KneeVision

Team S.T.A.R Labs

Agenda

01

OUR TEAM

Roles and Project Responsibilities

02

PROJECT DESCRIPTION

Problem, Personas and Product Idea

03

TOOLS & TECHNOLOGY

Tech Stack and Algorithms

04

TEAM LOGISTICS

Schedule and Team Agreement

05

RETROSPECTIVE

Analysis and Action Items

Our Research Team

Daniel Fox
Team Leader/ Developer

Manohar Killamsetti
Scrum Master/Developer

Siming Li
Developer/Tester

Sarvesh Shah
Cloud Developer

Swatej Goud
Backend Developer

Deep Patel
ML Developer

Problem Statement

Knee X-ray imaging is commonly used to evaluate osteoarthritis, yet interpreting radiographic signs of disease severity can be subjective and inconsistent due to subtle visual differences and reliance on manual assessment. While advanced imaging techniques such as MRI provide greater detail, they are expensive and less accessible. This creates a need for scalable and consistent analysis methods that can assist in assessing knee osteoarthritis using widely available X-ray images.

Project Definition

- A web-based platform that uses deep learning to analyze knee X-ray images for knee osteoarthritis severity assessment.
- Intended for individuals, researchers, and clinicians seeking consistent and scalable analysis of knee X-ray data.
- Leverages publicly available datasets and established convolutional neural network (CNN) models.
- Designed as an AI-assisted decision-support and research tool, not a diagnostic system.
- Benefits include improved consistency, scalability, and reduced subjectivity in manual X-ray interpretation.

Persona - 1: The Practitioner

ORTHOPEDIC SURGEON | URBAN TEACHING HOSPITAL

Dr. Sarah Chen, 42

An expert in orthopedic medicine with 15 years of experience. Sarah operates in high-volume clinics where diagnostic speed is paramount to patient throughput and surgical triage.

KEY GOALS

- Rapid knee X-ray triage
- Reduce initial assessment time
- Validation for borderline cases

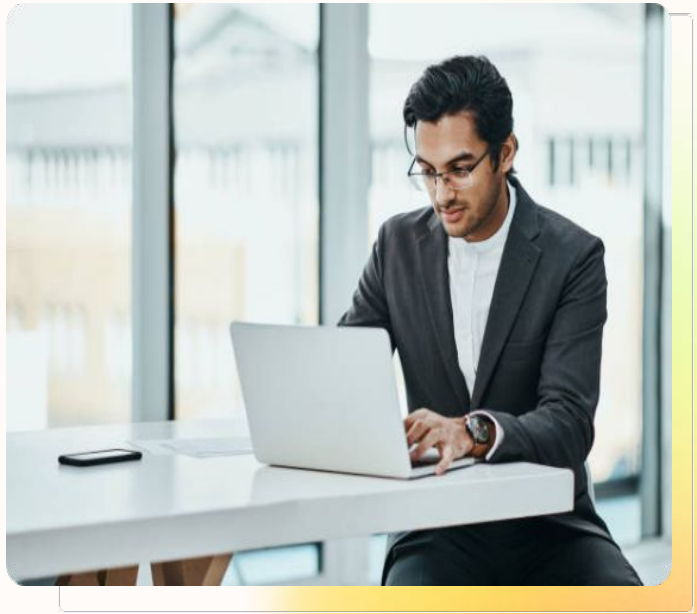
- Fatigue from patient volume
- Reader reporting variability
- Limited case analysis time

Persona - 2: The Research Coordinator

CLINICAL RESEARCH COORDINATOR

Alex Rodriguez, 29

A data-centric professional managing multi-site studies. Alex focuses on standardization, data integrity, and inter-rater reliability across large datasets.



STRATEGIC GOALS

- Standardize severity grading
- Efficient batch processing
- Structured data exporting
- Ensure rater reliability

OPERATIONAL PAINS

- Manual grading inconsistency
- Lengthy training cycles
- Audit trail requirements
- Historical data re-analysis

Persona - 3: The Learner

3RD YEAR MEDICAL STUDENT

Maya Patel, 24

A digital native in her clinical rotations. Maya uses the platform as a pedagogical tool to build pattern recognition skills and diagnostic confidence before her residency.

LEARNING GOALS

- Identify radiographic signs
- Immediate feedback practice
- Grade/Clinical correlation

ACCESS OBSTACLES

- Limited diverse case access
- Assessment uncertainty
- Limited attending time

What will our MVP be?

- Web-based interface
- Image preprocessing pipeline
- Deep learning model
- Severity assessment output
- Basic result visualization
- Mobile-responsive UI

Tools & Technologies

Languages: 

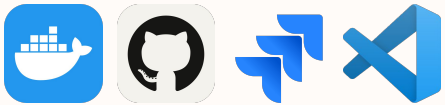
Frontend: 

Backend: 

ML/DL Libraries: 

Database: 

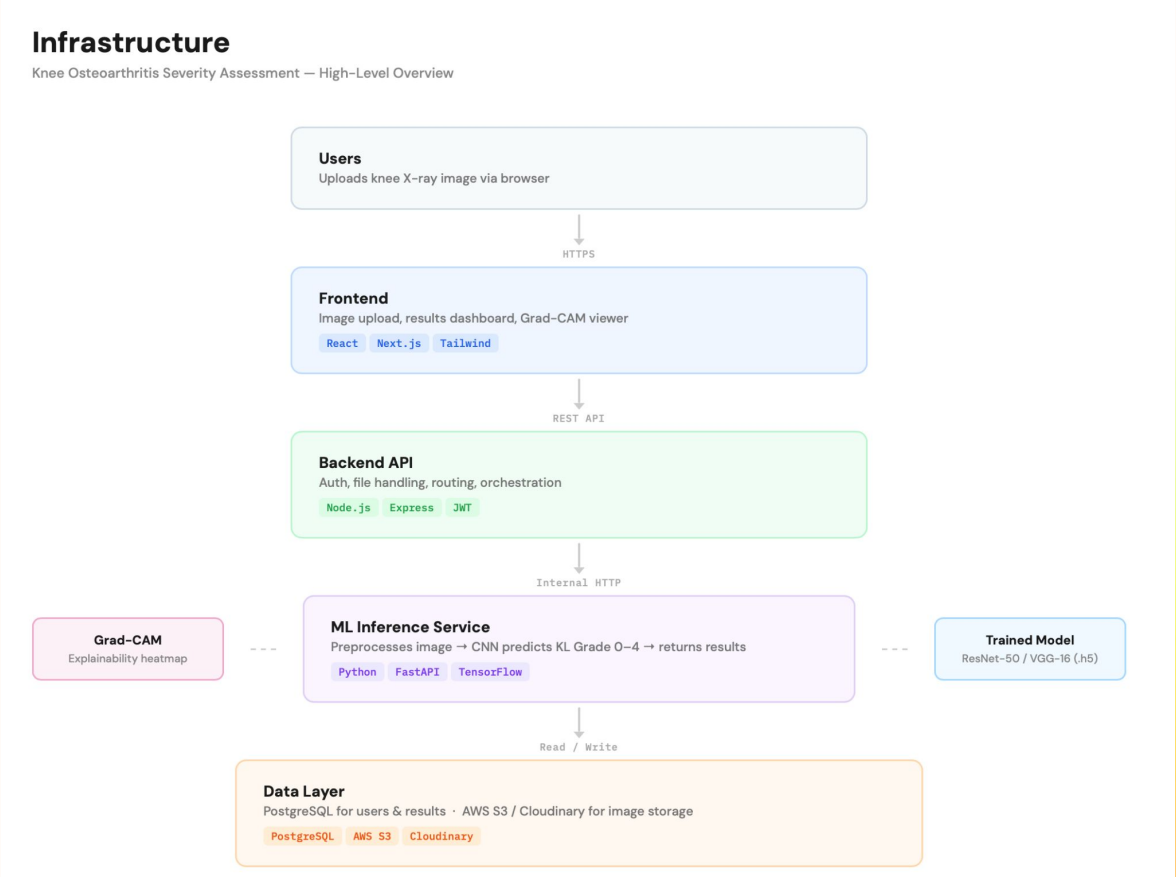
Cloud: 

Tools: 

ML Inference: 

Misc. Libraries: 

Technical Infrastructure



Project Roadmap

Sprint Schedule & Key Deliverable

0

DEADLINE: FEB 19

Foundation

- Project Charter & MVP
- GitHub & Tech Stack Setup
- Backlog Creation

DELIVERABLES:
Presentation + Wiki + Backlog

1

DEADLINE: MAR 26

Core Features

- User Auth
- Image Upload
- Image Gallery

DELIVERABLES:
Working Demo + Wiki + Tests

2

DEADLINE: APR 16

AI Engine

- Model Training
- Prediction API
- KL Grade Results

DELIVERABLES:
AI Demo + Draft Paper + Wiki

3

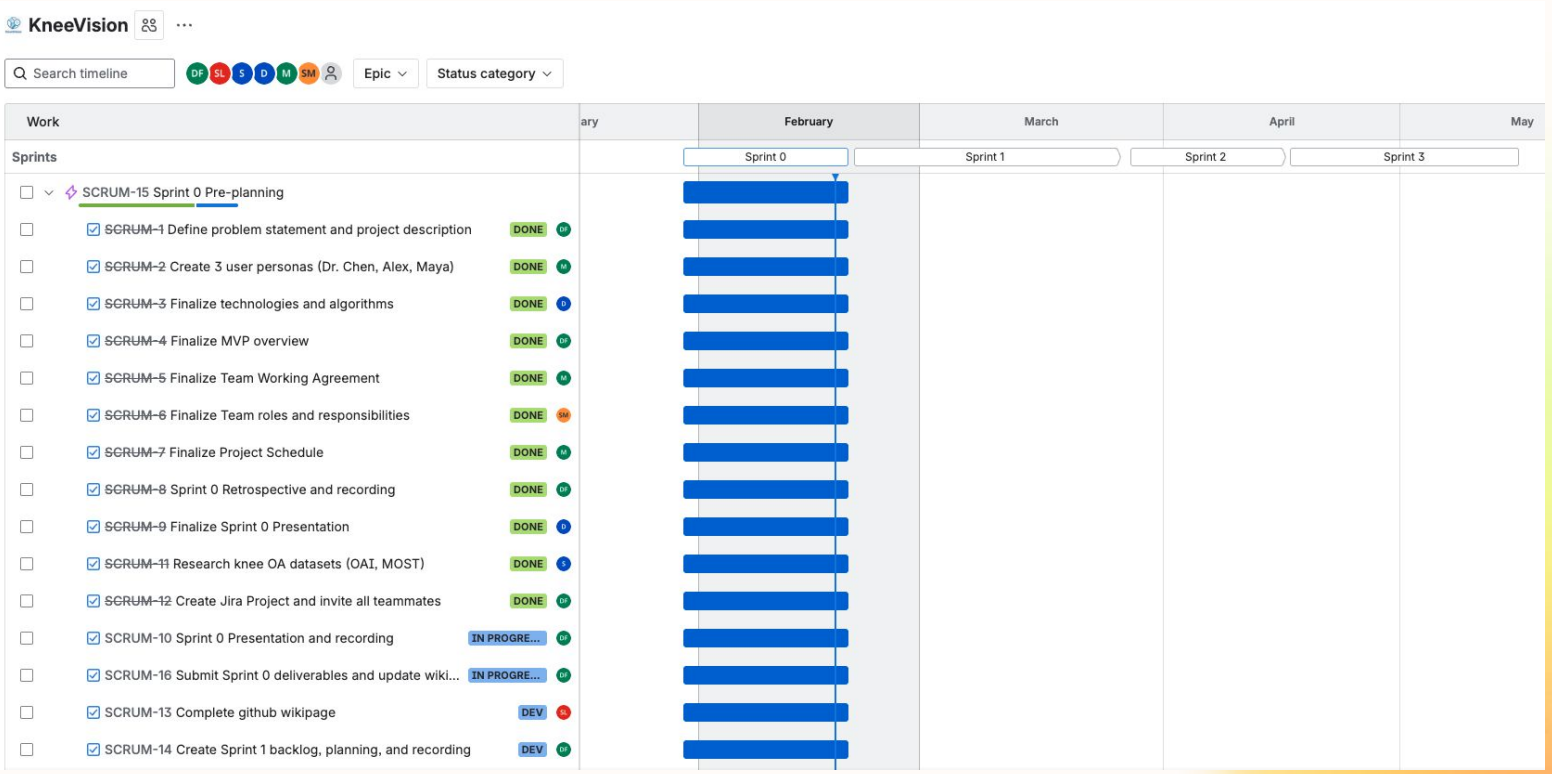
DEADLINE: MAY 14

Deployment

- History & CSV Export
- Security & UAT Audit
- Production Launch

DELIVERABLES:
Final MVP + Full Documentation

Project Schedule



Team Agreement: Collaboration Standards

Meeting Pattern

Synchronous sessions twice weekly (Sun/Tue).
Mandated Agenda
documents for every session.
Continuous async sync via WhatsApp/Discord.

Decision Making

Majority-vote consensus based on researched evidence. Inclusive voicing of concerns during all discussion phases.

Technical Workflow

No direct pushes to Main. Isolated feature branches only.
Peer Approval. Every PR requires at least one secondary reviewer.
Jira Hygiene. Mandatory linking of work to Jira tracker IDs.
Blockers. Resolve locally & document attempts before escalation.

Team Agreement: Definition of “Done”

Category	Standard for Completion
Execution	Code runs without syntactical or runtime errors.
Compliance	Work meets all Industry Standards.
Verification	Work reviewed by multiple members & verified on multiple systems.
Documentation	All necessary docs tagged or updated along with code push.
Testing	All pre-defined test scenarios must be passed.

Sprint 0 Retrospective: Important Points

What Went Well

- Strong team engagement and collaboration throughout Sprint 0
- Early alignment on a feasible project scope (Knee Osteoarthritis)
- Effective communication and idea sharing during planning
- Timely completion of Sprint 0 deliverables

Improvements

- Meetings occasionally ran longer than planned
- Discussions sometimes lacked clear structure or focus
- Varying familiarity with the selected tech stack
- MVP scope refinement took longer than expected

Action Items

- Establish a clear agenda for each meeting
- Assign a meeting facilitator/timekeeper
- Ensure all team members review the tech stack before Sprint 1
- Finalize MVP features early to guide development

Wiki Page Link

https://github.com/htmw/STARLABS/wiki#kneevision

THANK YOU

Team S.T.A.R Labs