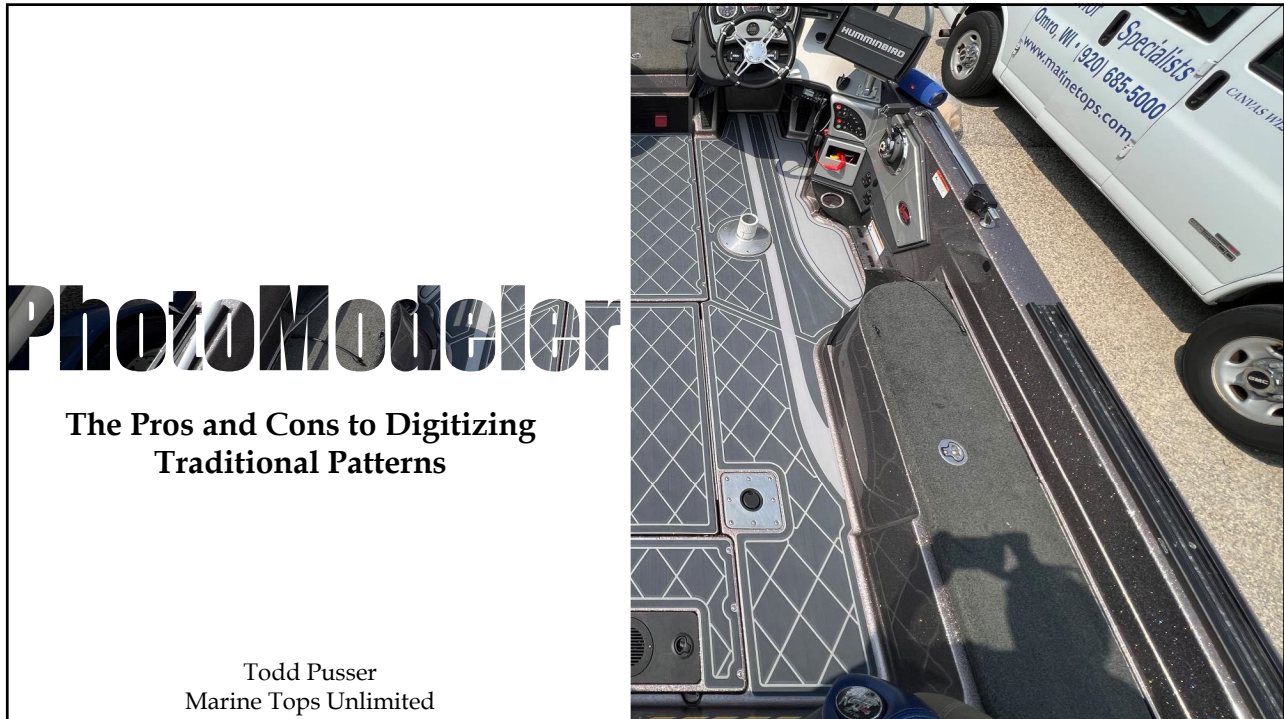


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# Photogrammetry

- *noun*

The use of photography in surveying and mapping to measure, create models, maps, and diagrams.

💡 Photogrammetry is often used in Marine Fabrication, Engineering, Geology, and many other industries.

3



# Pros

<p><b>Database:</b> The ability to store patterns digitally for future use.</p>	<p><b>Efficiency:</b> Quicker and more accurate than manually dissecting patterns.</p>	<p><b>Logistics:</b> Digital transfers between multiple shops and warehouses.</p>	<p><b>Affordability:</b> Software and equipment is more affordable than digital templating machine or scanner.</p>	<p><b>Customer Service:</b> Ability to remake lost or damaged pieces quicker and cheaper.</p>
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**Cons**

<p><i>Space:</i> Need a large area to take photos.</p>	<p><i>Experience:</i> Can be a learning curve.</p>	<p><i>Lighting:</i> Certain pattern materials reflect light making visibility difficult in areas.</p>
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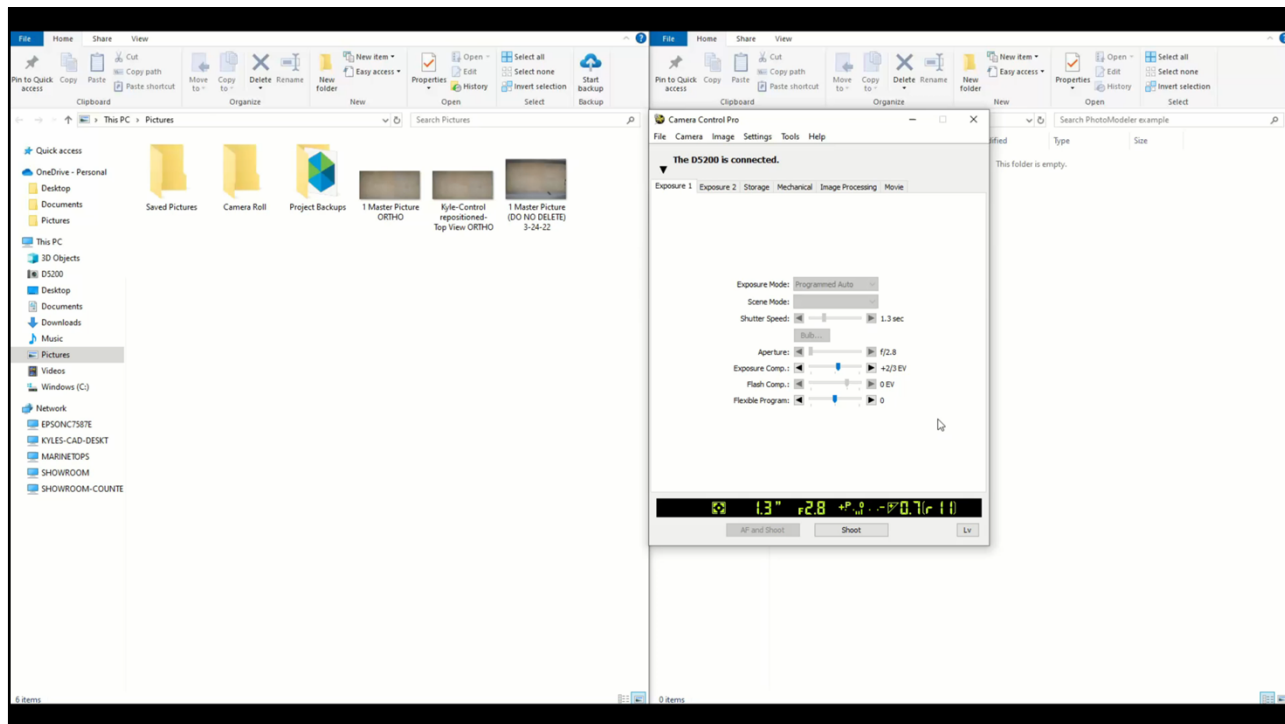
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## The Process

- ❖ Place target and dot tape along the boat.
- ❖ Taking pictures from various angles and positions to capture specific areas.
- ❖ Import your photos into PhotoModeler to begin your design process.



6



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8

## Frequently Asked Questions

- What kind of technical skills does someone need to use this program?
- How long does it take to be proficient with the program?
- How accurate is PhotoModeler?
- What are some commonly made mistakes that can be made?

9



10



# Thank you!

Todd Pusser  
Marine Tops Unlimited



11

## Overview of Proliner

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Legacy Canvas, Port Clinton, OH  
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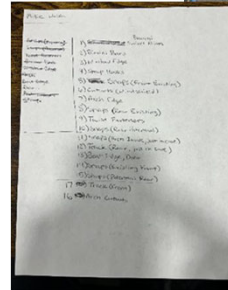
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## Overview

- The Proliner is a measurement device that accurately records the location of points and lines in 3 dimensional space
- Certain attachments give it certain functions (hook pen, IPT)

## Proliner Process

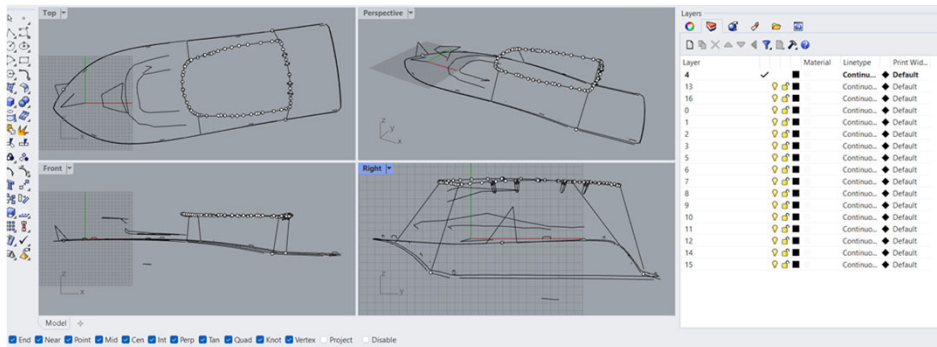
- Assess boat and project on case by case basis, follow process we have established
- Follow a specific order of operations for data capture
- Record on a sheet what layers we created. We make separate layers for each type of object
- Take lots of pictures



13

## Proliner Raw Data

Dxf. file consisting of lines, points and the layers that the specific objects are on.



14

## Pros of The Proliner

- Very easy to use, fairly quick learning curve. Once you come up with a process you can really fly through it
- Very clear cut output (lines and points)
- Minimal setup. Does what you need it to do with little issue once you get the hang of it
- Great for our work environment (storage buildings)
- Super accurate
- Don't have to worry about lighting
- Possibilities for its use are endless



15

## Cons of the Proliner

- Price: High initial cost  
*(Side Note: Grants for equipment and education)*
- Rendering is manual
- Can be time consuming with large projects or boats with odd geometries. (IPT takes 4x as long to take one point)



16



## INTRO TO 3D SCANNING

Things I've learned since purchasing a scanner about a year ago,  
and I'm still learning

17

## WHY I DECIDED TO BUY A SCANNER

- The quick story is I met someone who was already making covers from scans. He had family in the area and came to my shop and we got to talking about what he was doing and what was possible with a scanner, and ultimately we could learn from each other, me about digital, and he about techniques.
- The idea was that I could take scans and he could process them into usable files, and then we would design the details together. A collaborative effort.
- So I decided to buy one of these.....

18

## ARTEC LEO

HANDHELD 3D SCANNER



19

## SCANNER PROS!

Once you have a good scan file on a boat, you can design and fabricate more than one cover on it. For an inflatable, you could make chaps, a full cover, and seat covers.

You can scan in the wind

You can store the scan file for future use and design upgrades/changes

It can save time.

20

## SCANNER CONS!

- The one I bought is really expensive, like new car expensive.
- It has a really hard time scanning flat glossy surfaces and really shiny surfaces.
- My arm gets tired sometimes when I'm scanning a big boat.

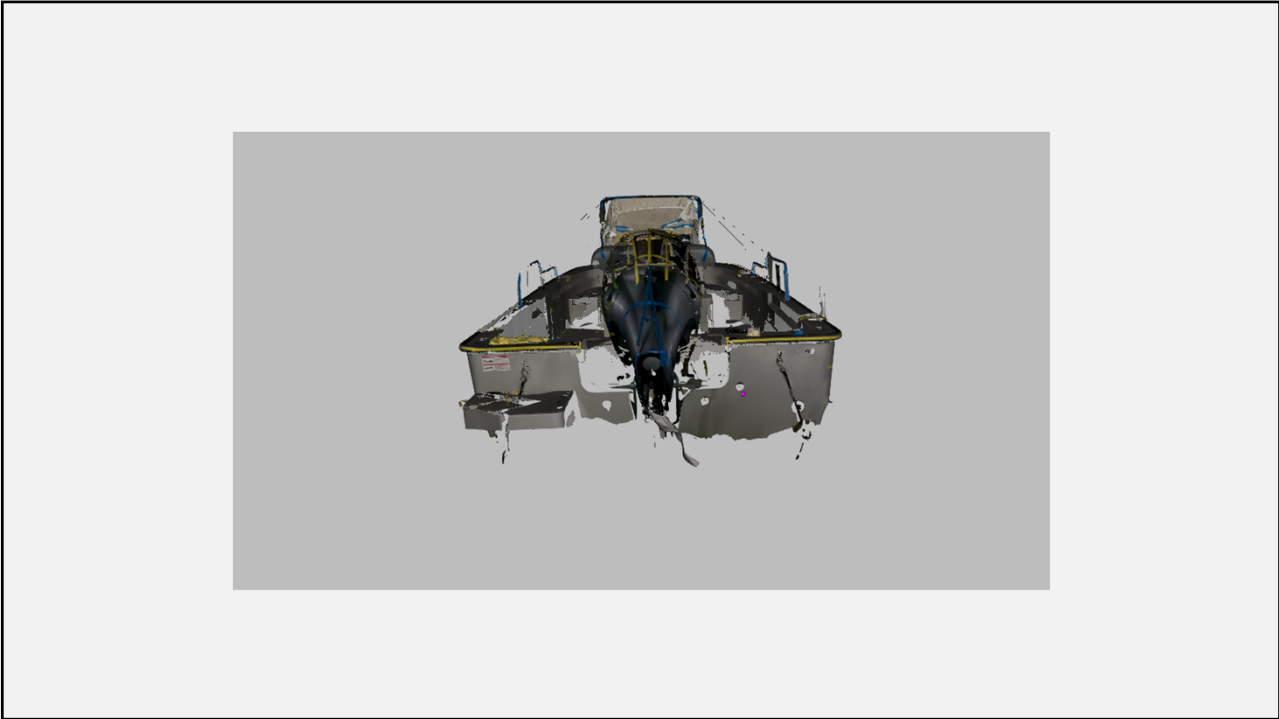
21

## TECHNIQUES

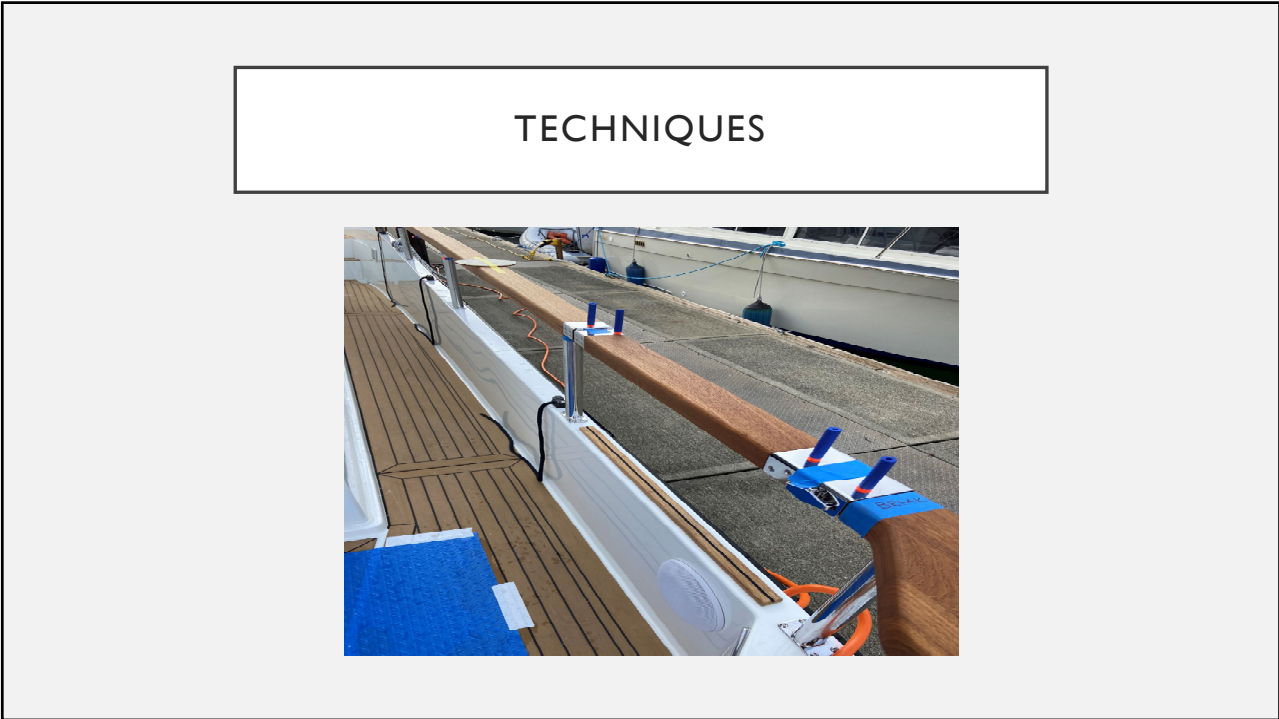


22





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24

## SHINY SURFACES

- This particular scanner has a hard time with shiny or super glossy surfaces, like stainless or even a shiny new outboard. I use tape, nerf darts, rope... basically anything I can put on the shiny surface to get it to read better.
- When scanning for an outboard motor cover, I put tape on it where the planes change, or where I think a good place for a seam would be.
- It also has a hard time scanning stuff that is just hanging out in space, like it would have a hard time scanning all the way up an antenna if you didn't put some tape and darts on it.
- A really sunny day can make scanning more difficult. I try for early morning and really, I live in the Pacific Northwest so a really sunny day is not often a problem anyway.

25



26



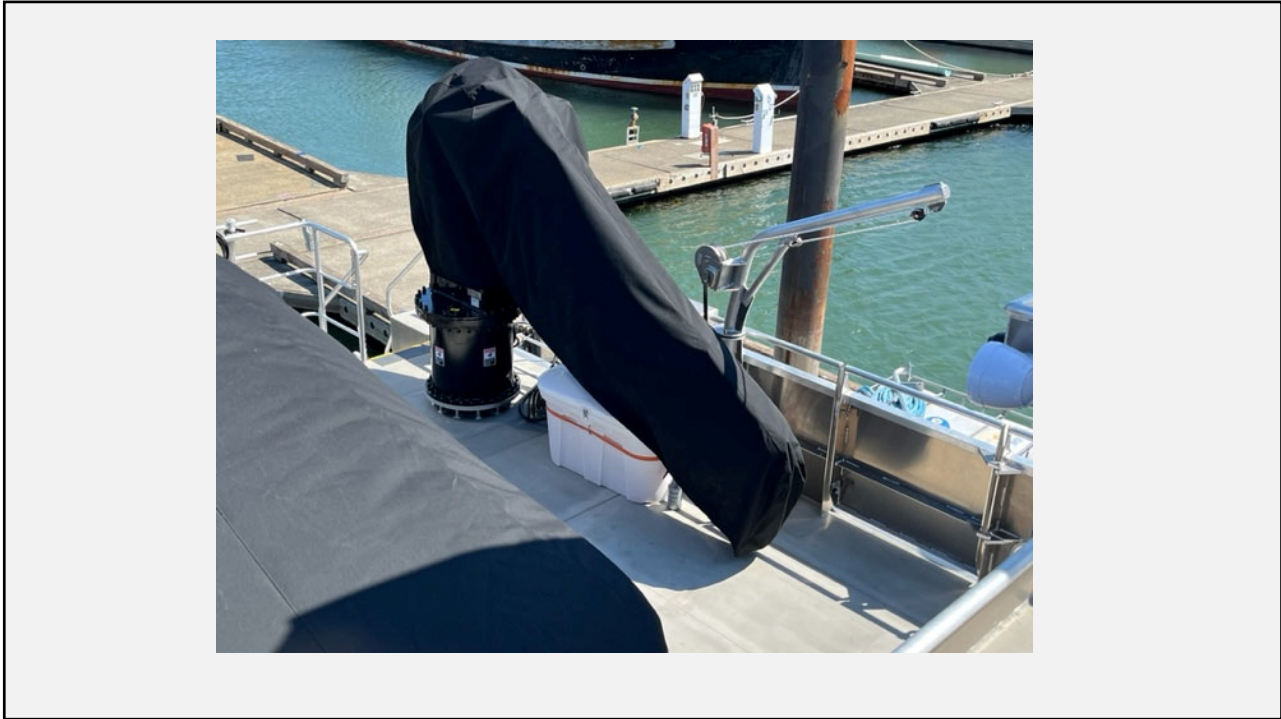
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COMPLETED PROJECTS



28





29



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31

The more I use the scanner, the easier, or should I say less frustrating, it gets! I'm still learning and my next step is figure out how to design start to finish!



32

QUESTIONS?

