Experiment 04

AIM:

To perform reverse image analysis for determining the physical location where the content was captured, using OSINT tools to examine image metadata, landmarks, street signs, or other visual cues for accurate geolocation.

Theory

Reverse image analysis is a digital investigation technique where an image is used as the search input instead of keywords. This allows specialized search engines and tools to scan the internet for:

- **Visually similar images**
- **Original sources** of the image
- **Contextual information** related to the image
- **Possible geolocations** based on visual or metadata clues

This process helps verify authenticity, trace the source, and discover hidden information such as when and where the image was taken, or even the device used.

Common OSINT Tools for Reverse Image Search

1. **Google Images**
    - Visit images.google.com
    - Click the **camera icon** to upload an image or paste its URL.
    - Results display visually similar images, websites using the image, and sometimes possible location hints.
2. **TinEye**
    - Visit tineye.com
    - Upload an image or paste the URL.
    - Shows instances of the image online with dates and locations.
3. **Browser Extensions**
    - Extensions like “Search by Image” (Chrome/Firefox) allow instant right-click reverse searches for quick investigations.
4. **Mobile Apps**

   - Apps such as “Search by Image” (Android) let investigators perform on-the-go reverse searches.

5. **Multi-Engine Platforms**
   - Websites like reverse-image-search.org allow simultaneous searches across Google, Bing, Yandex, etc.

Visual Clue Analysis

When metadata (e.g., GPS) is absent or removed, location can still be inferred using:

- Recognizable **landmarks** (monuments, towers, bridges)
- **Street signs** and shop names
- **Language** on boards or banners
- **Environmental elements** (trees, architecture style, climate)

These can be compared using tools like **Google Maps** or **Street View**.

About ImgOps

ImgOps is a multifunctional OSINT platform enabling:

- Reverse image searches across multiple engines
- Metadata extraction
- Image editing, cropping, and enhancement
- All-in-one access to multiple investigative tools

Applications of Reverse Image Analysis

- Digital forensics and cybercrime investigation
- Verifying news and media authenticity
- Detecting fake news and misinformation
- Locating missing persons or crime scenes
- Tracking stolen or plagiarized content

Procedure

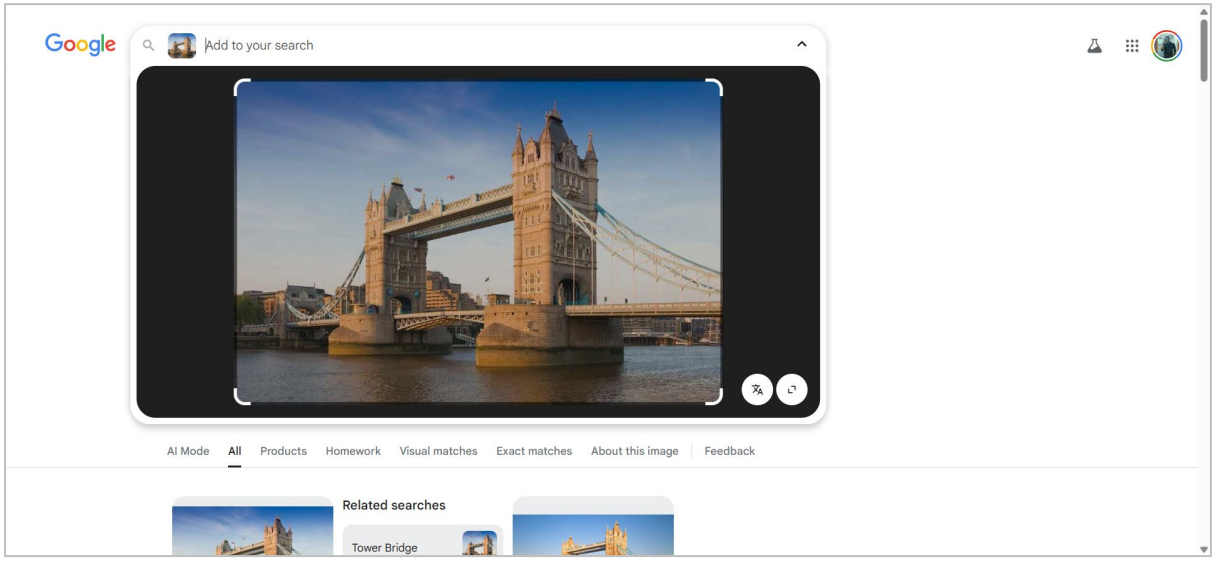
Step 1: Select an Image

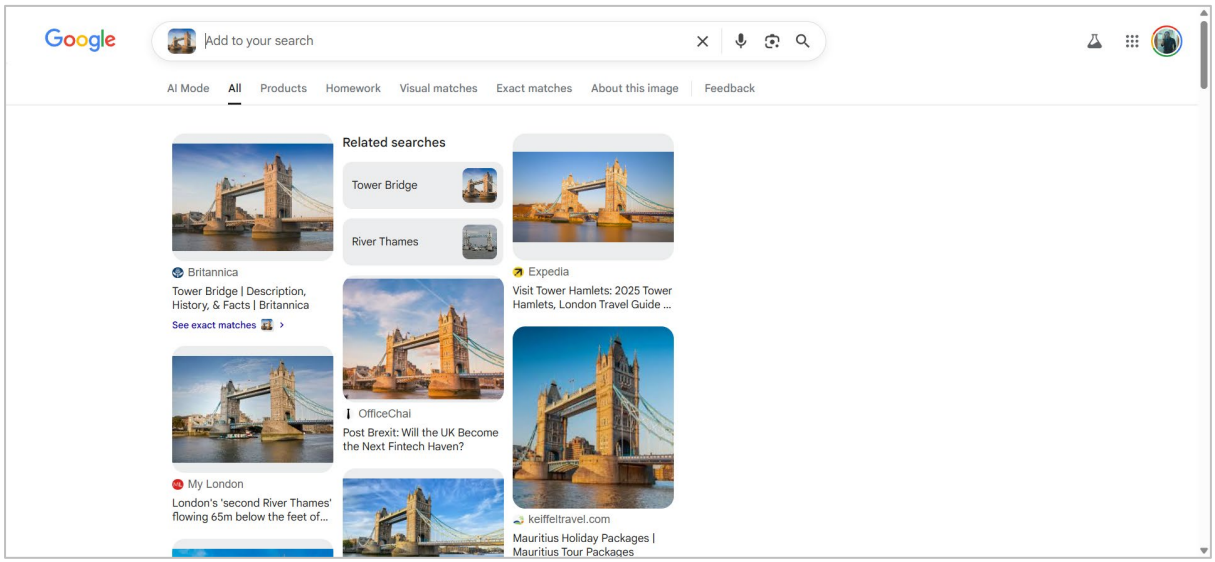
- Choose a clear image containing identifiable elements (e.g., landmarks, signs).
- Ensure sufficient quality for analysis.

Step 2: Perform Reverse Image Search

Option A – Google Images

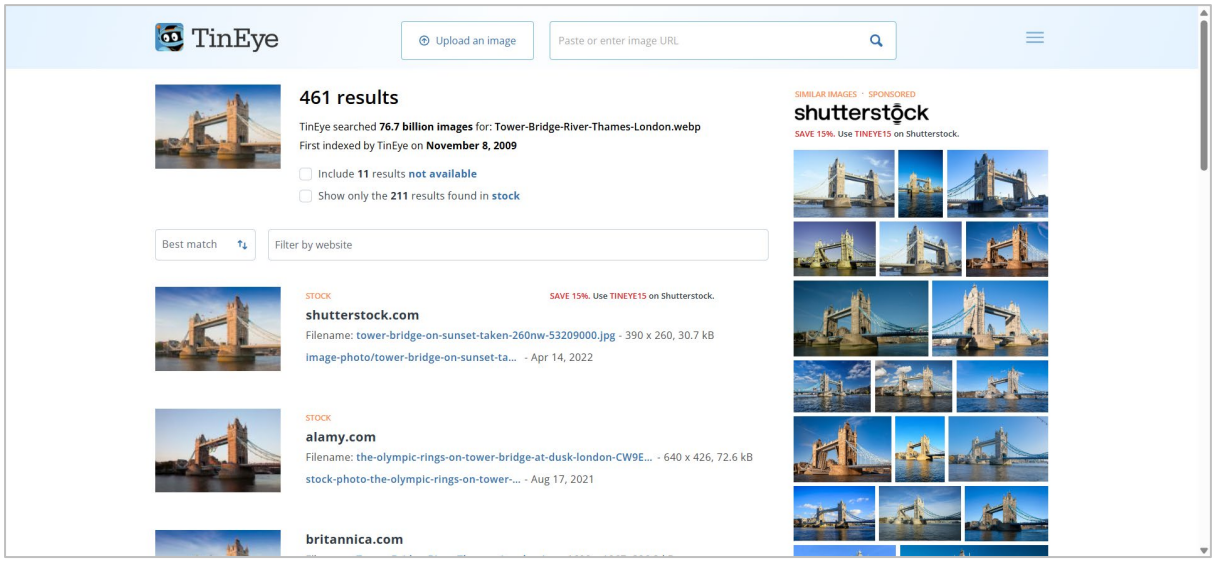
1. Go to images.google.com
2. Click the **camera icon**
3. Upload or paste the image URL
4. Review visually similar images and potential location hints





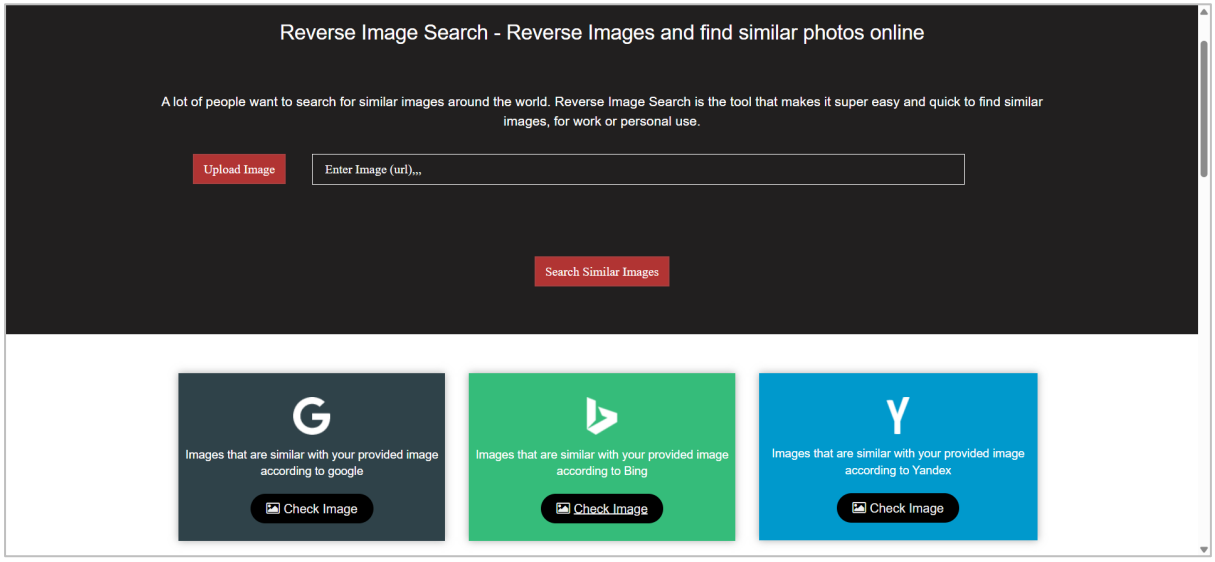
Option B – TinEye

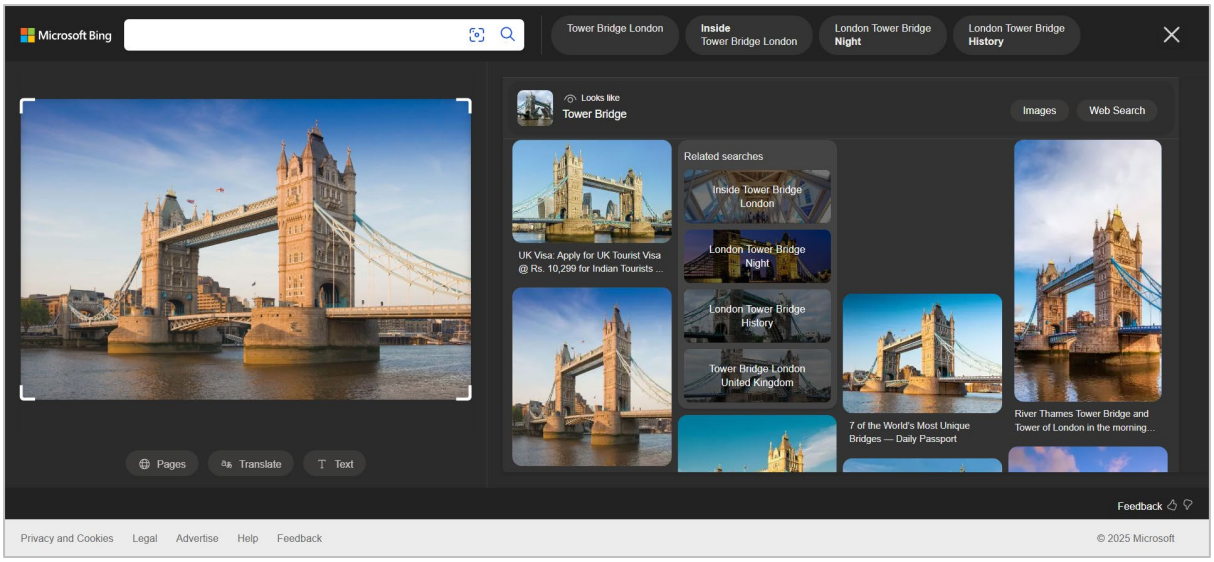
1. Go to tineye.com
2. Upload or paste the image URL
3. Analyze where else the image has appeared online



Option C – Multi-Engine Search

1. Go to reverse-image-search.org
2. Upload the image
3. Compare results from multiple search engines





Step 3: Visual Cue Examination

- Identify buildings, signboards, license plates, and environmental factors
- Match them with **Google Maps** or **Street View**

Step 4: Metadata Extraction

- Go to metadata2go.com
- Upload the image
- Check for GPS coordinates, device details, and timestamps
- If GPS is available, paste coordinates into **Google Maps** to pinpoint location

checksum	e1ffd334361127494cd9f01f0e637b2d
file_name	download.png
file_size	2.3 MB
file_type	PNG
file_type_extension	png
mime_type	image/png
image_width	1600
image_height	1067
bit_depth	8
color_type	RGB with Alpha
compression	Deflate/Inflate
filter	Adaptive
interlace	Noninterlaced
image_size	1600x1067
megapixels	1.7

Step 5: Cross-Verification

- Compare metadata findings with reverse image search results
- Translate any foreign text using **Google Translate** for better context

---

Conclusion

In this experiment, we successfully explored how reverse image analysis can be used in OSINT investigations to identify the possible physical location of an image. By combining reverse search tools (Google Images, TinEye, reverse-image-search.org) with metadata analysis and visual clue examination, we were able to enhance location accuracy and improve investigative results.
