Classification of Arrhythmia by Using Deep Learning with 2-D ECG Spectral Image Representation

**Based on ten customer interviews and observations from the Fairplane Guided City Tours team**

Claudia Larmon

Menaka Mahajan

Jerome Phillips

Alejandro Flores

Emma Sato

# Entice

**SCENARIO**

**Classification of Arrhythmia by Using Deep Learning**

How does someone initially become aware of this process?

# Enter

What do people experience as they begin the process?

# Engage

In the core moments in the process, what happens?

# Exit

What do people typically experience

as the process finishes?

# Extend

What happens after the experience is over?

## Steps

**Visit the web application**

**Personalized recommendations**

**Health Status**

**submitting review and exiting**

**Print the report**

**Download The report**

**View the result**

**Upload the ECG images**

**Symptom Identification**

**How it works?**

**Subscription**

**Personal Detail**

**Sign In**

**Symptoms of arrythmia**

**Echo cardiogram**

**Doctor Recommendation**

**With the help of medical labs**

What does the person (or group) typically experience?

Most customers discover app by the medical labs.

They visit the website for detailed information

They prescribe this application for more information.

A hand-held device which produces images of the heart size and structure.

When they started to get symptoms, they search for it.

They Sign in to create an account

They fill out their contact and other details and then continue

They see a summary of what they are about to purchase.

Basic Knowledge about the arrhythmia

Choosing the symptoms that matches with the patient

Uploading the ECG images provide by the medical lab

The result will be viewed with detailed information.

The report can be downloaded.

The report can be shown to the doctor in the printed format

The user submits the review and exits the web app.

Has a complete medical history of the patient

The user gets better personalization.

## Interactions

Sign In to Arrhythmia Classification Section

Arrhythmia Classification section of the website, iOS app, or Android app

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Recommendations span across website, iOS app, or Android app

Completed experiences section of the profile on the website, iOS app, or Android app

“Leave a review” modal window within the profile on the website, iOS app, or Android app

Printing the report.

The reports are viewed in the report page.

The results are viewed.

Direct interactions with the user by uploading images.

Tends to identify the symptoms.

The user gets learns about the arrhythmia

Payment overlay within the website, iOS app,

or Android app

Personal details are entered

What interactions do they have at each step along the way?

Download the report.

The results are viewed.

**People:** Who do they see or talk to?

Getting to know the symptoms.

**Places:** Where are they?

**Things:** What digital touchpoints or physical objects would they use?

## Goals & motivations

Help me see what I could be doing next

Help me to have a follow up in my health.

Help me make sure I don't waste money or get disappointed some other app.

Help me to get the report.

Help me make the most of my trip to this new place

Help me feel good about my decision to go on this tour and to feel welcome

Help me feel confident about where to go and which one of these people is my guide

Help me understand what this app is all about

Help me feel confident that my purchase is finalized and tell me what to do next

Help me get the details.

Help me in account creation

Help me to find symptoms

Help me see what they have to offer

Help me getting recommendation.

Help me to find the web app.

Help me discover the app.

At each step, what is a person’s primary goal or motivation? (“Help me...” or “Help me avoid...”)

User friendly experience

## Positive moments

What steps does a typical person find enjoyable, productive, fun, motivating, delightful, or exciting?

Getting an accurate result.

### Simplified Application

### Getting result in an affordable price.

Gives Quick Response.

Extremely useful user support.

### People gives rating.

Multilayered secure application.

## Negative moments

What steps does a typical person find frustrating, confusing, angering, costly, or time-consuming?

People sometimes upload blurred photos.

More complex data.

### People express a bit of fear of privacy.

### Maintenance of database is difficult.

#### People unsure about the result.

People are uncertain of the outcome.

### Customers report feeling review fatigue

## Areas of opportunity

How might we make each step better? What ideas do we have? What have others suggested?

It can be expanded further in classification of other related diseases.

Produce accurate results even with accurate photos.

Make it easier to get results without having any prior experience.

### Provide a simpler summary to avoid information overload

Show highlights or common phrases from reviews.

Provide healthy diet suggestions.

#### How might we make it clear that tipping is appreciated but not necessary?

#### Could we A/B test different language to see what changes response rates?

How might we progressively disclose the full review so that each step feels more simple?

Frequent reminders on exercise,diets.