

# SUJIN(JOANNA) YOO

sy797@cornell.edu | +1-661-312-5251 | [linkedin.com/in/joannasujinyoo](https://www.linkedin.com/in/joannasujinyoo) | Ithaca, NY

## EDUCATION

### Cornell University, MA 2024-present

- Major: Apparel Design | Minor: Computer Graphics/Vision
- Currently in Fashion & Body Technology Lab
- Focus areas: **HCI, Computer Graphics, Computer Vision, Apparel Technical Design, Apparel Pattern Making**
- **Thesis topic:** Developing an **Automated Pattern Adjustment Tool** for Home Sewers
- *Coursework:* Introduction to Computer Graphics (FA24), Physically Based Animation for Computer Graphics (SP25), Computer Vision (SP25), New Technologies for Fashion Design (SP25)

### University of Southern California, BS 2021-2024

- Major: Computer Science & Business Administration

### FIDM, AA 2015-2017

- Major: Apparel Design

## BIO

My current research interests focus on the **HCI** applications of **computer graphics** and **vision** in the apparel industry, including **automated pattern adjustment, virtual fitting systems, sewing simulations, VR/AR fitting, drape simulation, sketch-based image processing**, and more. I bring a decade of industry experience as a technical designer and fashion designer, which enriches my understanding of the practical challenges and solutions within the apparel industry.

## PROFESSIONAL EXPERIENCE [RESEARCH & CS]

### Cornell University 2024-present Research Assistant

- Conduct comprehensive data analysis and processing of 3D models using advanced software tools, including **Geomagic, Blender** and **Rhino**
- Perform data cleaning and refinement from 3D body scans to ensure accurate and high-quality datasets for research purposes
- Conduct statistical and data analysis using **R** to support research insights and validate findings

### IA NT Education 2022-2024 Software Programming Instructor

- Expertly instructed students in a diverse range of programming languages, including **Java, Python, C++**, and web technologies (HTML, CSS, JavaScript), providing them with a versatile foundation crucial for modern software engineering
- Achieved a 100% pass rate for students in various programming certification exams, demonstrating success in guiding them to excel in assessments testing their knowledge of programming languages, along with **object-oriented principles**.

## PROFESSIONAL EXPERIENCE [APPAREL DESIGN]

### Cornell University 2024-present Teaching Assistant

### Freelance Technical Designer 2022-2024

Companies: Beautiful Day Wedding, Brochu Walker, Ginger Green

- Created detailed technical packages including construction details, measurements, and material requirements
- Managed fit sessions and provided instruction for further adjustment on garments

### Mystree 2021 Senior Fashion Designer

### Papermoon 2018-2021 Associate Fashion Designer

### Aime, Young2Dress 2015-2017 Assistant Fashion Designer

## CG PROJECTS

### Pool Table Scene 2024 Python

Key Implementation: **Ray Tracing, Diffuse Shading, Specular Shading, Shadows, Constructive Solid Geometry (CSG), Surface Texture Mapping**

- Created a realistic 3D pool table scene featuring detailed texture-mapped pool balls, cues, and other geometric components.
- Only Used Constructive Solid Geometry (CSG) and custom coding to construct all objects in the scene
- Implemented advanced shading techniques, including diffuse shading to simulate realistic light scattering, specular shading to model reflective highlights, and shadows

### Vacuum Cleaner Simulator 2024 Typescript, AniGraph

Key Implementation: **Collision Detection, Particle System**

- Developed collision detection logic to ensure trash is collected only when a player is within the vacuum's range, using an invisible rectangle attached to the vacuum head to simulate the range and detect interactions with trash
- Created a particle system to visually represent the vacuum's suction power, dynamically emitting particles when the vacuum is activated.
- Optimized performance by removing old or inactive particles from the system every time the vacuum was deactivated

### Vroom Vroom 2024 Typescript, AniGraph

Key Implementation: **Cubic Bézier Splines, Matrix Transformations (scaling, rotating, translating), Color Interpolation**

- Implemented cubic Bézier curve rendering, allowing users to draw smooth, adjustable curves with designated control points
- Applied 3x3 homogeneous matrix transformations to dynamically scale, rotate, and position objects along curve segments, simulating a car moving smoothly on a track
- Implemented a gradient rainbow track effect using color interpolation, smoothly transitioning colors along the track for a visually dynamic appearance

### Sean's Wild Ride 2022 C#, Unity

Key Implementation: **Collision Detection, Particle System, Platforming Mechanics**

- Developed a 2D action-adventure game using C# and Unity, incorporating physics-based collision detection and interactive gameplay mechanics.

## SKILLS

**Programming Languages:** C++, Java, Kotlin, Python, R, C#, HTML, CSS, JavaScript, TypeScript, SQL

**3D Modeling and Graphics Tools:** Blender, Geomagic, Rhino, Clo3D, Browzwear, Marvelous Designer, Adobe Creative Suite (Photoshop, Illustrator)

## CERTIFICATIONS

### Oracle Certified Associate, Java SE 8 Programmer 2023

• Certificate Verification Number: 20425079OCAJSE8

### AWS Certified Cloud Practitioner 2023

• Certificate Verification Number: CT40GH217J44Q1KF