PFE BOOK

2026

visshop AI

About Us

VisShop AI is an innovative company specializing in consumer behavior analysis in retail using artificial intelligence and computer vision technologies. We provide advanced solutions that help businesses understand customer behavior and analyze purchasing patterns. Our goal is to enhance the customer experience and improve store performance through smart solutions that support informed strategic decisions. We are committed to offering cutting-edge tools that contribute to increasing profitability and achieving sustainable growth in the retail sector

Our Vision

To be the premier technology partner for retailers, delivering actionable AI-driven insights and innovative solutions that fuel sustainable growth and enhance competitive advantage in the retail sector.

Our Mission

At VisShop AI, our mission is to empower retailers with the tools and insights they need to fully understand and anticipate customer behavior. By leveraging cutting-edge artificial intelligence and computer vision, we provide businesses with precise, actionable data that drives smarter decisions, enhances customer experiences, and maximizes profitability in an increasingly competitive market.

projet 1 : Real-Time Computer Vision System for Smart Parking Management

Description

This project focuses on developing an intelligent parking management system using real-time computer vision. Thesystem automatically detects vehicles, identifies available parking spaces, and tracks entry and exit movements. It relies on modern object detection algorithms and includes a React-based web interface for live visualization of results, as well as MongoDB for structured data storage. The aim is to build an accurate, efficient solution that can be tested in real-world scenarios

Required Skill

Python , computer vision and deep learning , YOLO , React for front-end development , MongoDB for data storage

Technologies Used

Python , OpenCV , YOLO , PyTorch or TensorFlow , YOLO , PyTorch or TensorFlow , React , MongoDB

Duration

to 6 months 4

Level

Bac + 5

Number of Interns

1

projet 2 : Real-Time Computer Vision System for Detecting Spoiled Fruits and Vegetables

Description

This project aims to develop an intelligent real-time system that detects spoiled or damaged fruits and vegetables using computer vision. The solution leverages advanced image processing and deep learning models to classify products as fresh or spoiled with high accuracy. A React-based web dashboard will display detection results and insights in real time, while MongoDB will be used to store product statuses and system logs. The goal is to provide a reliable and efficient tool that can be deployed in supermarkets, warehouses, or quality-control environments.

Required Skills

Python , computer vision and deep learning , YOLO , React for front-end development , MongoDB for data storage

Technologies Use

Python , OpenCV , YOLO , PyTorch or TensorFlow , YOLO , PyTorch or TensorFlow , React , MongoDB

Duration

to 6 months 4

Level

Bac + 5

Number of Intern

1

project 3 : Real-Time Computer Vision System for Obstacle Detection in Retail Store Pathways

Description

This project focuses on developing a real-time computer vision system designed to detect obstacles in retail store pathways. The system aims to improve customer safety and optimize store operations by identifying objects blocking aisles or creating hazards. Using advanced object detection models, the system continuously analyzes video streams and triggers alerts when obstacles are detected. A React-based dashboard will provide real-time visualization and analytics, while MongoDB will store detection events and system data. The solution is intended for deployment in supermarkets, large retail spaces, and automated store environments

Required Skill

Python , computer vision and deep learning , YOLO , React for front-end development , MongoDB for data storage

Technologies Used

Python , OpenCV , YOLO , PyTorch or TensorFlow , YOLO , PyTorch or TensorFlow , React , MongoDB

Duration

to 6 months 4

Level

Bac + 5

Number of Interns

1

project 4 : Cybersecurity System Security

Description

This project aims to design a security framework for VisShop AI covering the web platform, data pipelines, and backend services. The work includes analyzing vulnerabilities, defining a secure architecture, implementing data protection measures, and setting up continuous monitoring to prevent unauthorized access and strengthen overall system security

Required Skill

Python or JavaScript basics , Cybersecurity fundamentals , Network or web security concepts Authentication and encryption basics , MongoDB or SQL basics (optional)

Technologies Used

OWASP guidelines , JWT or OAuth2 , MongoDB / SQL security features , Node.js or Python , Nginx , Basic penetration testing tools

Duration

4 to 6 month

Level

Bac+5

Number of Interns

1

project 5 : Full Stack Platform with AI Chatbot

Description

This project involves building a full stack platform with an integrated AI chatbot to improve user interaction and automate key processes. The system includes a responsive frontend, a backend for business logic and data handling, and a database for secure storage. The chatbot provides real-time assistance and helps users navigate the platform. Automated tests will ensure stability and performance

Required Skills

Frontend basics (React, HTML, CSS, JavaScript)Backend development (Python or Node.js)
Database management (MongoDB, MySQL, PostgreSQL)Basic AI/chatbot conceptsTesting tools

Technologies Used

React, Node.js / Python
MongoDB / MySQL / PostgreSQL
AI chatbot frameworks (Dialogflow, Rasa, or GPT API)
Testing tools (Jest, Selenium, etc.)

Duration

4 to 6 months

Level

Bac+5

Number of Interns

2–3

project 6 : Big Data-Driven Computer Vision System

Description

This project focuses on building a computer vision system supported by big data pipelines to process and analyze large-scale visual data. The system integrates image/video processing models with a scalable data architecture to handle ingestion, storage, and real-time analytics. The goal is to enable efficient detection, classification, and pattern extraction from massive visual datasets

Required Skills

Python , Basic computer vision and deep learnin , Big data fundamentals ,Experience with data processing tools (Spark, Hadoop, or similar) , Database or data pipeline concepts

Technologies Used

OpenCV, PyTorch / TensorFlow , Apache Spark / Hadoop , Kafka for data streaming(optional) MongoDB / HDFS / Data Lake , Python-based backend

Duration

4 to 6 months

Level

Bac+5

Number of Interns

1

project 7 : Generative AI Fine-Tuned System for Behavior Analytics and Smart Recommendations

Description

This project aims to develop a fine-tuned generative AI system capable of analyzing behavioral patterns and producing intelligent recommendations for retail environments. The system processes structured and unstructured data—such as customer interactions, product interest indicators, and movement patterns—and uses a specialized LLM to transform these signals into actionable insights. A simple full-stack interface will allow users to visualize behaviors and request recommendations in real time. The project supports applications like product placement optimization, cross-selling suggestions, and operational decision-making inside stores.

Required Skills

Python (data processing, model integration) , Generative AI and Large Language Models (LLMs)
Fine-tuning methods such as LoRA, QLoRA, or PEFTre

Technologies Used

Python – HuggingFace Transformers , LLaMA / Mistral or similar open-source LLM , LoRA / QLoRA , React , FastNode.js
MongoDB or PostgreSQL

Duration

4 to 6 months

Level

Bac+5

Number of Interns

1

project 8 : Basket Analysis and Forecasting

Description

This project aims to analyze customer purchase patterns using market basket analysis and develop forecasting models to predict future buying behavior. The system identifies product associations, frequent itemsets, and cross-selling opportunities, then uses time-series or machine-learning models to forecast demand trends. The objective is to support data-driven decisions in inventory planning, promotions, and product placement.

Required Skills

Python , Basics of data analysis and statistics , Knowledge of machine learning or time-series forecasting Familiarity with data preprocessing , Database basics (SQL or MongoDB)

Technologies Used

Python (Pandas, NumPy, Scikit-Learn) , Association rule mining (Apriori, FP-Growth) , Time-series models (ARIMA, Prophet, LSTM) , SQL / MongoDB , Visualization tools (Matplotlib, Seaborn, Power BI optional

Duration

4 to 6 months

Level

Bac+5

Number of Interns

1

project 9 : DevOps Cloud Infrastructure with Terraform and Kubernetes

Description

This project focuses on designing and deploying a scalable cloud infrastructure using Terraform for resource provisioning and Kubernetes (K8s) for container orchestration. The intern will build Infrastructure as Code (IaC), deploy Kubernetes clusters, configure CI/CD pipelines, and automate the deployment of containerized applications. The objective is to create a production-ready, self-healing, and scalable environment suitable for running VisShop AI services or any modern cloud-based platform.

Required Skills

Basic Cloud Computing knowledge (AWS, GCP, or Azure) , Terraform (Infrastructure as Code) , Kubernetes concepts (Pods, Deployments, Services) , Docker for containerization , Python or Bash scripting for automation , CI/CD fundamentals (GitHub Actions or GitLab CI)

Technologies Used

Terraform , Kubernetes (K8s) , Docker , Helm (optional) , GitHub Actions / GitLab CI
AWS / GCP / Azure (depending on availability)

Duration

4 to 6 months

Level

Bac+5

Number of Interns

1

project 10 : Business Intelligence Decision Support System for VisShop AI

Description

This project focuses on building a Business Intelligence decision-support layer integrated directly into the VisShop AI platform. The system will collect and process data generated from store activity such as customer flow, product interactions, dwell time, sales trends, and operational metrics. After cleaning and transforming the data, the system will generate dashboards inside VisShop AI that help managers understand performance, identify trends, and support data-driven decisions. The goal is to provide a unified, lightweight BI layer fully embedded in platform.

Required Skills

SQL and database queries , ETL basics (extract, clean, transform) , Data modeling and KPI design , Python (optional for automation) , Frontend basics for dashboard integration (React)

Technologies Used

VisShop AI internal dashboard (React) , Database (MongoDB or PostgreSQL) , Python ETL scripts , API integration

Duration

4 to 6 months

Level

Bac+5

Number of Interns

1

project 11 : Real-Time Computer Vision for Consumer Behavior Analysis

Description

This project develops a real-time computer vision system that analyzes consumer behavior inside retail stores. The system uses video streams to detect customer movements and product interactions, then sends the extracted metrics to an integrated dashboard to support store optimization and decision-making.

Required Skills

Python , Computer vision basics , YOLO , React basicsn , MongoDB

Technologies Used

Python , OpenCV , YOLO, React , MongoDB

Duration

4 to 6 months

Level :

Bac+5

Number of Interns :

2 or 3

project 12 : Synthetic Data-Driven Computer Vision System for Retail Product Recognition

Description

This project focuses on developing a computer vision system for recognizing retail products on store shelves using synthetic data and digital twin modeling. The work includes creating 3D models of products, generating synthetic training datasets, developing and training a visual recognition algorithm, and evaluating its performance in real store environments. The goal is to reduce data collection costs, improve model accuracy, and build a scalable solution suitable for retail applications.

Required Skills

Python , Computer vision and deep learning basics , 3D modeling or rendering concepts , Experience with synthetic data generation (optional but beneficial) , Knowledge of training and evaluating CV models

Technologies Used

Python, OpenCV , PyTorch or TensorFlow , 3D modeling tools (Blender or similar) , Synthetic data generation pipelines , Retail product test environment (real or simulated)

Duration

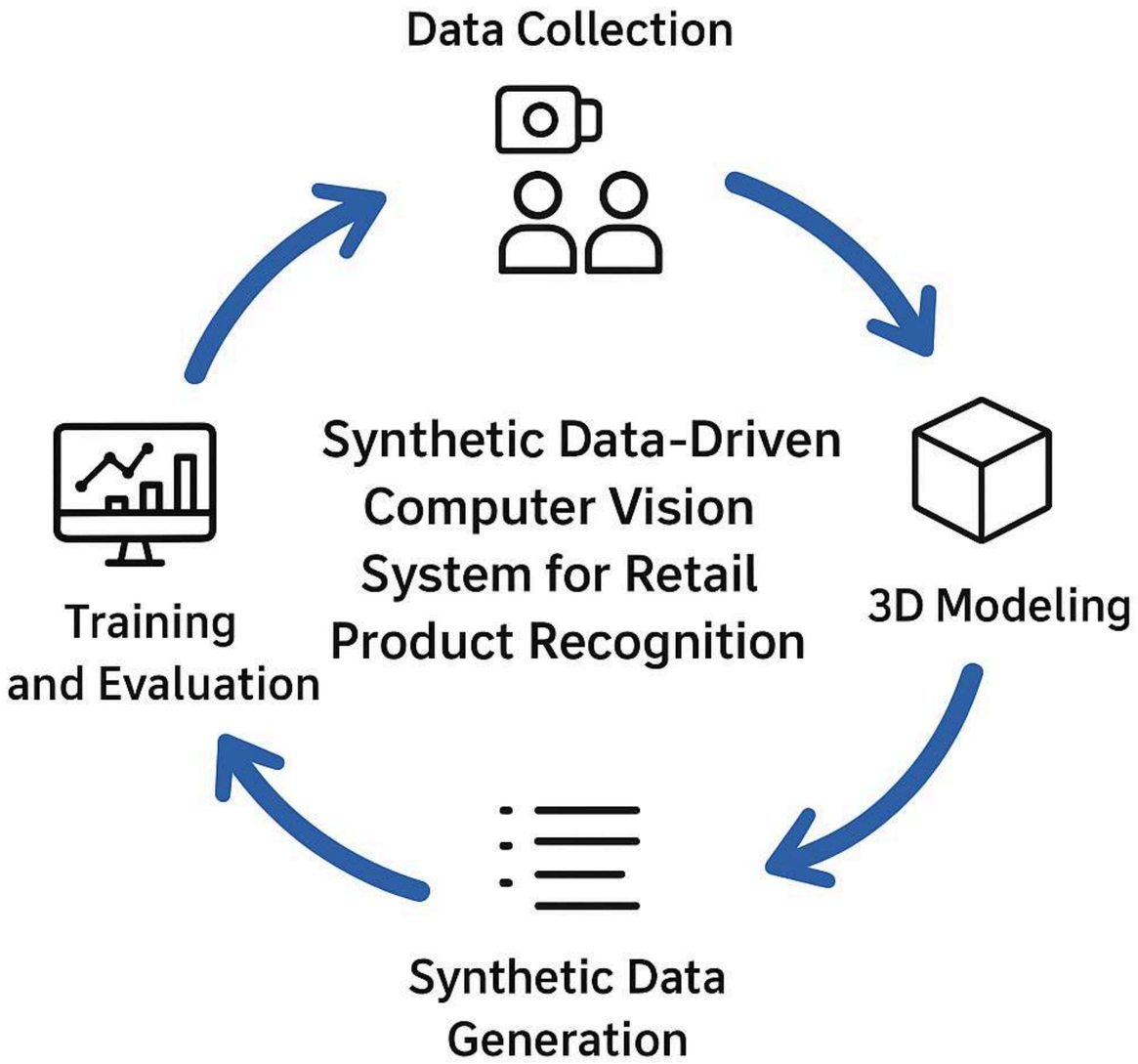
4 to 6 months

Level

Bac+5

Number of Interns

project 12 : Synthetic Data-Driven Computer Vision System for Retail Product Recognition



project 13 : Test Automation Framework

Description

Test Automation focuses on building an automated testing framework to validate software functionality, performance, and stability. The project includes designing test scenarios, implementing automated scripts, integrating tests into CI/CD pipelines, and generating detailed reports. The objective is to reduce manual testing, improve coverage, and ensure consistent software quality across releases.

Required Skills

Basics of software testing , Automation tools (Selenium, Cypress, or similar) , Python or JavaScript fundamentals , CI/CD concepts , Git and version control basics

Technologies Used

Selenium / Cypress / Playwright , Python or JavaScript , GitHub/GitLab , CI/CD tools (Jenkins, GitHub Actions, etc.) , Reporting tools (Allure, Jest Reports)

Duration

4 to 6 months

Level

Bac+5

Number of Interns

1 or 2

project 14 : UI/UX Design and Branding System

Description

This project focuses on designing a complete UI/UX experience and a unified branding system for a digital platform. The work includes defining the visual identity, building the design system, creating high-fidelity interfaces, and developing user journeys for both the main platform and the dashboard. The project aims to ensure visual consistency, improve usability, and deliver a scalable design foundation that can be directly used by development teams.

Required Skills

UI/UX design fundamentals , Wireframing and prototyping , Knowledge of design systems , Branding and visual identity concepts , Basic understanding of user research

Technologies Used

Figma (primary tool) , Adobe Illustrator / Photoshop , Whimsical / Miro for flows and structures , Placeit or similar tools for mockups

Duration

4 to 6 months

Level

Bac+5 or bac +3

Number of Interns

1

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For inquiries or further information, feel free to reach out :

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