

1. Intro of us together bump – peanut butter reeses pieces reeses piece juxtapose with wrapper (TOM)

You got Chicago Architectural History on my Rapid Prototyping Cutting Edge Technology!

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2. Cultural historian city of Chicago

Tim says things

3. Tom intro (Artic lion – shot from MKE pres)

On the other hand I'm a visual artist – working in sculpture and painting who found 3D printing and scanning in a very circuitous and serendipitous way. I love to 3D scan objects from the real world and see them represented on the screen like Edward Kemey's lion or fabricated using the 3D printer and other technologies. I think of these objects almost as physical photographs

4. For example Sullivan but an audience to sleep (Sullivan buildings mini lecture)

Tim says things

5. Tom teaches 3d printing slide (split slide 3dp on side and 3d scan)

In addition to working predominantly in Digital Fabrication I also teach it extensively as an Assistant Professor at the School of the Art Institute of Chicago. In this image you can see me 3D scanning a Roman torso from the Museums collection using a method called photogrammetry whereby you can take many photos of an object to turn into a 3d model – like I often say – if you have a digital camera then you have a 3d scanner, if you have a smart phone then there's an app for that!

6. But Ron Popeil - Man of many hats (ron popeil product)

Tim talks Ron Popeil

7. You are an architectural historian (Lugging terracotta around and that old fashioned book)

Tim adlib

8. Tim - Lugging terracotta around and that old fashioned book (photo shoot)

Tim says things

9. Book in trashcan (terra cotta lugging bioks)

Tim improv

10. Here is the solution – book hold it up image (book on screen)

Look no further! The solution is here. Twenty Something Sullivan The world's first 3D printed architectural reference book. All your important ornaments collected into one handy, lightweight volume ready for lectures, lessons and leisure alike. 3D Printed in only the finest plastics culled from premium corn and vegetable starches, Twenty Something Sullivan features nine of Louis H Sullivan's finest ornamental pieces in high relief.

11. Process of book – scanning in office

Scanned from the only remaining sources of Sullivan's ornaments known to man, we have used the latest in Structured Light Scanning technology to render accurate 3D models of Sullivan's groundbreaking work. These scans the first digital records of this vital part of Chicago's architectural history.

12. Process of book – processing the scan

As you can see the detail from this scan of an ornament from the Barbe House is unparalleled. Once the scans have been produced we retreat to our digital darkroom to clean the objects up and make them 3D printable. In this image our skilled technicians repair the missing facets and

separate the design to make it watertight and 3D printable.

13. Process

From there the scan is passed off to the next technician who reduces the polygon count in order to make the mesh more manageable before adding the design to the pages. In the top left slide you can see the original scan compared to the bottom left image which shows the reduction. In polys has very little effect on the fidelity of our object.

14. Process

From there we move to CAD and integrate our scan from the Barbe house into the page design. It is here that the captions and Braille translations for each object are added into the surface of each page using only the finest artisanal Boolean union and difference operations. Tabs are added and the final file converted to a mesh and exported as an STL for fabrication.

15. Process of book – access downloading etc

Each page is printed using the latest Fused Deposition Modeling process on a large format plastic extrusion 3D printer. As you can see no expense is spared – each page prints slowly, aging like a fine wine or rare Scotch, emerging slowly from the print volume like Caprica Six.

16. Thingiverse

But wait there's more! You can own this book yourself, right now, for free. That's right no money down. No monthly payments. Nothing. Free as in beer. Just navigate your favorite web browser to Thingiverse.com do a quick search for Twenty Something Sullivan and download it yourself. Only at least 400 hours of 3D printing and you can have your own copy of this one of kind publication. Twenty Something Sullivan has been released into the public domain for you to breathe new life into these wonderful designs and ornaments.

17. Rubel House detail

Impress your friends, wow your neighbors with this important slice of Chicago's architectural heritage. Lovingly rescued from demolition sites around Chicago by folks such as the late Richard Nickel and the mighty Tim Samuelson. Louis Sullivan's treasured ornaments have been kept alive and safely stored until today when the digital copies have been released onto the web.

18. Barbe, Selz and Rosenfeld details

Tim says things

19. Playdoh slide

But there's more. Yes – it's true it's a book, it's a library but it is also a photocopier. Of objects. Simply take your favorite airdrying malleable material of choice and place it carefully in the flipside of each page to make a new copy of the Barbe house terra cotta or the Rosenfeld Building iron work. Share them with your colleagues at works as a unique holiday gift or with your loved ones. Use cookie dough and make only the most delectable ornamental delights.

20. Here is this improve book – and not only with this book, and wait there's more –

But wait there's more.... Tim whipomatic

Tom – thank you to Sean Tikkun for translating the caption into Braille, to Holly Holmes for diligently printing most of the pages, bearings and pins, to Tony Buser for designing and sharing said pins on Thingiverse, to PP3PD for the original design of the bearing upon which the bearing is based and to The School of the Art Institute of Chicago for letting us use their Artec Eva and Next Engine 3D scanners in this project.

Twentysomethingsullivan.com for more info

Thank you!