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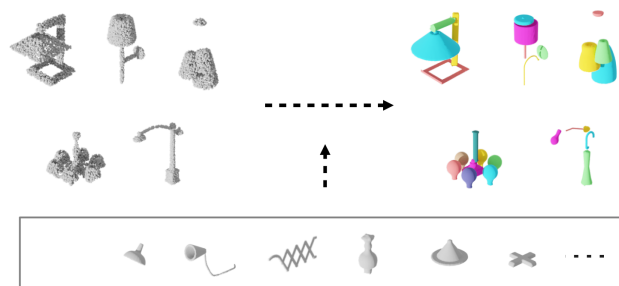
Email: [xianghao\\_xu@brown.edu](mailto:xianghao_xu@brown.edu)

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**Xianghao Xu**, Paul Guerrero, Matthew Fisher, Siddhartha Chaudhuri and Daniel Ritchie

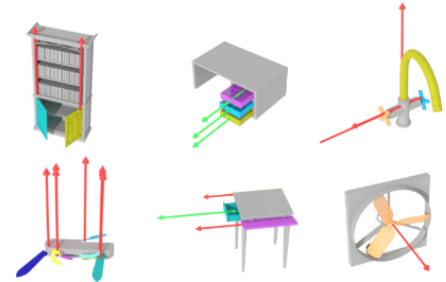
CVPR 2023



## Unsupervised Kinematic Motion Detection for Part-segmented 3D Shape Collections

Xianghao Xu, Yifan Ruan, Srinath Sridhar and Daniel Ritchie

**SIGGRAPH 2022**

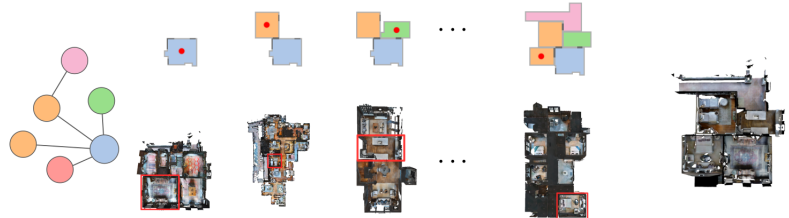


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## Roominoes: Generating Novel 3D Floor Plans From Existing 3D Rooms

Kai Wang, Xianghao Xu, Leon Lei, Natalie Lindsay, Selena Ling, Angel X. Chang, Manolis Savva, and Daniel Ritchie

**SGP 2021**

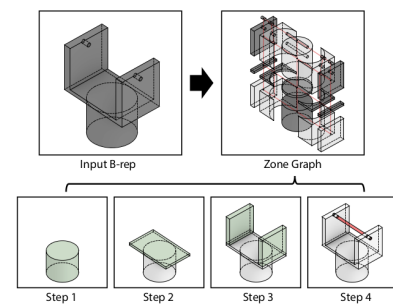


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## Inferring CAD Modeling Sequences Using Zone Graphs.

Xianghao Xu, Wenzhe Peng, Chin-Yi Cheng, Karl D.D. Willis and Daniel Ritchie

**CVPR 2021**

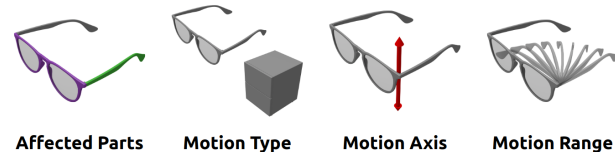


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## Motion Annotation Programs: A Scalable Approach to Annotating Kinematic Articulations in Large 3D Shape Collections.

Xianghao Xu, David Charatan, Sonia Raychaudhuri, Hanxiao Jiang, Mae Heitmann, Vladimir Kim, Siddhartha Chaudhuri, Manolis Savva, Angel X. Chang, and Daniel Ritchie

3DV 2020

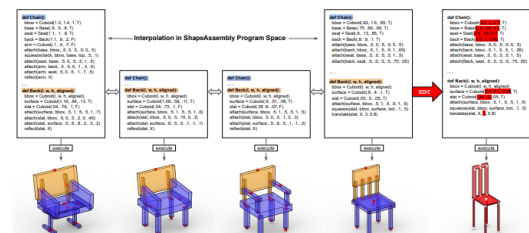


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## ShapeAssembly: Learning to Generate Programs for 3D Shape Structure Synthesis

R. Kenny Jones, Theresa Barton, Xianghao Xu, Kai Wang, Ellen Jiang, Paul Guerrero, Niloy Mitra, and Daniel Ritchie

SIGGRAPH Asia 2020



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## PRECISION: Precomputing Environment Semantics for Contact-Rich Character Animation

Mubbasir Kapadia, Xu Xianghao, Maurizio Nitti, Marcelo Kallmann, Stelian Coros, Robert W. Sumner, Markus Gross

I3D 2016



## On going research projects:

- (1): A research project aiming to understand and edit 2D shapes guided by text prompts.
- (2): A research project aiming to understand and edit 3D structures guided by text prompts.
- (3): A research project aiming to annotate kinematic motions on 3D objects using diffusion models.
- (4): A research project aiming to rapidly stylize 3D procedural models.
- (5): A research project aiming to create an indoor scene by assembling 3D objects guided by text prompts.

## Experience

**2019.09-Present Brown University (Providence, USA)**



**Ph.D. student (Computer Science )**

My advisor is Prof. Daniel Ritchie. My research is in the intersection of Computer Graphics and Machine learning.

**2023.05-2023.08 Autodesk Research (CA, USA)**

**AI research Intern**

I lead a research project for text guided shape editing





**2021.06-2021.09 Adobe Research (CA, USA)**

**Graphics research Intern**

I lead a research project for learning to discover part structure of 3D shapes.



**2020.06-2020.08 Autodesk Research (CA, USA)**

**AI research Intern**

I lead a research project for learning to predict 3D shape reconstruction operations.



**2017.10-2019.06 Autodesk (Shanghai, China)**

**Senior Software Engineer (Graphics)**

I worked in the OGS (One Graphics System) team of Autodesk and was responsible for researching, developing and optimizing the core rendering system (Graphics Engine) used by all products of Autodesk.



**2015.09-2017.04 Virtuos (Shanghai, China)**

**Software Engineer (Graphics)**

I fully participated in the production of <Final Fantasy XII: The Zodiac Age> PS4 HD Remaster. I mainly focused on graphical improvement tasks including character



rendering, scene rendering, shadow rendering, image post-processing, VFX porting and movie video & audio processing.

**2014.09-2015.04    Disney Research (Zurich, Switzerland)**

### **Master Thesis Student**

I was in the animation group of Disney Research, my responsibility was to design and develop new algorithms. I created and implemented a new algorithm that allows complex interactions between 3D characters and 3D environments.



## **Education**

**2019.09-Present (May 2024 Expected)    Brown University  
(Providence, USA)**



### **Ph.D. student (Computer Science )**

My advisor is Prof. Daniel Ritchie. My research is in the intersection of Computer Graphics and Machine learning.

**2019.09-2021.05 Brown University (Providence, USA)**

**Computer Science (Master's Degree, Final grade: A)**



**2012.09-2015.05 Swiss Federal Institute of Technology  
Zurich -- ETH Zurich (Zurich, Switzerland)**



**Computer Science (Master's Degree, Final grade: 5.33/6.0)**

My graduation thesis was nominated as one of the candidates of the best thesis of the year (2015) of the computer science department.

**2009.09-2012.09 Polytechnic University of Turin --  
Politecnico di Torino (Turin, Italy)**



**Electronic and Computer Engineering (Bachelor's Degree, Final grade  
106/110)**

I was admitted by the University with a Politecnico di Torino Full Scholarship. This Scholarship is the Excellence Scholarship (10000euro/year) that is awarded to only a very small portion of excellent students.

## **SERVICE**

**Conference Reviewer:**

ICCV 2023

CVPR 2023 workshop

ICCV 2021 WorkShop

SIGGRAPH Asia 2020

**Journal Reviewer:**

Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

Transactions on Graphics (TOG)

## **Skills**

Strong in Math and Algorithms

Familiar with Computer Graphics, Vision and Machine Learning related algorithms.

Strong programming skill in C/C++, Python, OpenGL/DirectX

**Courses taken (Selected):**

Artificial Intelligence, Deep Learning, Machine Learning, Data mining, Computational Intelligence, Computer Vision, Computer Vision for Graphics and Interaction

Scientific Visualization, Computer Graphics, Image Synthesis(Advanced Rendering), Physical based Animation, Game Programming

Calculus, Linear Algebra, Probability and Statistics, Mathematical methods, Algorithms Analysis, Mechanics, Computer Programming, Advanced Programming, Computer Architectures, Operating System, Advanced Systems, Computer Networks, Control Theory, Electronics, Signal Theory, Electromagnetism

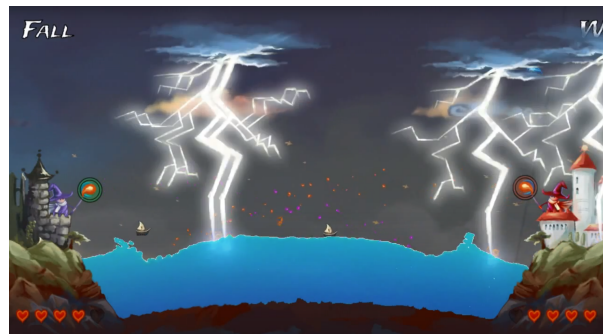
# Other Personal Projects(Selected)

## The Battle of the Seasons (Video game with fluid simulation, 2014)

Android platform video game. 2D fluid simulation. Java.

Our game had more than 1000 downloads on Google Play. Our game won the 1st place of the ETH 2014 game competition, nominated as one of the best game of 2014 Swiss game festival, nominated as one of the best Swiss software 2014, and elected as the representative ETH student project for India IIT exhibition.

Trailer : <https://www.youtube.com/watch?v=at6ctnEu5wI>

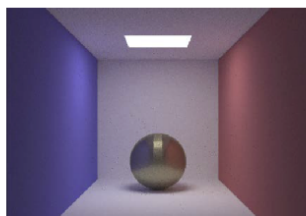
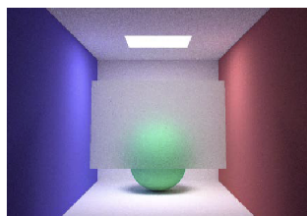


## East and West (Photo realistic ray-tracing rendering, 2013)

Ray Tracing, Global Illumination using Photon Mapping, Subsurface Scattering, Physically BRDF (Anisotropic Lighting and Micro Facet Theory). C++ and OpenGL.

My rendering project won 2nd place of ETH rendering competition 2013 (The Jury was formed of computer scientists and senior engineers from Pixar and Disney Research Zurich).

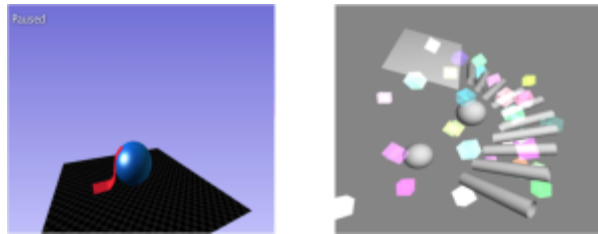
Link: <https://graphics.ethz.ch/teaching/imsynth13/competition/competition.php>



## Cloth and Jelly (Physically based animation simulation, 2013)

Soft body simulation, rigid body physics, mass spring system, implicit Euler function, cloth self-collision system. C++ and OpenGL.

Our project won the third place of ETH physical simulation competition (Jury was formed of professors from ETH computer science department).



## Image style transfer

Implementation of Paper “Fast Patch-based Style Transfer of Arbitrary Style”, Python

