

#MSysAI



**TURBOCHARGE INNOVATION**

*with*

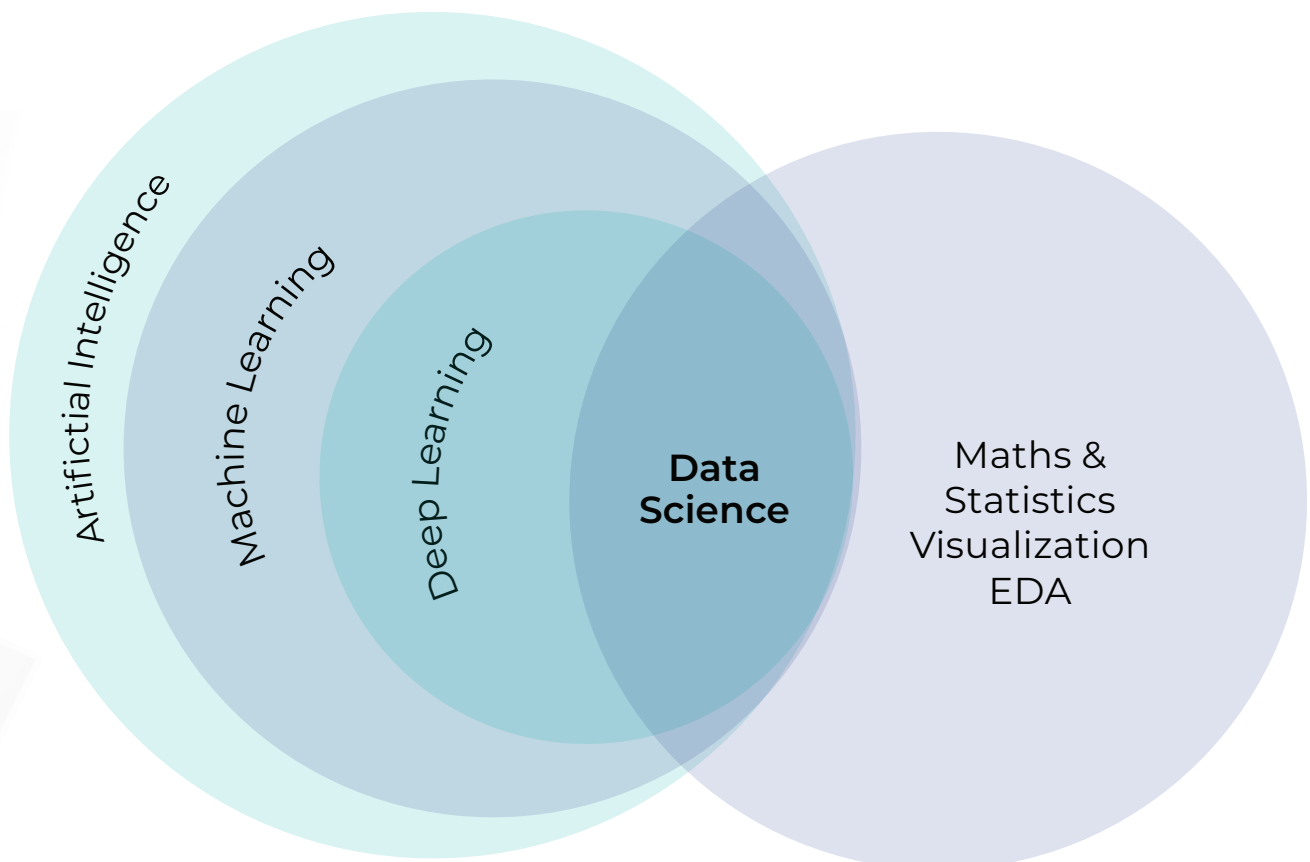
**MSYS AI SERVICES**

Your Reliable Digital Partner for AI-native  
Business Transformation



## MSYS AI ECOSYSTEM

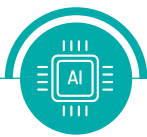
MSys AI services bring expertise across the entire spectrum to design, develop, and deploy AI strategies. Our services combine the best of AI Technologies, Machine Learning Models, AIOps, Cognitive Computing, and Cloud-Native Engineering to architect your AI aspirations. We prepare enterprises for the future - whether it's getting data AI-ready, deploying pilot projects, or delivering end-to-end AI-native software.



# MSYS AI SERVICES

- AI-powered Web and Mobile Apps
- Gen AI
- AI/ML Model Development
- Robotic Process Automation
- DevSecAIOps
- Cognitive Computing
- Hybrid and Multi-Cloud Engineering
- Data Visualization, Engineering, and Analytics
- Infrastructure Automation
- Real-Time Data Processing & Quality Monitoring

# MSYS AI TOOLKIT



## Artificial Intelligence

- PyTorch
- Python
- Caffe
- Keras
- AutoML
- Shiny
- TensorFlow



## Machine Learning

- Fuzzy Matching Algorithm
- Open Refine Tool
- Databricks
- ML Algorithms
- MaskRCNN
- Detectron2
- Streamlit
- MLFlow



## Neural Net

- NLTK
- NumPy
- Pandas
- Scikit-Learn
- HeroKu
- Shiny
- SpaCy



## Deep Learning

- Time Series Analysis
- Detecto
- YOLO5
- Image Processing
- Computer Vision

# BENEFITS

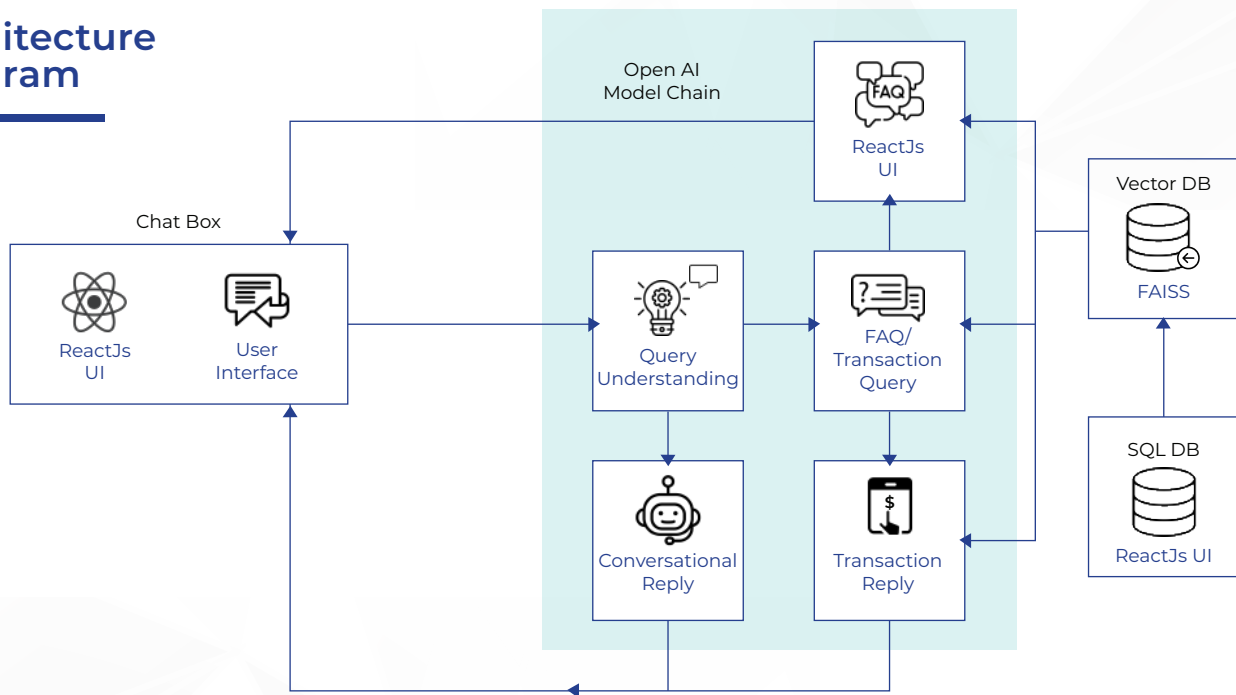
- Accurate Insights, Faster Decisions
- Robust Data Security
- Elated Business Teams With AI-enabled Solutions
- Mesmerizing Customer Experience

# USE CASES

## 01 LLM-based ChatBot to Support Customer Service

MSys partnered with a leading U.S.-based bank to build a customer support bot to support FAQs related to customer transactions.

### Architecture Diagram



The architecture integrates a user-friendly ReactJS interface with the OpenAI Model Chain at its core. The bot is structured to understand and respond to user queries through several specialized components: Query Understanding for interpreting the intent, Conversational Reply for crafting natural language responses, and dedicated FAQ and Transaction Reply modules for handling routine questions and specific transaction-related queries, respectively. Data is managed through a Vector Database using Faiss for efficient similarity search and a traditional SQL Database storing structured data like user profiles and interaction logs.

### Tools & Technologies

Python

Langchain

Chatgpt: gpt-3.5-turbo-0613

Database: sqlite3

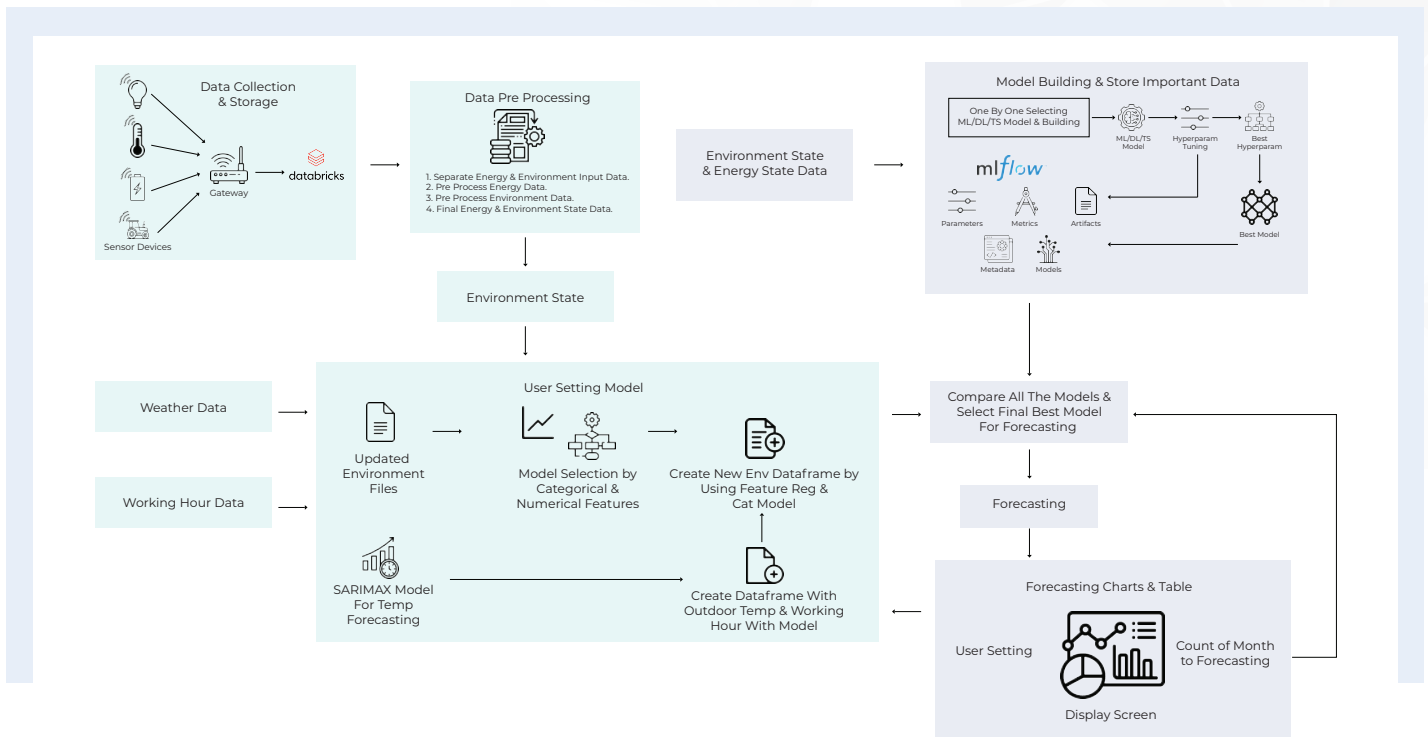
Vector store: FAISS

ReactJS: Chatbot front-end UI

## Recommendation Engine for Electric Supplies

MSys collaborated with a global electrical distribution and services company to develop an energy consumption prediction and User-setting recommendation system for a large warehouse to optimize energy consumption.

### Architecture Diagram



The energy consumption prediction system leverages traditional regression models to build an energy prediction system that predicts energy consumption for a particular duration in the future. Based on prediction results and history data, and given controllable different devices, optimize the energy usage by manipulating the different device user settings to build a recommendation system. Based on these predictions and recommendation results, build an energy-saving system.

### Tools & Technologies

Python

Fuzzy Matching Algorithms

Machine Learning

Natural Language Processing

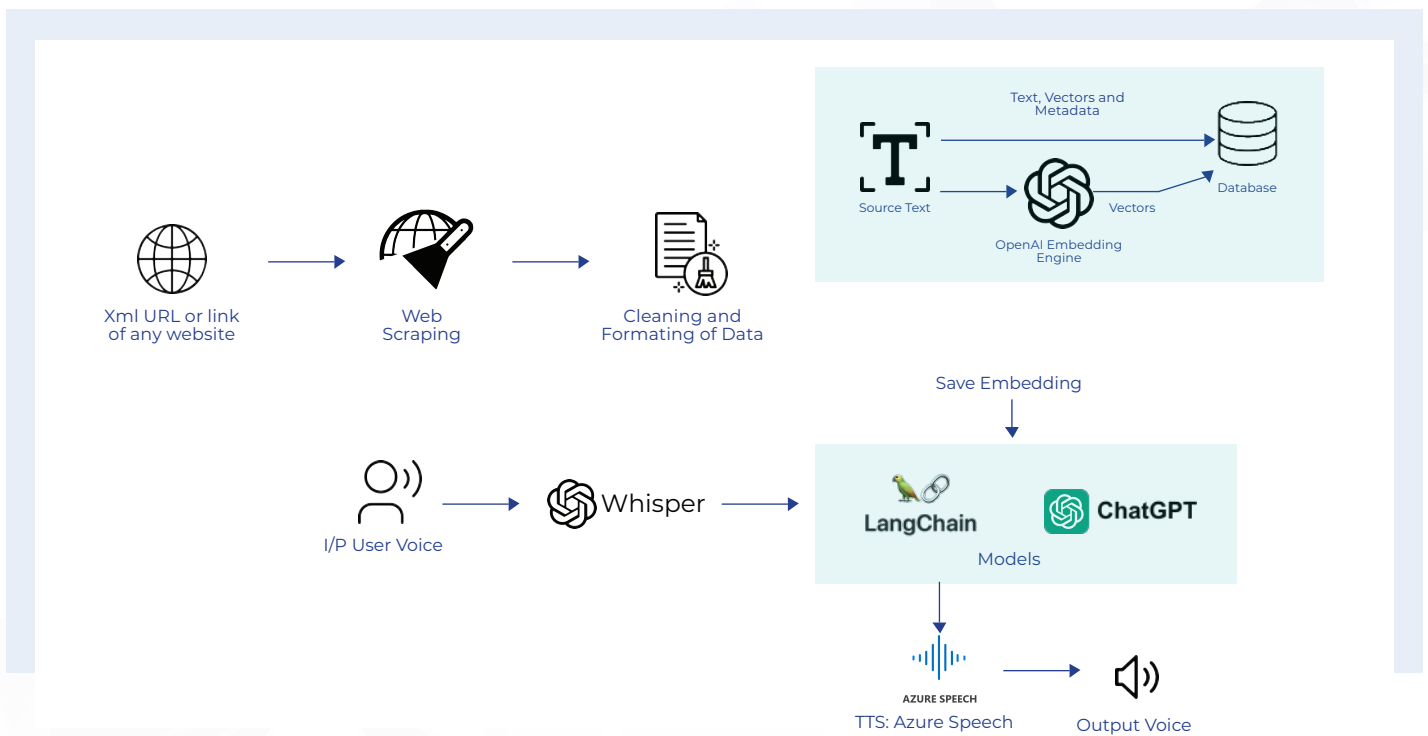
Deep Learning

Open Refine Tool

### 03 GPT-Powered Speaking Bot

MSys developed a speaking bot that adapts to different contexts for natural conversation flow. We've implemented advanced NLP for human-like text understanding and generation and Incorporated emotional intelligence for improved user engagement.

#### Architecture Diagram



The architecture enables users to engage with website content through voice, leveraging web scraping to gather data, Whisper API for speech recognition, and ChatGPT combined with LangChain for intelligent natural language processing. Responses are generated using ChatGPT and articulated to the user via speech synthesis, facilitating a seamless two-way communication ideal for customer service and interactive guides.

#### Tools & Technologies

Python

Chatgpt: gpt-3.5-turbo-0613

Whisper-1: STT

Azure Speech-sdk: TTS

Streamlit : UI

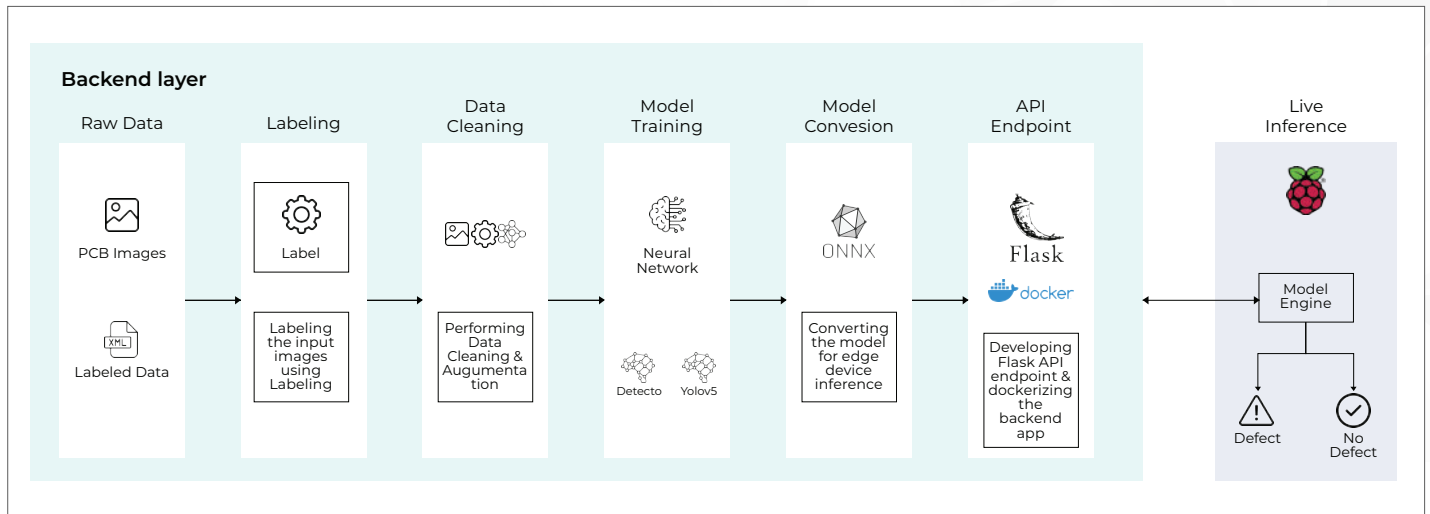
Langchain: Embeddings

## 04

## AI-powered PCB Defect Detection

MSys partnered with digital automation and energy management to build an automated PCB soldering defect detection solution that captures defects like soldering shorts, spillover, and slug soldering and inputs data in image format.

### Architecture Diagram



The diagram illustrates an AI-powered system for detecting defects in printed circuit boards (PCBs) using object detection models like YOLO5 and Detecto. The process begins with collecting PCB images, which are then augmented and labeled to train the detection models. After pre-processing these images to optimize them for training, the system uses the trained models to identify defects on new PCB test images. Each detected defect is marked and evaluated with a confidence level. Finally, the system generates a summary report detailing the defects found, enhancing the accuracy and efficiency of PCB quality control. This setup allows users to select from multiple custom-trained models to ensure optimal performance tailored to specific detection needs.

### Tools & Technologies

Python

Deep Learning

Detecto

YOLO5

Flask

# Create Your *AI Advantage* with MSys

Advance your AI projects with confidence. Make your data AI-ready, accelerate the time to value for your AI initiatives, extend AI capabilities across your organization, and tackle your most challenging business problems at scale.

## WHY MSYS

- 1 Accelerate, transform, and utilize our proven RTG (Run, Transform, and Grow) framework, backed by over a decade of unparalleled technology expertise.
- 2 Catalyze growth and innovations with global capability centers, high-skill talent, and RnD labs.
- 3 Manage the complexity of the dynamic technology landscape across AI, cloud, libraries, databases, frontend, and backend technologies to enable customers' continued success.
- 4 Tight collaboration and deep understanding of customers' products, culture, and ecosystem.
- 5 Drive innovation for new products with transformative AI-native product engineering services.

## ABOUT MSYS

MSys Technologies is a trusted services partner driving AI transformation for Edge-to-Cloud intelligence and business optimization.

