

**Link to watch the video: <https://youtu.be/HXq-PX3caFQ>**

## **6261-ITAI-1378-Comp Vision-Artificial Intel-RT-15983**

**Professor Patricia Mcmanus**

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This project consisted of the Image Processing Adventure Quest. I managed to find particular ways to work with my imagination and use it for educational purposes. The team I am part of divided the different tasks by assigning each member a different image format to research, which allowed us and me to dig deeper into how they manage compression, transparency, file size, and quality retention. To make the technical details easier to grasp, we used the metaphor of a “Kingdom of Image Formats,” framing our findings as part of a banquet where each format played a unique role.

In this banquet, I was amazed by how each format. Starting with JPEG, which was represented as a flavorful filet, practical for everyday use but losing quality when repeatedly “reheated” or shared. PNG became the fresh and polished salad, well-suited for designs and graphics because of its lossless compression and transparency support, though heavier in file size. BMP was portrayed as a traditional tiramisu, reliable and uncompressed but outdated and inefficient compared to modern options. Finally, TIFF stood out as the luxurious dessert, versatile enough to store multiple images, retain metadata, and handle both lossy and lossless compression—making it the professional choice for editing, scanning, and printing.

From this comparison, I realized that choosing an image format is not just about how it looks, but about what it's best suited for. JPEG works well for casual sharing, PNG shines in design precision, BMP offers pixel accuracy, and TIFF excels in professional documentation. Each format brings different strengths to the table, and understanding these differences gave me a clearer view of why certain formats dominate in specific contexts. The banquet metaphor made it easier to link technical features to practical uses, creating a framework I could easily remember.

Most importantly, in this project we made, we highlighted the importance of collaboration. By working together, brainstorming, and combining both technical knowledge and creative analogies, we built a richer and more dynamic final product. I learned that image processing is not only about formats and software but also about how we shape ideas, communicate them effectively, and adapt them to different situations.

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## REFLECTION

Working on the Image Processing Adventure Quest was both educational and imaginative. Each image format felt like a world with its own customs, strengths, and limitations. First, we divided the quest into different formats, assigning each team member an image format to research in-depth. We studied how each format handled compression, transparency, file size, quality retention, and typical use cases. This helped us not only understand the formats technically but also gave us a foundation to build our creative analogies.

We decided on the “Kingdom of Image Formats” because it made the technical aspects more approachable and engaging. For example, JPEG became the "Filet" because of its flavorful compression, although with a slight loss in quality, much like a dish that changes a little each time you reheat it. TIFF became a luxurious dessert because of its rich quality and professional depth, while PNG’s crisp, clean nature made it perfect for a fresh and transparent salad bowl. BMP, with its bulky and old-school style, fits perfectly as a tiramisu cake.

I learned how each image format serves different roles—JPEG for casual sharing, PNG for design precision, BMP for pixel-by-pixel accuracy, and TIFF for professional documentation. This quest helped me understand that choosing the right image format isn't just about what looks good, but what works best for the task at hand. Through this banquet, I realized that image processing is not just a technical aspect; it's also about presentation, purpose, and practicality.

Most importantly, I learned how collaboration enhances creativity. Each team member brought different perspectives and ideas that shaped the final product. Some of us leaned more into the technical side, while others helped refine the metaphors and structure the overall theme. This combination made the project more dynamic and enjoyable.

# A02 Image Processing Adventure Quest

## (Assignment Reflection)

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09/05/2025

This assignment helped me understand the fundamental concepts of image processing in a fun way. My team decided to choose the kingdom of image formats, and challenge number one. The challenge consisted of designing a “royal banquet” menu where each dish represents a different image format (JPEG, PNG, BMP, TIFF), describing the characteristics and uses of each format in a fun and appetizing way. We all had a part to play, and had fun making short videos to put together our royal banquet.

Digital image fundamentals include the subject of our quest, but image formats its only one of those fundamentals. The other fundamentals include pixels (the smallest unit of digital images), resolution (relationship to image quality), color depth (dynamic range implications), color models (RGB, HSV, etc.), and finally image formats (compression trade-offs). Image formats include JPEG (lossy compression method, supports eight-bit grayscale images and 24-bit color images), PNG (open-source alternative, supports 8-bit palette images and 24-bit truecolor or 48-bit truecolor), BMP (raster-based and device-independent file type, supports graphic files within Microsoft), and TIFF (can be lossy or lossless, this format is not widely supported by web browsers). Understanding the different image formats will help us select the right format for storing information efficiently.

Overall, the assignment helped me understand image processing better and how it plays a part in many industries like medical imaging, satellite analysis, manufacturing, social media filters, smartphone photography, autonomous vehicles, and many more real-world applications. Also, this assignment was a great team experience; we all cooperated and worked together using our creativity for a great adventure quest.

## **6261-ITAI-1378-Comp Vision-Artificial Intel-RT-15983**

**Professor Patricia**

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### **A02 "Image Processing Adventure Quest"**

Participating in the Image Processing Adventure Quest helped me gain a better understanding of image formats and see how they are actually used in real life. Our group selected the Kingdom of Image Formats and created a 'royal banquet' menu to represent each type. Thanks to this approach, we could compare the features more easily and keep in mind the strengths and weaknesses of each.

For me, JPEG felt like a quick, accessible dish: the lossy compression makes the files smaller, though some quality gets lost along the way. That's why it works nicely for photographs and web use, but it has trouble with text and sharp edges, where those little artifacts become noticeable.

By contrast, PNG comes across as a polished, premium choice. Since it uses lossless compression and includes transparency with an alpha channel, PNG is ideal for logos, icons, and other graphics that must remain crisp and editable. The downside is that PNG files are larger than JPEGs, mainly when used for photos.

To me, BMP was like an old-style plate: it preserves full quality because it doesn't compress, but that makes the files very big. Back in the day, it was widely used on Windows, though today it's considered obsolete next to formats like PNG and JPEG.

Finally, TIFF felt like the fancy dessert that wrapped up the banquet. TIFF is quite versatile—it can save several images in a single file, keep all the metadata, and support both

lossless and lossy compression. That's why it works so well for printing, scanning, or professional editing, even though the files get very large and most browsers can't handle them.

More than just the technical part, this project taught me a lot about collaboration. Creating roles and collaborating to develop a consistent project, utilizing our imagination and ideas to represent it, and learning how to work in teams to gain experience and demonstrate our value in the future market.

Overall, I realized that image processing is not only about the formats or the software, but also about how we want to present our ideas and projects in different situations and what the topic of our investigation is. Creating and simulating a context, such as a banquet, helped me understand and learn in a perfect process.