

NoPeek: Documentation

W.A.T

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1 Features of the Project

Our project is designed as a **privacy-first solution for social media content sharing**. In the digital era, where every image and post can spread in seconds, protecting personal and sensitive information has never been more crucial. With *NoPeek*, privacy becomes a default safeguard rather than an afterthought. Below we outline the key features of our flagship project:

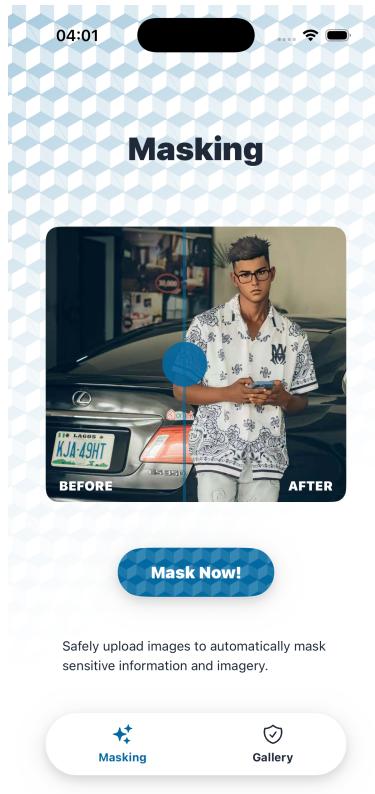


Figure 1: Main Page: you can see the example results by dragging the line left to right

1. Remove EXIF Information

Most digital photos carry hidden metadata (location, device model, timestamps). Our system strips this automatically to eliminate leaks. See Figure 2 for more information!

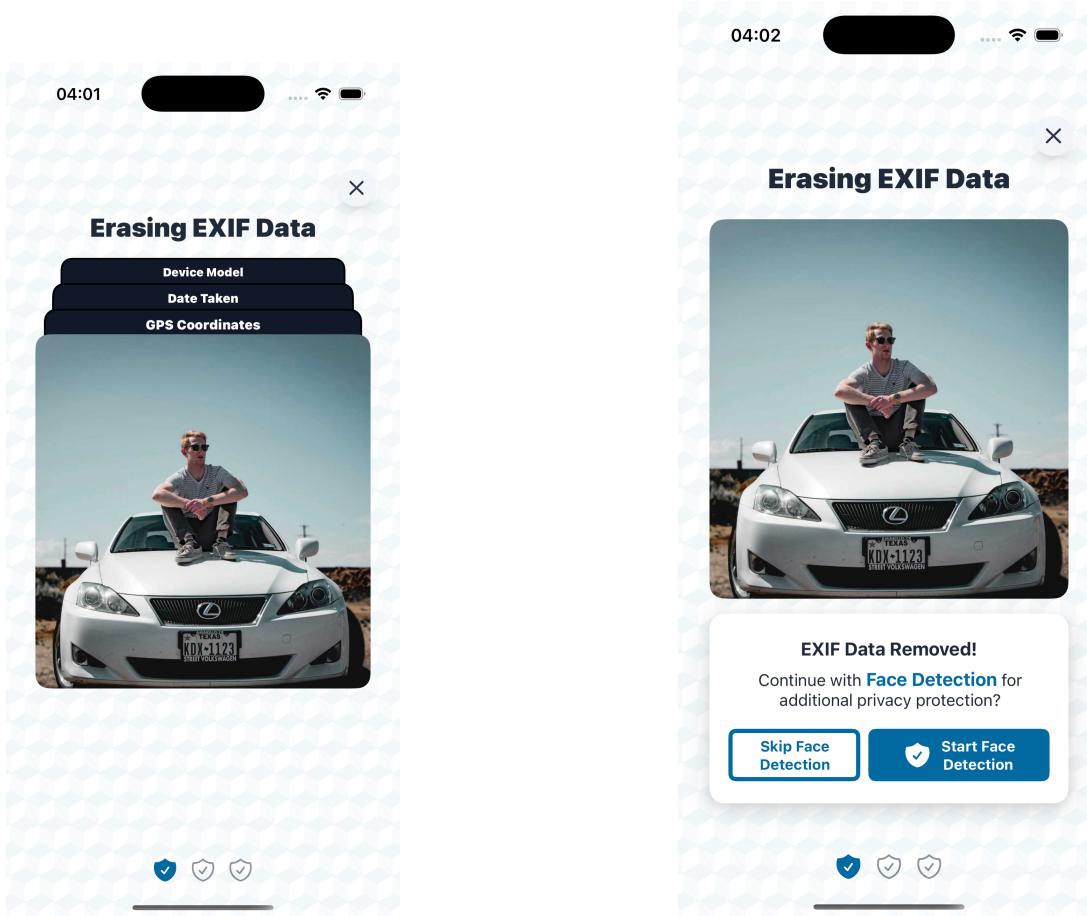


Figure 2: EXIF meta data elimination. Keep your image safe.

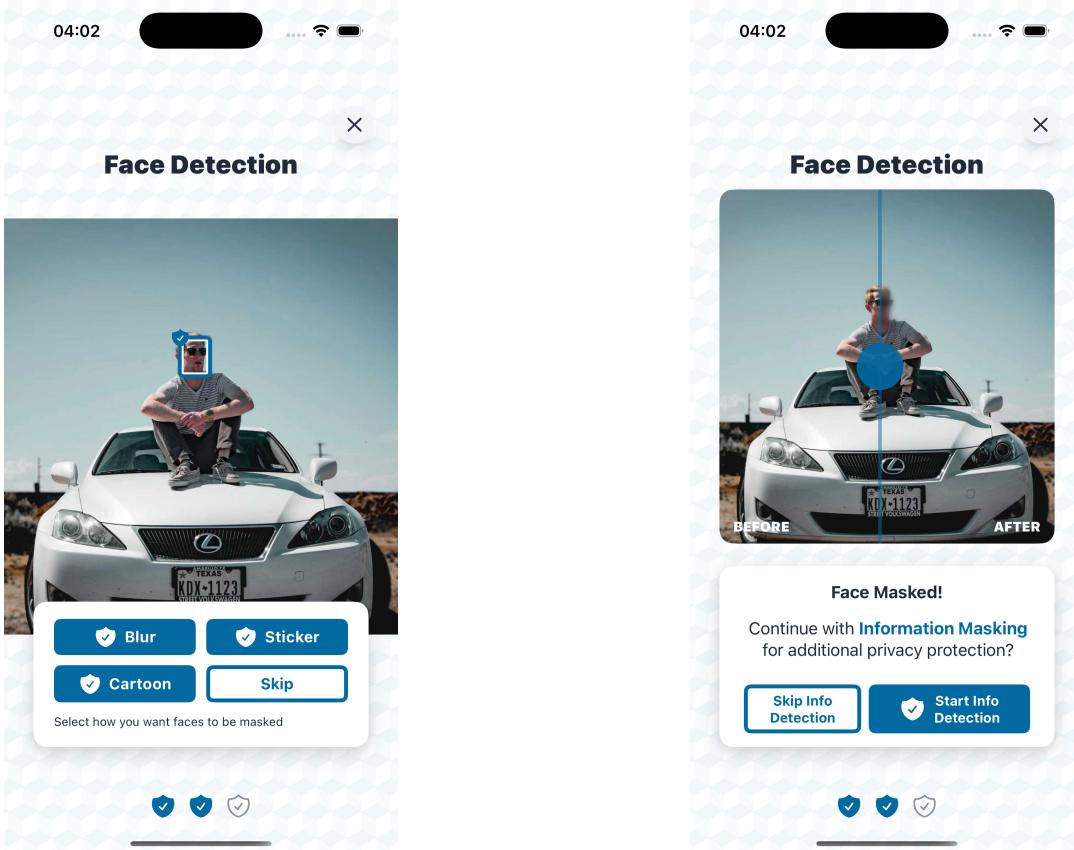
2. Face Detection & Masking Options

Faces are automatically detected by efficient ML models. Users are free to choose whether to anonymize the faces among multiple methods: blur, customized stickers, or AI-powered cartoonization. Cartoonization allows playful representation while resisting facial recognition systems. See Figure 3 for visualization results!

3. Sensitive Object Protection

License plates, documents and other possible sensitive information are automatically redacted, preventing unintended exposure.

4. Gallery Management



(a) Face Detection: You can see all the faces bounding box in the image. Choose your preferred type privacy protection from blur, sticker, and cartoon!

(b) Results: Detected Faces have been masked! Feel free to drag the middle line from left to right to see the changes. We take blur option for example.

Figure 3: Automatic AI Face Detection and Customized Masking

You can save your privacy-protected images to the gallery, where you can compare the before-and-after results, review embedded privacy labels, manage your images, and share them effortlessly to social media.

5. Protected Content Sharing

After safeguards are applied, the content is clean and ready to post without privacy risks.

2 Development Tools

We carefully designed and selected tools that balance robust AI capabilities with secure infrastructure:

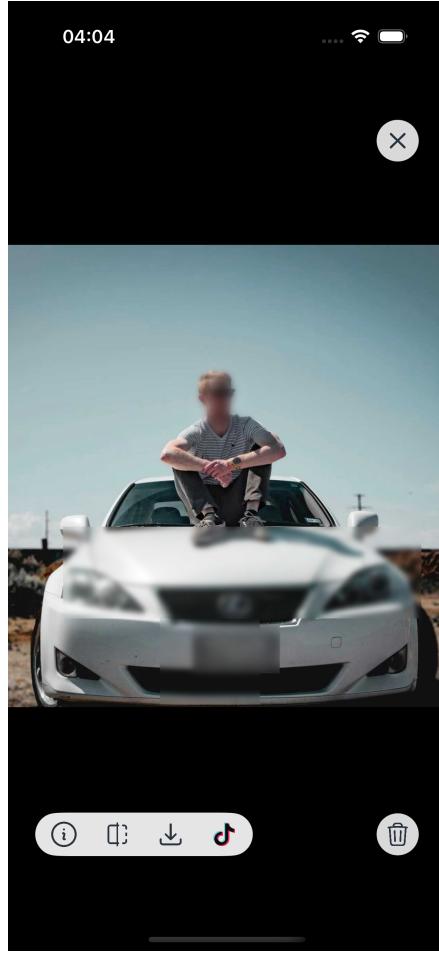


Figure 4: Gallery: In the gallery, you can see options below to see all labeled privacy leaking things (In this case, EXIF, faces and license plates), check changes from original version, saving to local photos, and post to social media!

- **Frontend Development – Lynx:** Used to rapidly prototype and integrate AI-powered privacy features into a smooth, user-friendly interface.
- **Metadata Stripping – piexifjs:** Removes EXIF metadata (Location, device, timestamps) before upload.
- **Object Detection – YOLO + InsightFace + Custom CV Pipelines:**
 - YOLOv8 License Plate Recognition
 - **InsightFace** for facial recognition.
 - Custom CV pipelines for detecting sensitive visuals like documents and passports.
- **AI Art Transformation – FLUX Diffusion Models + LoRA:**
 - **FLUX Diffusion Model** for stylized avatars.
 - **LoRA collection** for personalization.

- **Backend Infrastructure – FastAPI + MySQL:** Fast, lightweight APIs with secure, scalable database management.

3 Assets

We relied on a combination of free resources and open-source projects:

- Example images from [Unsplash](#).
- YOLOv8 License Plate Detector: [GitHub Repo](#).
- InsightFace (FaceAnalysis): [GitHub Repo](#).
- FLUX Diffusion Model: [Hugging Face](#).
- FLUX LoRA Collection: [Hugging Face](#).
- Depth Anything Model: [Hugging Face](#).

4 Libraries

Libraries used in the project can be grouped as follows:

- **Frontend & Frameworks:** Lynx
- **AI & Machine Learning:** PyTorch, Diffusers
- **Computer Vision:** OpenCV
- **Backend:** FastAPI, MySQL
- **Utilities:** piexifjs, NumPy, others

5 Related Problem Statements

Social media has become the **largest stage for self-expression**, but also one of the **biggest sources of privacy leaks**. Hidden EXIF metadata, unintended faces, or a small detail like a license plate can compromise safety. Manual editing is slow and inconsistent, demanding an automated approach.

Our project addresses this challenge by combining:

- **Track 7: Privacy Meets AI – Building a Safer Digital Future:** AI-powered detection (faces, documents, plates) and anonymization (cartoon avatars, stickers, blur) ensure safer digital ecosystems.

- **Track 4: Building UI for the AI Era with Lynx:** Lynx enables seamless UI integration across multiple platforms.

By blending Lynx's UI capabilities with AI-driven privacy tools, our project enables a future where **privacy and social sharing coexist harmoniously**.