [chahalsandeep.github.io/portfolio](https://chahalsandeep.github.io/portfolio)

## Technical Skills

### Programming Languages & Scripting:

Python, C++, MATLAB, SQL, Bash.

### Machine Learning & CV Libraries:

Scikit-learn, PyTorch, TensorFlow, Keras, OpenCV, HuggingFace, XGBoost, Pandas, NumPy, SciPy, ONNX, FFmpeg.

### MLOps & Pipelines:

MLflow, Airflow, DVC, Streamlit, Jupyter Notebooks, A/B Testing, Databricks, PySpark, Prometheus (familiar), Docker, Kubernetes.

### Cloud & Infrastructure:

AWS (S3, EC2, SQS, DynamoDB, EKS, Step Functions), GCP (Vertex AI, Colab, Dataproc, Cloud Storage), Snowflake.

### Visualization:

Matplotlib, Seaborn, Plotly, Tableau, Power BI, Snowflake Dashboards.

### Robotics & Simulation:

ROS, OpenAI Gym, Raspberry Pi, NUC, Phidgets, GPS, IMU, Sonar, Bluetooth, Wi-Fi, Camera, LEGO Mindstorms.

## Education

### Master of Science in Computer Science

University of Texas at Arlington 2019

**Research:** Generating an Adaptive Path Using RRT Sampling and Potential Function with Directional Nearest Neighbor. Combined the advantages of sampling-based global planning with local navigation using potential-field functions. Designed a hybrid control composition scheme similar to null-space control to reduce re-planning, incorporate runtime constraints, and enable adaptive, efficient path generation.

**Notable Courses:** Algorithms, Data Analysis & Modelling Techniques, Artificial Intelligence, Computer Vision, Robotics, Unmanned Vehicle Systems.

**Bachelor's in Information Technology,**  
JNTUH 2015

## Professional Summary

AI/ML engineer with 5+ years of experience delivering production-grade solutions across finance, sports analytics, and warehouse operations. Skilled in architecting scalable systems and working with large, high-dimensional datasets in distributed environments. Strong foundation in model evaluation, pipeline optimization, and end-to-end MLOps. Proven track record driving cross-functional initiatives and collaborating across engineering, product, and analytics teams. Currently building decision-support tools using LLMs and Generative AI. Specialized in aligning ML systems with real-world business impact.

## Professional Experience

### Freelance AI/ML Consultant

AI/ML Consultant

Remote

08/2024 – Present

- **Designed** a semantic and sentiment-driven feedback triage system for customer support using LLMs and clustering algorithms to dynamically prioritize issues based on urgency, theme, and historical resolution patterns.
- **Developed** a predictive analytics pipeline to estimate manpower and automotive resource needs in urban areas based on dynamic population behavior, mobility trends, and external events.
- **Built** a machine learning framework for predicting baseball player performance using historical tournament data; evaluated Decision Trees, Random Forests, and Transformer models for comparative accuracy.

### Sift Science

Senior Data Scientist → Data Scientist

San Francisco, CA

01/2022 – 08/2024

### Senior Data Scientist

- **Led** cross-product revenue insights project by modeling behavioral signals across fraud, payments, and account protection uncovering \$2M+ ARR opportunity and driving 100% adoption.
- **Architected** hybrid LLM retrieval system (Snowflake + Confluence) to enable structured/unstructured query support increasing platform usage by 5x.
- **Optimized** supervised learning pipeline with public data and verification signals improving fraud model precision by 15% and saving \$1.2M+ quarterly.
- **Managed** model escalation workflows and coordinated cross-functional releases across engineering, product, and analytics teams.

### Data Scientist

- **Built** multilevel sampling pipeline correcting class imbalance improving fraud model performance by 20% and reducing complaints by 60%.
- **Developed** statistical comparison framework using distributional metrics and hypothesis testing for explainable model benchmarking.
- **Defined** fraud risk metrics and performance KPIs; contributed to release guidelines, OKRs, and product roadmap planning.

## Soft Skills

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- Cross-functional.
- Team Leadership.
- Technical Communication.
- Storytelling.
- Problem-solving.
- Innovation.
- Project Management.
- Collaboration.

## Certifications

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- Intelligent Systems Certifications.
- Linux Administration Certification.
- Unmanned Vehicle Systems Certifications.
- Hazard Communication & Waste Management Certification.
- Web Application Architecture Certification.
- Data Science Toolbox Certification.

## Academic Experience

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- ML Researcher at LearnLab, UTA.
- Teaching Assistant for AI course, UTA.
- System Administrator, UTA.

### Stats Perform

AI Scientist II → Senior ML Engineer → ML/CV Engineer

Chicago, IL

07/2019 - 12/2021

#### AI Scientist II

- **Led** development of a computer vision system for sports player tracking and jersey recognition using OpenPose, OCR, and optical flow, improving accuracy by ~20%.
- **Enhanced** tracking architecture by integrating sparse/dense optical flow with Kalman filtering for better coverage and stability.
- **Supported** scalable deployment using AWS Step Functions, Docker, and Kubernetes to automate long-form video processing.

#### Senior ML Engineer

- **Led** the design, development, and optimization of a modular MLOps platform supporting diverse model types across classification, regression, and clustering tasks.
- **Architected** an end-to-end ML pipeline integrating MLflow, Cortex, and Neptune on AWS, improving model release efficiency and reducing deployment time by 60%.
- **Worked** cross-functionally to define workflows and CI/CD automation for model lifecycles.

#### ML/CV Engineer

- **Developed** modules of an OCR-based video recognition system and time series detection using SSD/YOLOv3 to process long-form footage, reducing compute/storage by ~30%.
- **Applied** frame reduction and clustering techniques with PCA and FFNNs (downsampling 60fps to 15–30fps) to increase inference throughput.
- **Managed** experimentation and model optimization workflows using MLflow and ONNX-based deployment.

### Fetch Robotics

05/2018 - 08/2018

#### AI Intern

San Jose, CA

- **Improved** robotic QA process by designing an automated testing framework using computer vision techniques, increasing testing uptime by 50% and reducing manual verification.
- **Developed** CV-based object detection scripts for real-time monitoring of robot tasks, contributing to faster release validation and deployment cycles.

### SignalAware

06/2017 - 08/2017

#### Predictive Analyst Intern

Sunnyvale, CA

- **Built** Bluetooth and Wi-Fi-based localization algorithms to enable outdoor device tracking for connected mobile devices.
- **Engineered** predictive models to analyze user movement and forecast next likely locations, enabling advanced mobility insights for marketing and analytics use cases.