



Business Transformation Case Study

"Enhancing Neurological Care Through AI in Healthcare"

About The Client

Organization: Neurological Healthcare Provider

Industry: Healthcare

About: This client caters to the healthcare sector, focusing on patients with neurological disorders and the clinicians treating them. The platform bridges communication gaps and improves treatment accuracy by integrating advanced technology and data-driven insights.

Technologies Used

- Frontend: React.js (web) and React Native (mobile).
- Backend: Firebase Cloud Functions for server-side logic.
- Database: Firestore for real-time synchronization.
- AI Tools: Gemini AI for behavioral analysis.
- Security: HashiCorp Vault for encryption.
- Automation: GitHub Actions for CI/CD workflows.

Business Need

The client, a leader in the healthcare sector focusing on neurological disorders, faced the following challenges:

- Low patient engagement in tracking symptoms and behaviors.
- Incomplete data leading to less accurate treatment plans.
- Lack of real-time communication between patients, clinicians, and caregivers.
- Insufficient integration of analytics and video documentation for detailed insights.
- Ensuring compliance with healthcare regulations such as HIPAA.

The Approach

AlgebraIT partnered with the client to design a comprehensive solution tailored to their needs. Key steps included:

- Developed a patient-facing mobile app for real-time symptom logging and video documentation.
- Created a clinician-facing web application with advanced analytics tools to identify trends in patient data.
- Integrated AI-driven behavioral analysis for personalized treatment recommendations.
- Implemented secure, real-time communication tools to enhance collaboration among stakeholders.
- Ensured compliance with HIPAA and other healthcare regulations.

The Solution

This project is an advanced, data-driven platform designed to improve the diagnosis and treatment of neurological disorders by leveraging real-time symptom tracking, video documentation, and behavioral analysis. The system includes a clinician-facing web application and a patient-facing mobile application, which work together to streamline workflows for clinicians and offer patients a user-friendly interface for managing their condition.

- **Mobile Application:** Empowering patients to log symptoms, upload video documentation, and track progress.
- **Web Application:** Providing clinicians with tools for behavioral analysis, treatment insights, and real-time analytics.
- **Secure Communication:** Enabling seamless messaging and data sharing between patients, clinicians, and caregivers.
- **Scalable Infrastructure:** Supporting future growth in data and users with a flexible architecture.

Benefits

The implemented platform delivered the following measurable outcomes:

- Increased Patient Engagement: Simplified interfaces resulted in higher usage and adherence.
- Improved Treatment Accuracy: AI-driven insights enabled more personalized care plans.
- Streamlined Clinician Workflows: Reduced administrative workload, freeing time for patient care.
- Enhanced Data Security: Full compliance with HIPAA and robust encryption protocols.
- Scalability: Positioned the platform for future expansion and technological upgrades.

Visuals

1) Design Diagram

