Liver Tumour Segmentation System Using HCI Principles

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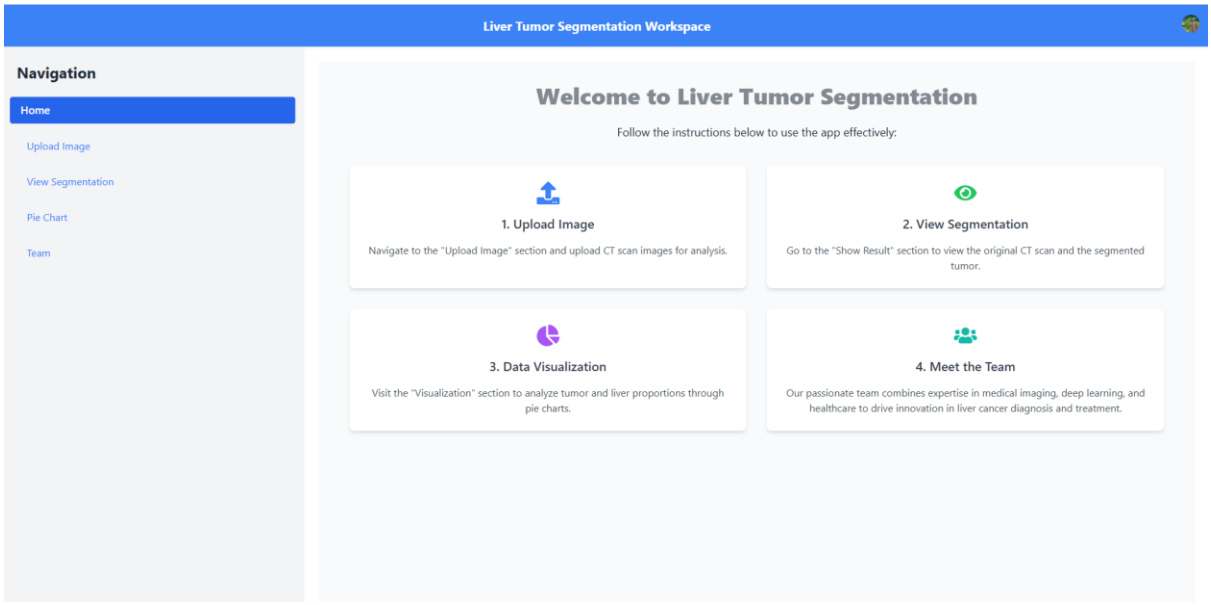
Home Page



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.

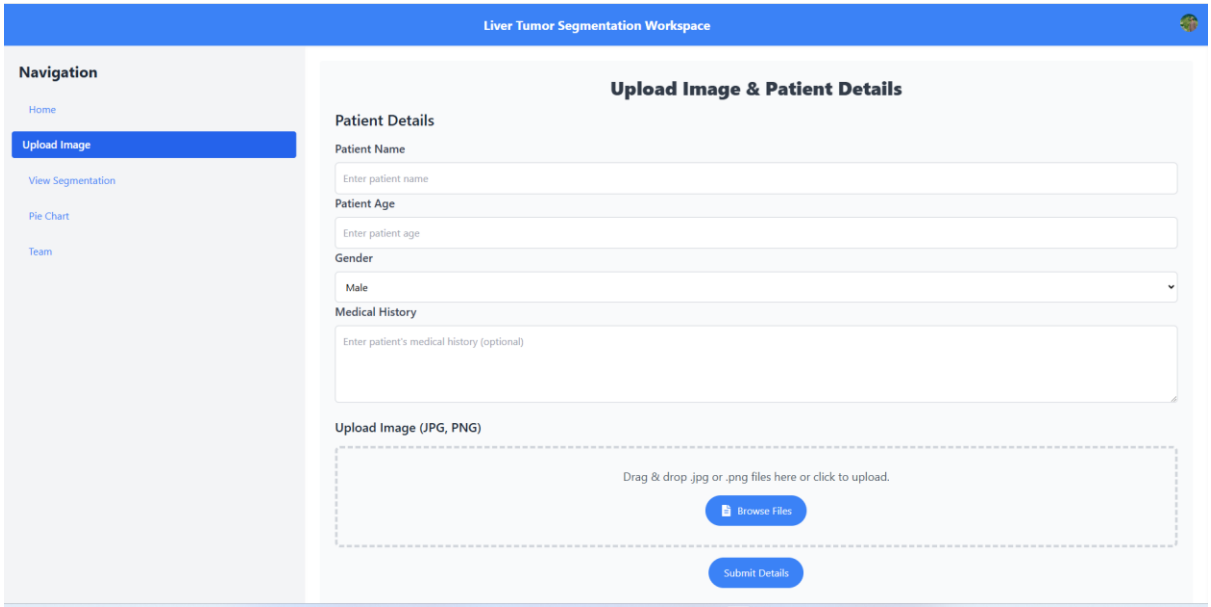
3. Consistency and Standards

- **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.

Upload Image Page



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. Flexibility and Efficiency of Use

- Support keyboard shortcuts (like Ctrl+Z for undo and Ctrl+Y for redo).

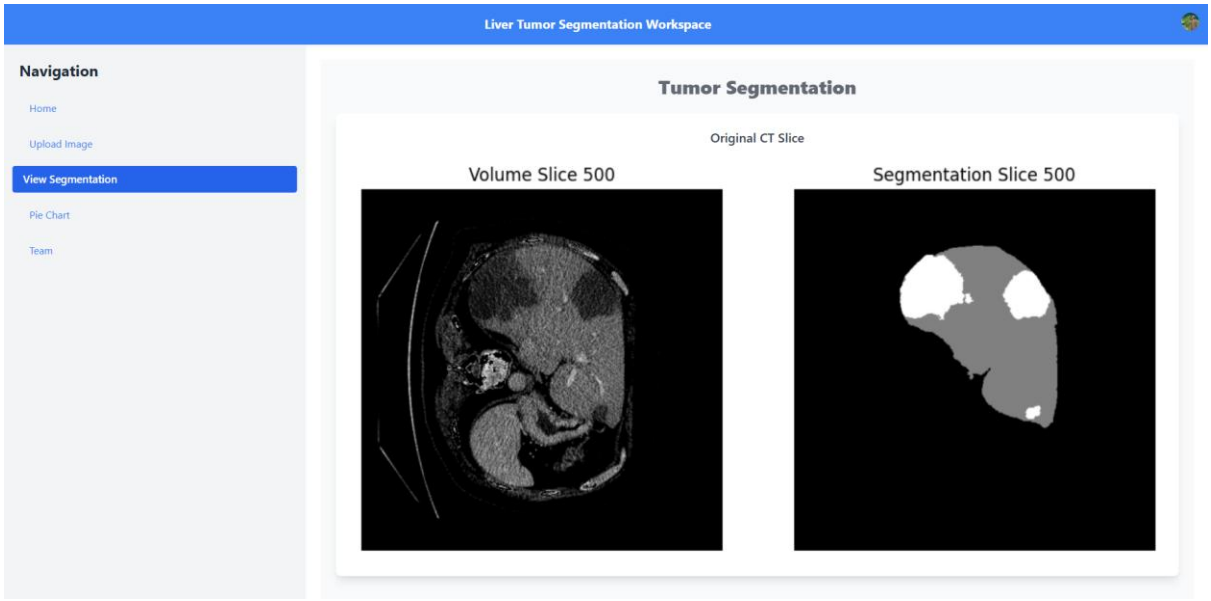
7. Aesthetic and Minimalist Design

- 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.

8. Help Users Recognize, Diagnose, and Recover From Errors

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

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.

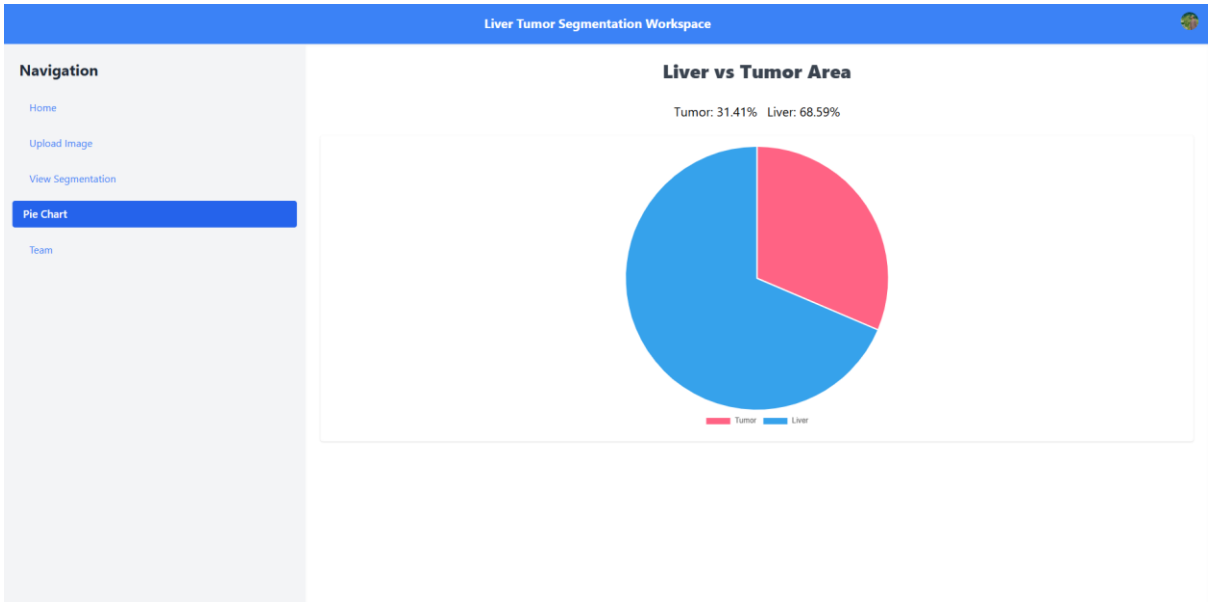
9. Help Users Recognize and Recover from Errors

- 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.

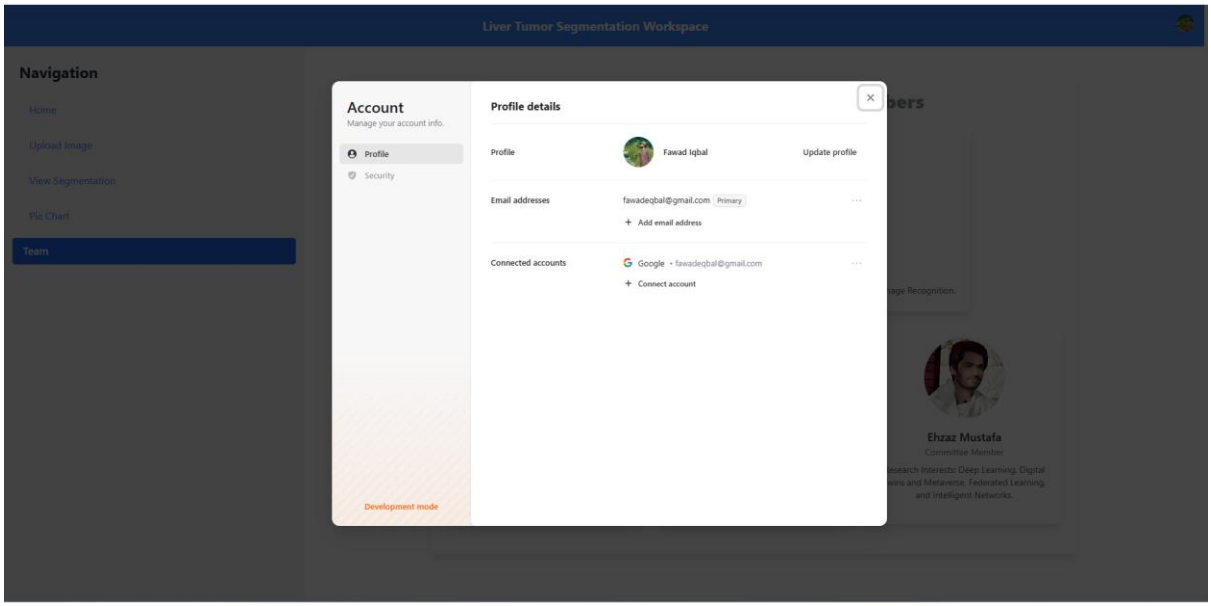
Visualization Page



HCI Principles

1. **Consistency and standards**:
    - The chart elements use consistent color coding (red for tumor, blue for liver) to maintain clarity and standardization.
2. **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%.
3. **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