



**“I Get by with a Little  
Help from A.I.”**

**By Austin Blake Conlee  
Assistant Professor of Theatre – Costume Design  
Ramapo College of New Jersey**



1. After reading a Script and discussing the characters with the Director, the Costume Designer begins researching the fashion of the time period/location to share with the Artistic Team.



2. Then Costume Designers create “Renderings” to communicate their design ideas to Directors, Producers, & Collaborators. They are often annotated for clarity.

\*These must be flexible because they inevitably change with artistic collaboration!\*





3. The final Renderings are sent to team of Seamstresses & Technicians who use them as “Blueprints” to create custom-made costumes. They must be as specific & accurate as possible to alleviate miscommunication.

\*Renderings are  
Communication  
Tools...  
NOT Artwork!\*





4. Then the final product is what the audience sees onstage!  
That is the Artwork!!!



*Cinderella* – Cumberland Playhouse



*Midsummer Night's Dream* – Northern Stage

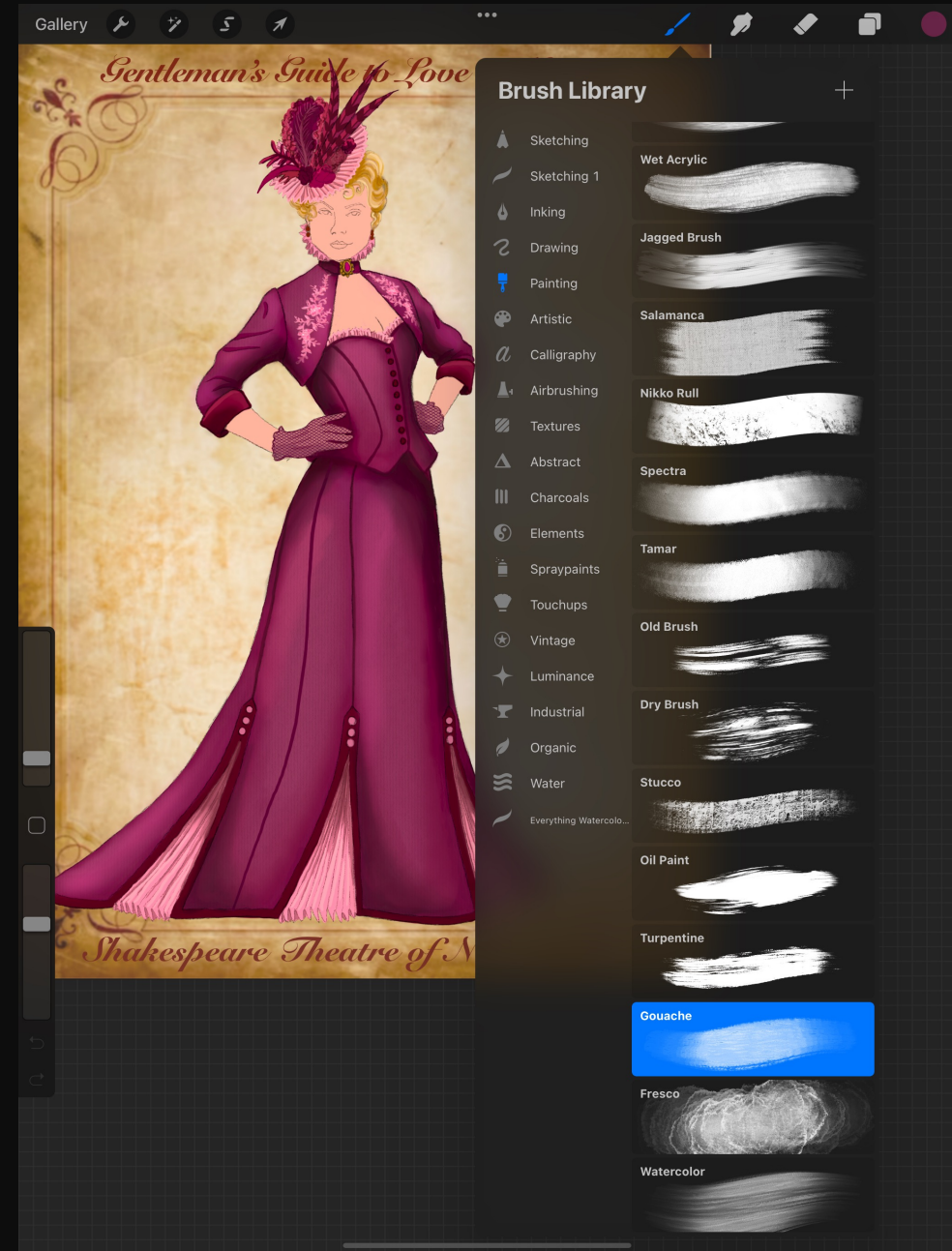




# Digital Rendering



- The process of generating an image using digital software on the iPad, Tablet, or Computer.  
Here's why it's Popular:
- Accessibility: Designers struggling with traditional media, typically find communicating ideas through digital media more accessible.
- Versatility: Simulated Pencil, Watercolor, Acrylic, Pastel, etc. + Collage, Mixed Media, and Color/Value Specificity are all at your fingertips!
- Flexibility: There is an “Undo Button”, Opacity Scales, & the ability to create multiple layers of an image making editing a breeze!
- Portability: You can take it with you everywhere!





# But Where does A.I. come in?!

The image is a collage of mathematical content overlaid on a background of a woman's face. The content is organized into several sections:

- Top Left:** A circle with radius  $r$ . Below it, the formulas  $A = \pi r^2$  and  $C = 2\pi r$ .
- Top Middle:** A cone with height  $h$  and radius  $r$ . The volume formula is  $V = \frac{1}{3} \pi r^2 h$ .
- Top Right:** A cylinder with radius  $r$  and height  $h$ . The volume formula is  $V = \pi r^2 h$ .
- Bottom Left:** A table of trigonometric values for 30°, 45°, and 60°:

	30°	45°	60°
sin	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$
cos	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$
tan	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$

Below the table are two right-angled triangles. The first has angles 30°, 60°, and 90°, with sides  $x$ ,  $x\sqrt{3}$ , and  $2x$ . The second has angles 45°, 45°, and 90°, with legs of length  $x$  and  $x$ , and a hypotenuse of length  $x\sqrt{2}$ .
- Bottom Middle:** A graph of the tangent function  $\tan(\theta)$  versus  $\theta/\text{rad}$ . The y-axis ranges from -5 to 10, and the x-axis has a vertical asymptote at  $\theta/\text{md}$ .
- Bottom Right:** A list of algebraic formulas:
  - $ax^2 + bx + c = 0$
  - $a(x^2 + \frac{b}{a}x + \frac{c}{a}) = 0$
  - $x^2 + 2\frac{b}{2a}x + (\frac{b}{2a})^2 - (\frac{b}{2a})^2 + \frac{c}{a} = 0$
  - $(x + \frac{b}{2a})^2 - \frac{b^2 - 4ac}{4a^2} = 0$



...FACES!!!





# The Trouble with Faces...

- You want to be specific. However, Portraiture is a very tedious & time-consuming process with a wide margin for error.
- You don't have a lot of time to make them look accurate.
- If you aren't very specific, you run the risk of miscommunication.
- Collaborators often cannot visualize specific performers in costumes without an indication of features.



*Orlando -*  
University of Maryland

# Faces Drawn by Hand & how long it took:



1 hour & 50 min



2 hours & 30 min



3 hours & 10 min

**\*\*My First Digital Rendering Attempt using Procreate\*\***

*Mrs. Frisby & The Rats of NIMH* –Northern Stage



# Who has the Time to draw all those faces?!

- On Average, I design costumes for 8 productions a year. 2 at Ramapo and 6 professionally as a part of my research for various venues across the country.
- I average 12 Renderings per show.
- This is about 96 renderings per year.
- That's 96 faces!
- There has to be another way...



*Urinetown!*— Northern Stage

# Using A.I. to Generate Faces

- Various face-generating A.I. apps can transform a person's photo into a painting or an illustration.
- By using these tools, you can crop and paste an A.I. illustrated face onto a figure.
- You can then blend it into the rendering by painting and editing in shading, makeup, hair, etc. (It's still a bit of work)
- Now you have a Rendering that looks like the performer, and you didn't waste hours drawing a face! Now you can focus on the clothes... because that's your job.



*Hamlet: Replayed* –  
University of Maryland



# Examples:



-Claudius



16 min



-Ophelia



22 min



*Hamlet* – Tennessee Shakespeare Co.



# Examples:



15 min



27 min



*Midsummer Night's Dream* –Shakespeare Theatre of New Jersey



# Examples:



21 min



16 min





# Why even use A.I. at all?!

- It saves hours of valuable time.
- It can create accurate & recognizable faces quickly.
- Flexibility is essential as casting changes frequently & quickly in a design process.
- I feel that we must utilize innovative new technology as a tool, so that we keep up with changing industry standards.
- We must simultaneously advocate for humans to do the things A.I. can't: collaborate, innovate, & tell compelling stories.



*Sh'Boom!* – Sierra Repertory Theatre