

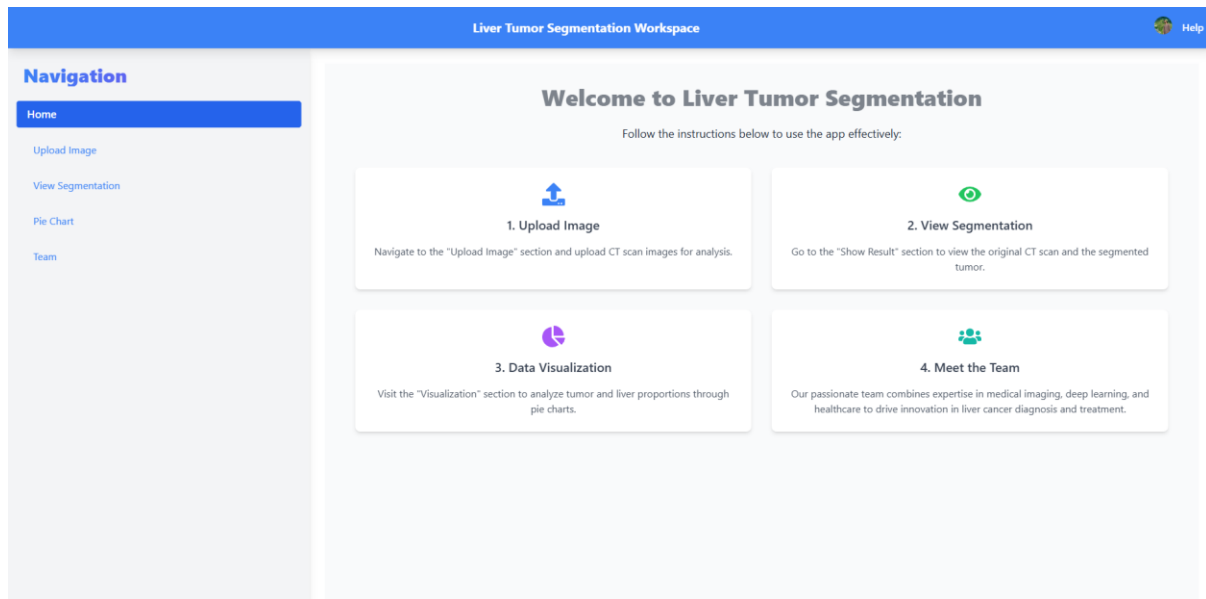
# Liver Tumour Segmentation System Using HCI Principles

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# Home Page



## HCI Principles

### 1. Visibility of System Status

- **What it means:** The app shows you where you are and what you can do next, so you always know what's going on.
- **Why it matters:** The headings and icons on each card give you clear, immediate information about what you're supposed to do.

### 2. Match between System and the Real World

- **What it means:** The app uses words and icons that make sense to you, based on what you already know.
- **Why it matters:** Familiar terms like "Upload Image" and simple icons (like a file upload or an eye) make the app easy to use because it aligns with what you expect.

### 3. Consistency and Standards

- **What it means:** The design stays the same throughout the app, so everything feels familiar and easy to understand.
- **Why it matters:** The consistent layout and icon styles make the app predictable, which makes it easier for you to use.

### 4. Aesthetic and Minimalist Design

- **What it means:** The design is simple, clean, and easy to navigate, with plenty of space and only the necessary information.
- **Why it matters:** A clear, uncluttered design helps you focus on the important tasks without distractions.

## 5. Flexibility and Efficiency of Use

- **What it means:** Whether you're a beginner or more experienced, the app is easy to use, and it lets you get things done quickly.
- **Why it matters:** Icons and labels are easy to recognize, so you can navigate the app without much effort, no matter your experience level.

## 6. Error Prevention

- **What it means:** The app is designed to prevent mistakes, making it easy to know what to do next.
- **Why it matters:** Clear instructions and labels reduce confusion, helping you avoid mistakes, like uploading the wrong file.

## 7. Help Users Recognize, Diagnose, and Recover from Errors

- **What it means:** While the app tries to prevent errors, it also helps you quickly fix them if they happen.
- **Why it matters:** The design helps reduce errors, and if something goes wrong, it will be clear what the problem is and how to fix it.

# Upload Image Page

The screenshot shows a web application interface for 'Liver Tumor Segmentation Workspace'. On the left is a 'Navigation' sidebar with links: Home, Upload Image (highlighted), View Segmentation, Pie Chart, and Team. The main content area is titled 'Upload Image & Patient Details'. It contains a 'Patient Details' section with input fields for 'Patient Name', 'Patient Age', a 'Gender' dropdown menu (set to 'Male'), and a 'Medical History' text area. Below this is an 'Upload Image (JPG, PNG)' section with a dashed box for file upload, a 'Browse Files' button, and a 'Submit Details' button. The top right of the interface has a 'Help' icon.

## HCI Principles

### 1. Visibility of System Status

- Provide immediate feedback after actions, such as uploading a file or submitting details.

- Example: Display a spinner or progress bar during file uploads and a confirmation message after submission.

## **2. Match Between System and the Real World**

- Use clear labels like "Patient Name" and "Drag & drop .jpg or .png files here" to match user expectations.
- Replace technical terms (e.g., "Submit Details") with simpler phrases, if needed, like "Save Patient Info".

## **3. User Control and Freedom**

- Implement undo/redo functionality (already in place) for modifying patient details.
- Allow users to clear uploaded files or reset the form.

## **4. Consistency and Standards**

- Ensure consistency in button styles and layout.
- Use standard icons (e.g., FaFileAlt) and consistent wording like "Browse Files" across the app.

## **5. Error Prevention**

- Validate file types before upload and provide descriptive error messages.
- Add placeholder text for mandatory fields to guide users on what to enter.

## **6. Recognition Rather Than Recall**

- Use dropdowns for gender selection to reduce user input errors.
- Display uploaded file names and images so users don't need to remember what they uploaded.

## **7. Flexibility and Efficiency of Use**

- Support keyboard shortcuts (like Ctrl+Z for undo and Ctrl+Y for redo).
- Add a bulk-upload feature for advanced users, if applicable.

## **8. Aesthetic and Minimalist Design**

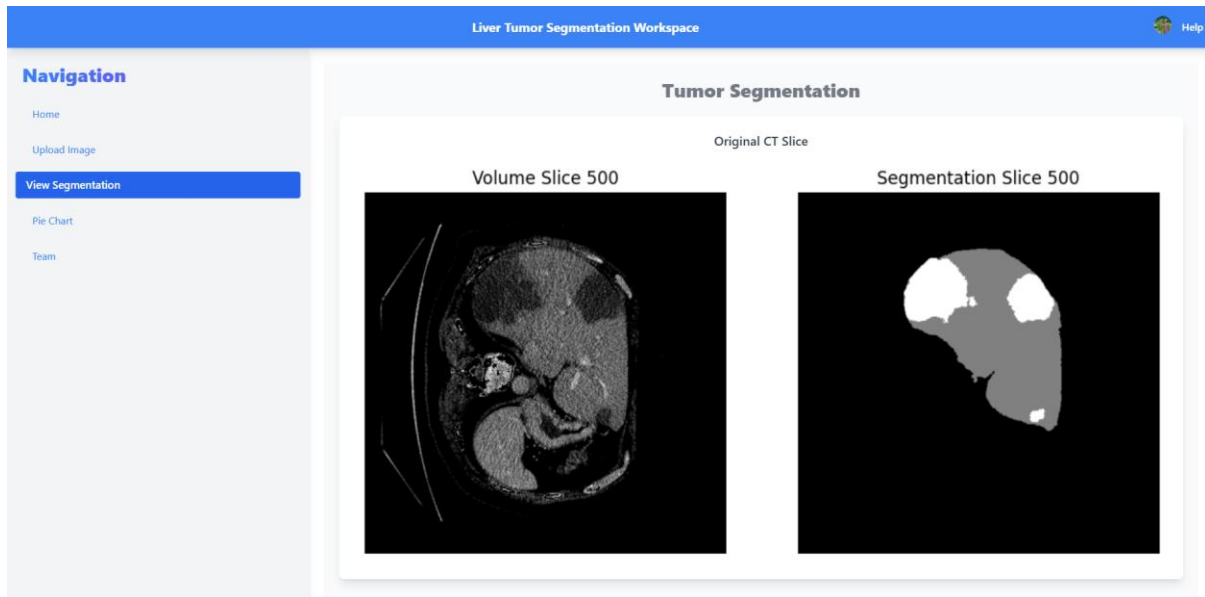
- Avoid unnecessary information or elements. Keep the interface clean and visually appealing.
- Use animations (e.g., animate-pulse on the heading) sparingly to maintain simplicity.

## **9. Help Users Recognize, Diagnose, and Recover From Errors**

- Show error messages like "Invalid file type. Please upload a .jpg, .jpeg, or .png image" prominently.

- Add retry options for failed actions, like re-uploading an image.

## View Segmentation Page



## HCI Principles

### 1. Visibility of System Status

- Actions like zooming or opening images give immediate feedback, so users know what's happening.

### 2. Match Between System and the Real World

- Common actions like "click to enlarge" and "zoom in/out" mimic real-life behaviour, making it intuitive.

### 3. User Control and Freedom

- Users can close the modal anytime with the **"X" button** or the **Escape key** and adjust zoom levels easily.

### 4. Consistency and Standards

- Buttons, animations, and layouts follow standard patterns, so users know what to expect.

### 5. Error Prevention

- Zoom limits stop users from zooming too much or too little, avoiding confusion.

### 6. Recognition Rather Than Recall

- Visible buttons and clear labels like **"Zoom In"** make actions obvious without needing to remember anything.

## 7. Flexibility and Efficiency of Use

- Beginners see helpful buttons, while advanced users can quickly use the Escape key to close the modal.

## 8. Aesthetic and Minimalist Design

- The design is clean and focused on essential elements, like images and zoom buttons.

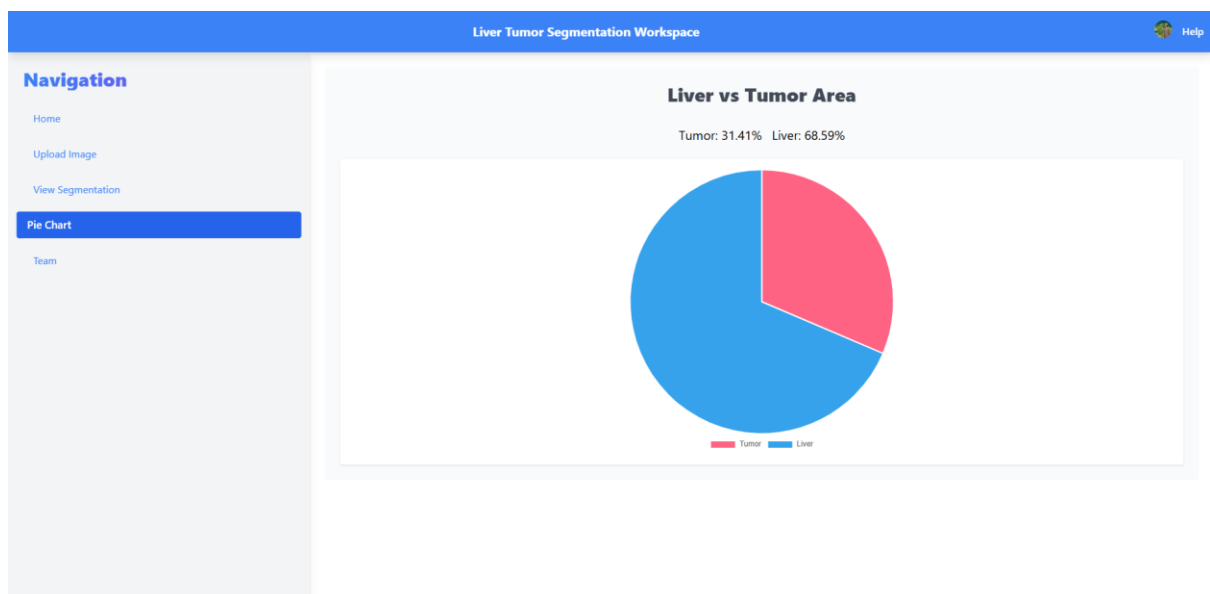
## 9. Help Users Recognize and Recover from Errors

- Users can adjust zoom or drag images back into place if they make a mistake.

## 10. Help and Documentation

- Simple instructions, like **"Click on images to view them in full screen"**, guide users without extra effort.

# Visualization Page



## HCI Principles

### 1. Visibility of system status:

- The pie chart updates dynamically based on user input, reflecting the current values of tumor and liver areas.
- The values for "Tumor" and "Liver" are editable directly on the UI, showing real-time changes after the user clicks on them.

### 2. User control and freedom:

- Users can click on the values of tumor or liver areas to edit them and easily undo or correct mistakes, as the total will always remain at 100% due to the automatic update of the other part.

### 3. Consistency and standards:

- The chart elements use consistent color coding (red for tumor, blue for liver) to maintain clarity and standardization.

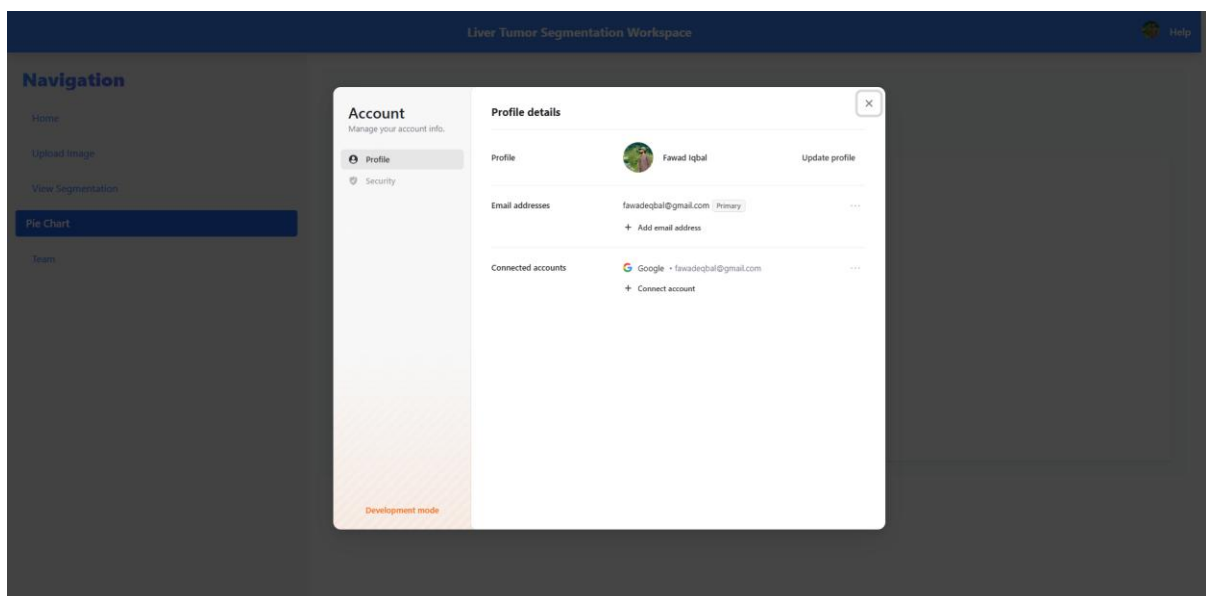
### 4. Error prevention:

- The pie chart automatically ensures that the sum of the two values (tumor and liver) always equals 100%. This prevents user errors like entering values that add up to more than 100% or less than 100%.

### 5. Aesthetic and minimalist design:

- The interface is clean and simple, focusing only on the essential elements: the chart.

## User Profile Page



## HCI Principles

### 1. Visibility of System Status

- **Feature:** The user should see their status (e.g., logged in, pending tasks) and updates in real-time.
- **Example:** A loading spinner or progress bar when updating profile information.

### 2. Match Between System and the Real World

- **Feature:** Use familiar labels and icons that match the user's real-world understanding of a profile page.
- **Example:** Common labels like "Name", "Email", "Role" for clarity.

### 3. User Control and Freedom

- **Feature:** Users can easily make changes to their profile, and undo or cancel actions if needed.
- **Example:** A "Save" and "Cancel" button that allows users to either apply or revert changes.

#### **4. Consistency and Standards**

- **Feature:** Use consistent design elements across the profile page and other sections of the application.
- **Example:** Same buttons, font styles, and color schemes used throughout the site.

#### **5. Error Prevention**

- **Feature:** Validation checks to avoid common user errors like entering incorrect email formats.
- **Example:** Real-time validation on input fields with error messages (e.g., "Please enter a valid email address").

#### **8. Aesthetic and Minimalist Design**


- **Feature:** The page design should be simple, clean, and avoid unnecessary elements.
- **Example:** A profile layout with only the necessary fields and buttons visible, ensuring a clutter-free interface.




## Sign in Page

Sign in to Liver Tumor Segmentation

Welcome back! Please sign in to continue

 Apple

 Google

or

Email address

Enter your email address

Continue

Don't have an account? [Sign up](#)

Development mode