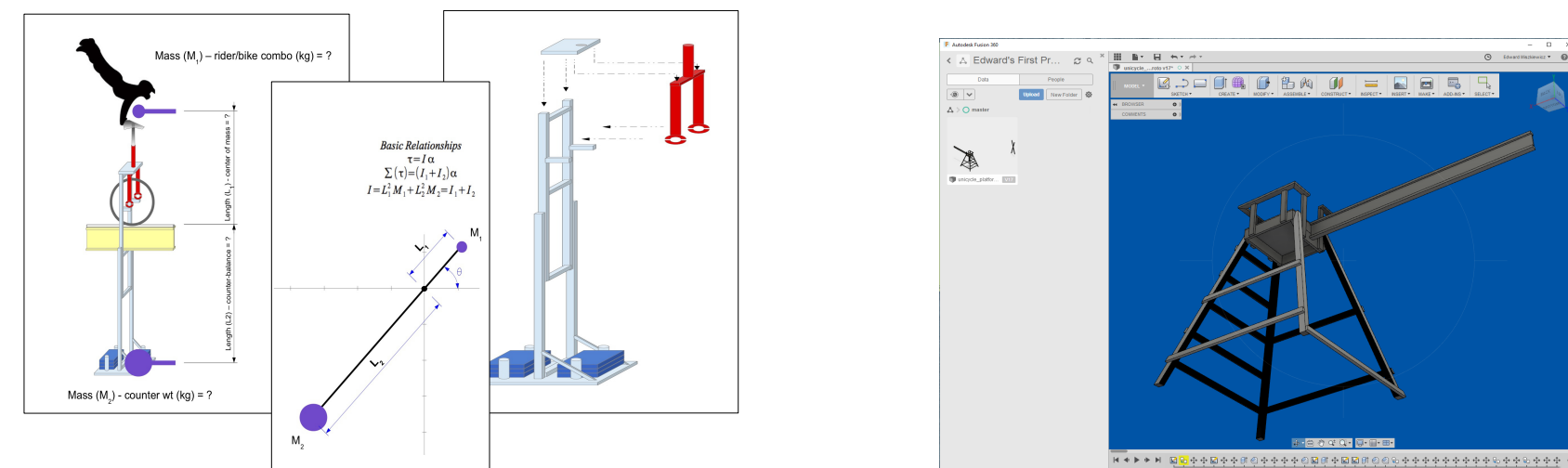
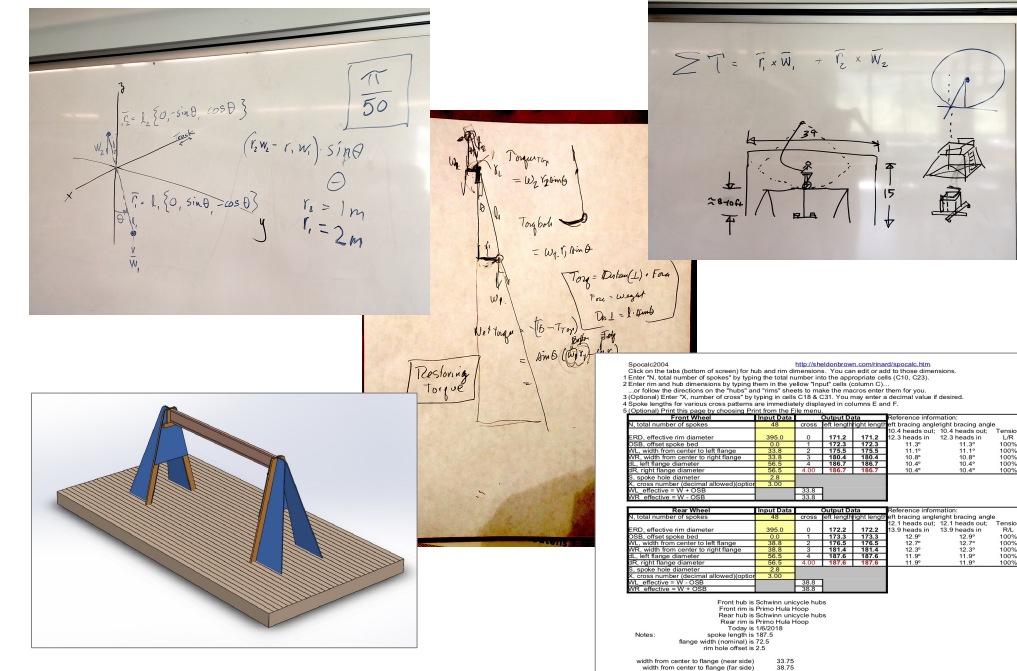


Engineering Club – Unicycle Project

Edward Miskiewicz
CS Major - Foothill College

Design

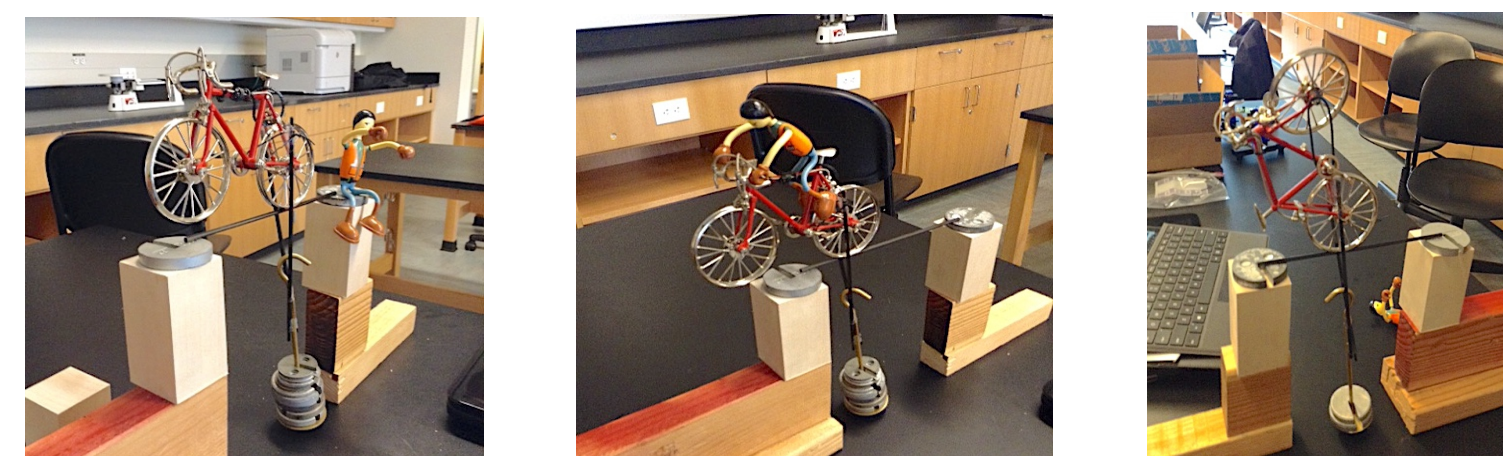
- Design Phase
- requirements
- conceptual models
- calculations
- 3D model



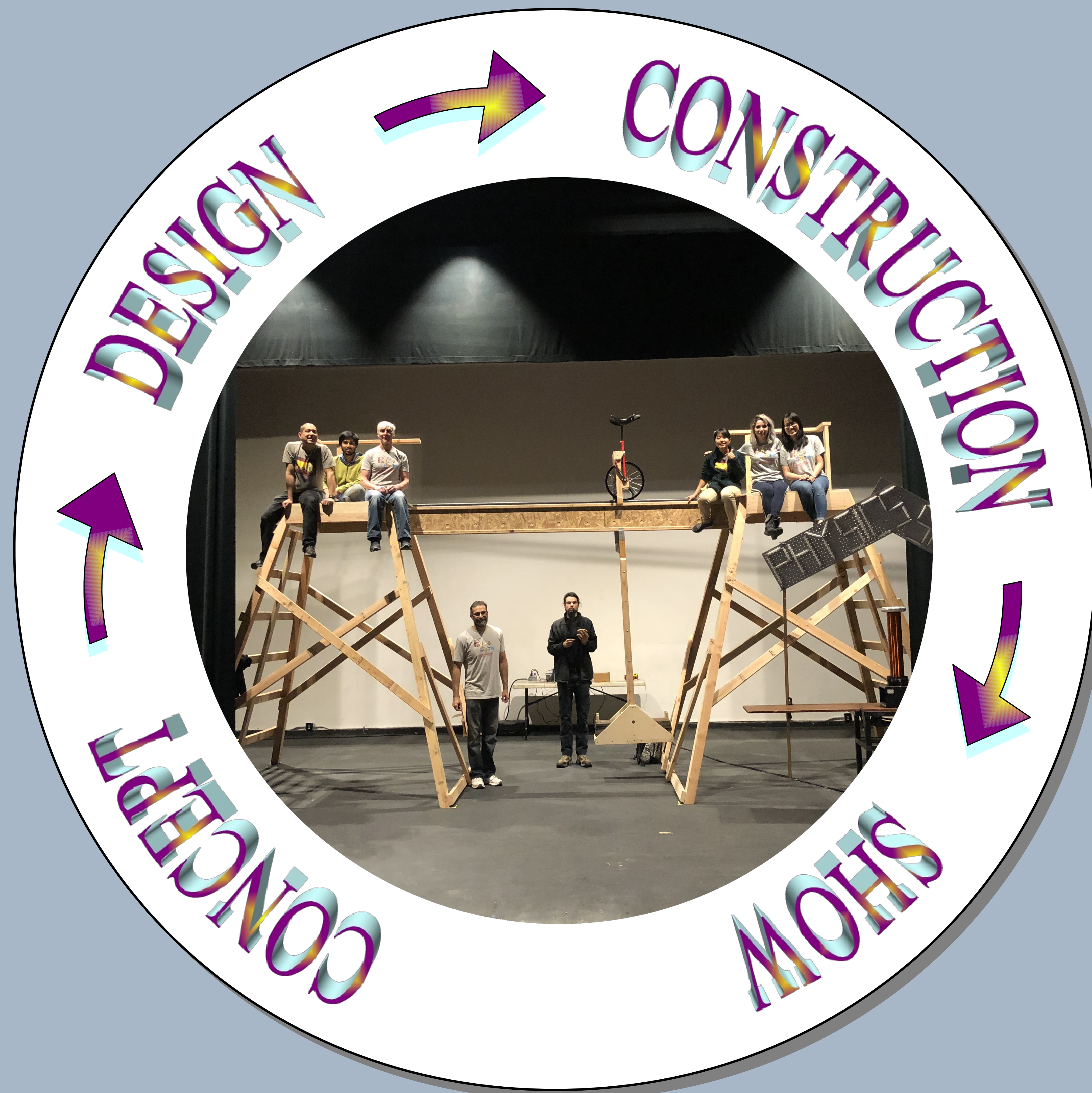
The design phase consisted of calculations for torque, 3D CAD models for the towers, and a spreadsheet for building a new unicycle wheel. Design reviews were held to re-evaluate the design choices as the design matured.

Concept

- The idea, first introduced by Prof. Frank Cascarano as a demonstration of torque for the semi-annual **Physics Show**...
- started as a concept for a **bicycle** on a tight-rope
- quickly evolved into a **unicycle** on a beam



Several tech museums across the country have counter-balance bicycle exhibits, designed and built by teams of engineers and fabricators. Ours was built by students, with some help from staff of course. As far as we know, only one other exhibit is based on a unicycle.



Construction

- Main components
- \$40 unicycle
- counterweights (300 lbs)
- I-beam (12 ft long)
- end towers (9 ft tall)

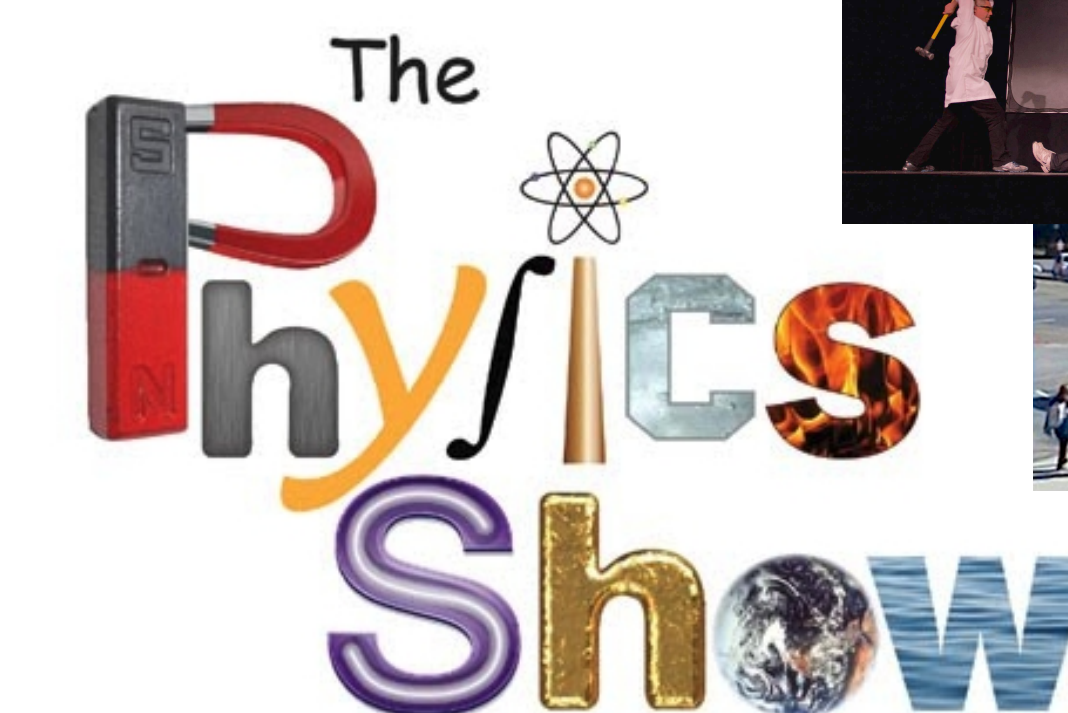


- Methods
- standard construction
- testing at milestones



Show

Since its inception in 2007, the Foothill College Physics Show has grown from an initial 200 attendees to 20,000 annually.



The Physics Show gives back to the community. Each year proceeds from ticket sales are used to bus over 4000 students from Title 1 (free lunch) schools from East Palo Alto, Redwood City, and San Jose. The students get a Physics Show, a t-shirt, lunch and a Foothill campus tour, all at no cost to their school.

Best of all, they learn that science and physics (and college) can not only be interesting, but fun!



Citations

Tech museums with bicycle exhibits...

- 1 **California Science Center, Los Angeles, CA**
www.youtube.com/watch?v=m4K36Q4gT5Q
www.youtube.com/watch?v=9f6Y5r11oNc
- 2 **Discovery Center, Springfield, MO**
www.youtube.com/watch?v=gTAwWQITaZ0
- 3 **Pacific Science Center, Seattle, WA**
www.parentmap.com/article/seattle-summer-mini-adventures-for-kids
- 4 **Center of Science and Industry, Columbus, OH**
www.cosi.org/exhibits/classic-exhibits/cosi-classics
www.roadtriptheworld.com/2013/06/visiting-cosi-the-center-of-science-and-industry-in-columbus



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- Colin Arnold
- Samuel Arnold
- Jason Herman
- Various other students

Smithwick Theatre

- Christina Moore
- Bruce McLeod

Donated Materials

- Sunnyvale Lumber
- Spitz Machining

Further information

If you are interested in working on exciting engineering projects such as this, check out the . . .

