

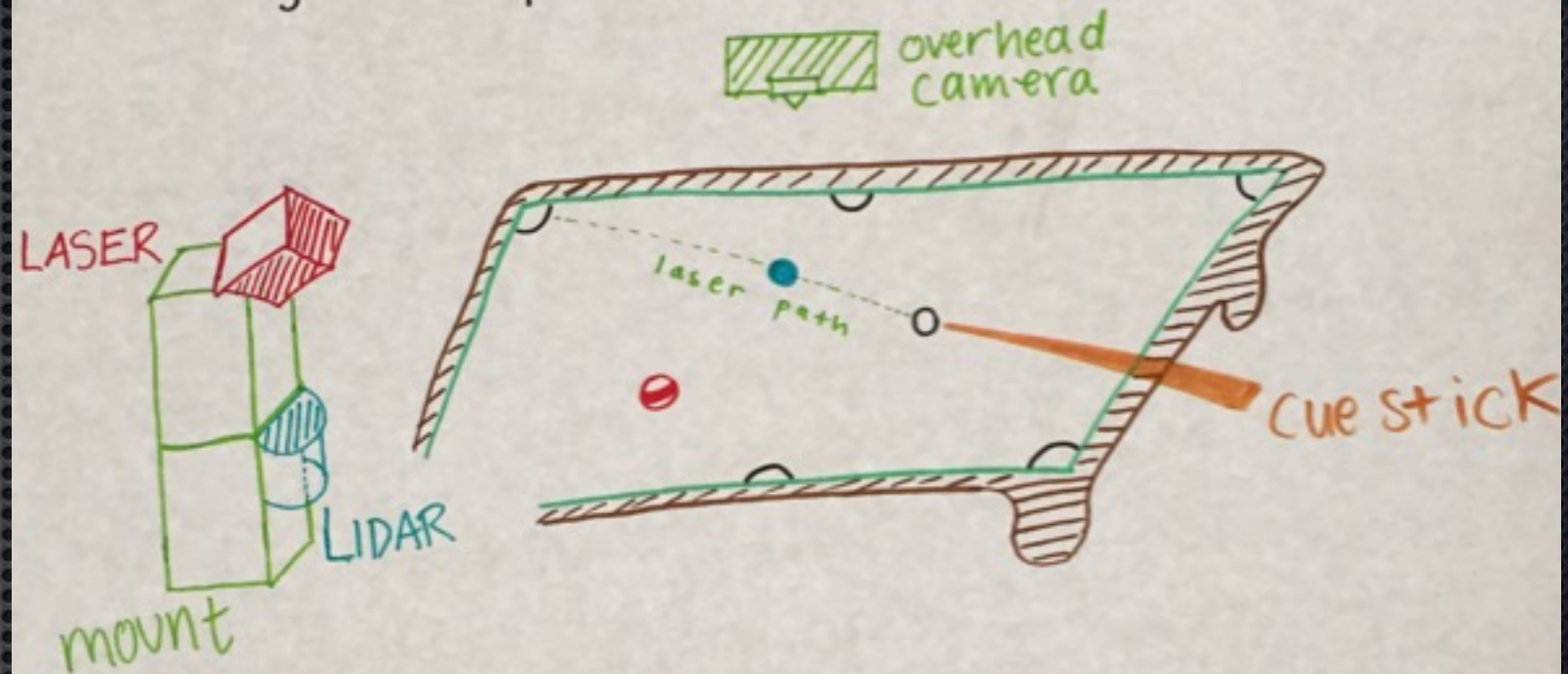
# Pool++ -> LASER POOL

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Eduardo Mucino  
Sheen Kao  
Japna Sethi  
Jace Monti  
Langston Bealum  
David Crawford  
Brent Townshend  
(and ALL our testers!)

## POOL++

Members: Brent, Raphael, Eduardo, Sheen, Japna, David, Langston, Jace

Goal: Hack the pool table to help students learn about physics (e.g. momentum, elastic/inelastic collisions), and enhance the game of pool!



### Process:

- Overhead camera reads position of cue stick
- LIDAR reads position of all balls
- physics engine takes inputs from above to determine where the balls will go
- laser projects output from physics engine (the ball path) onto the pool table



# Why pool?



## A universal game in the modern age

(And we saw Github's pool table from the bar )



# The old way



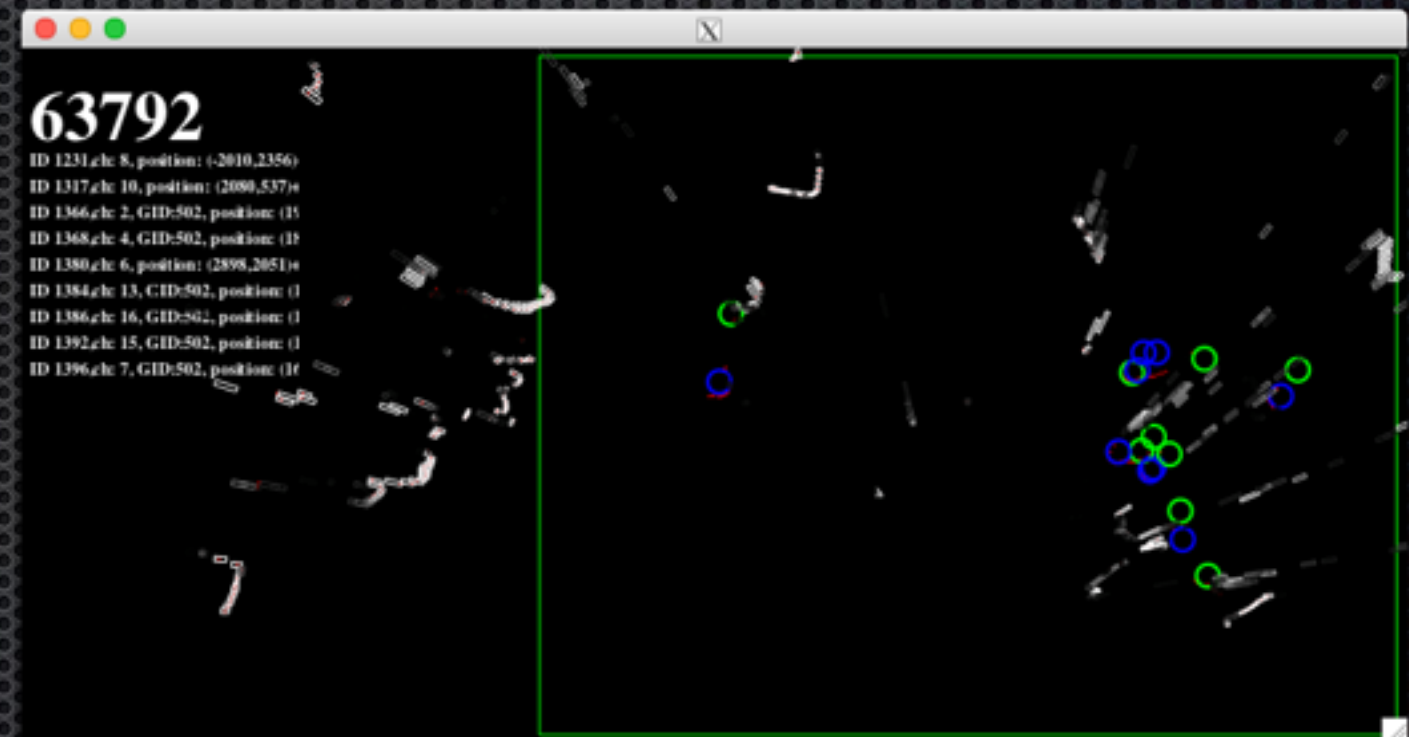


The “Science” way  
(started working at 4:30am)





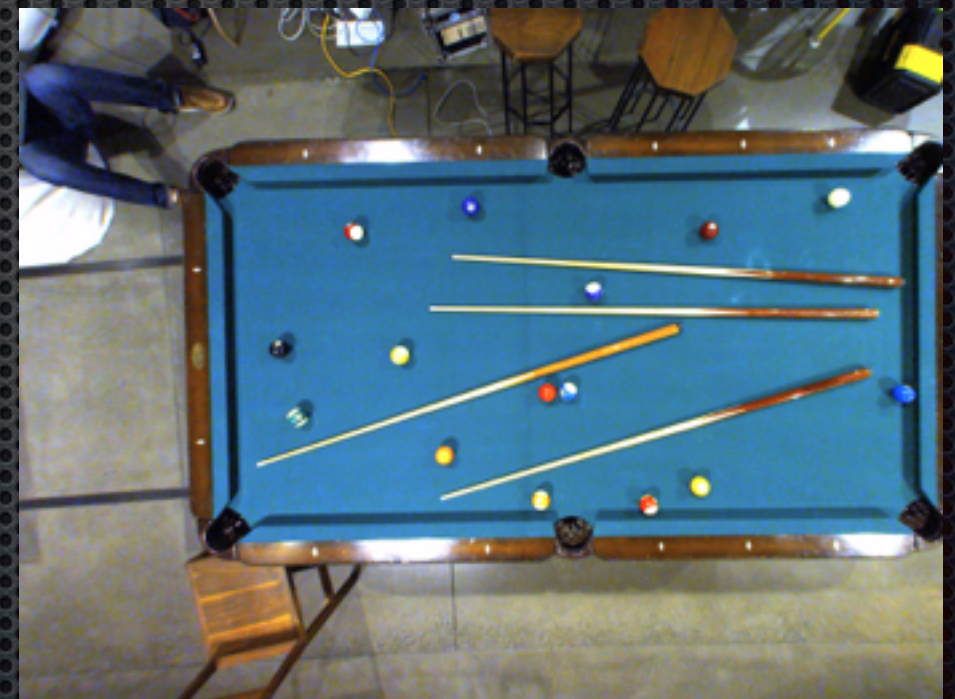
# How it works



LIDAR to track balls



# How it works



Camera to track cue



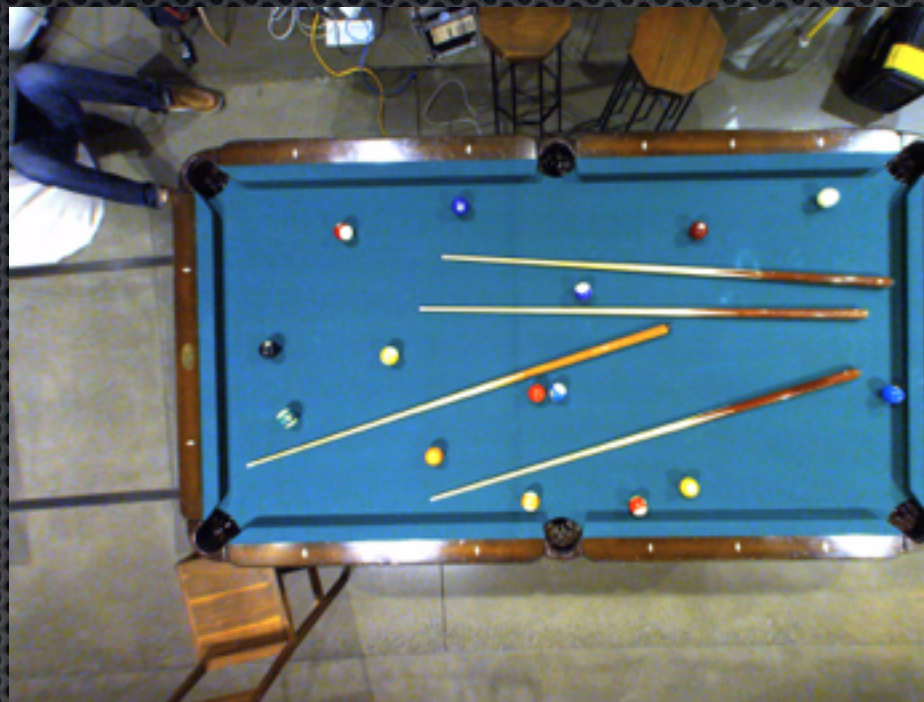
# How it works



Laser projector to display shots

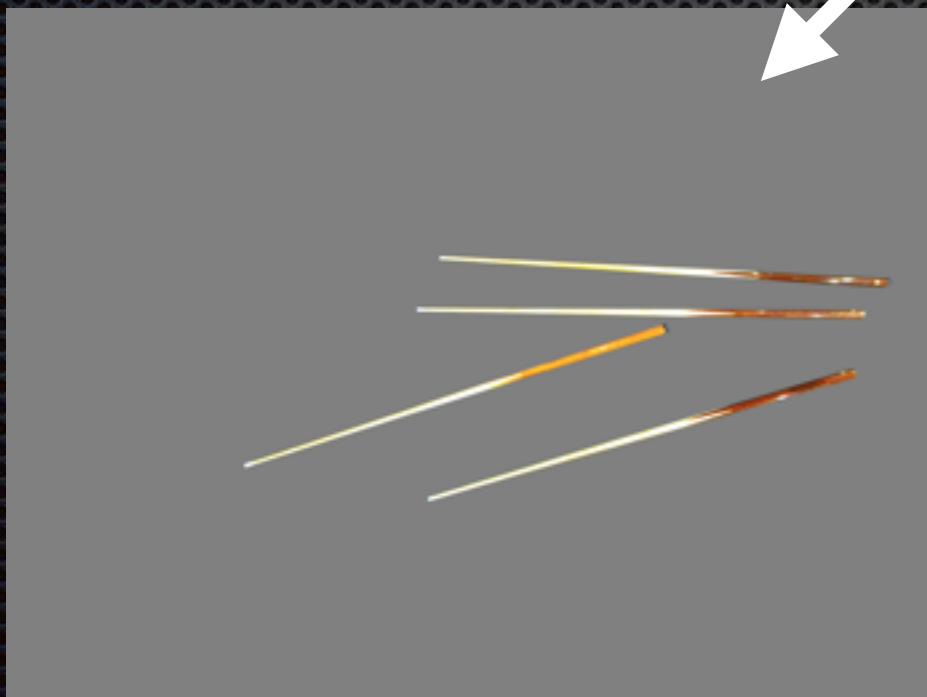


# Computer Vision



Cues

Balls



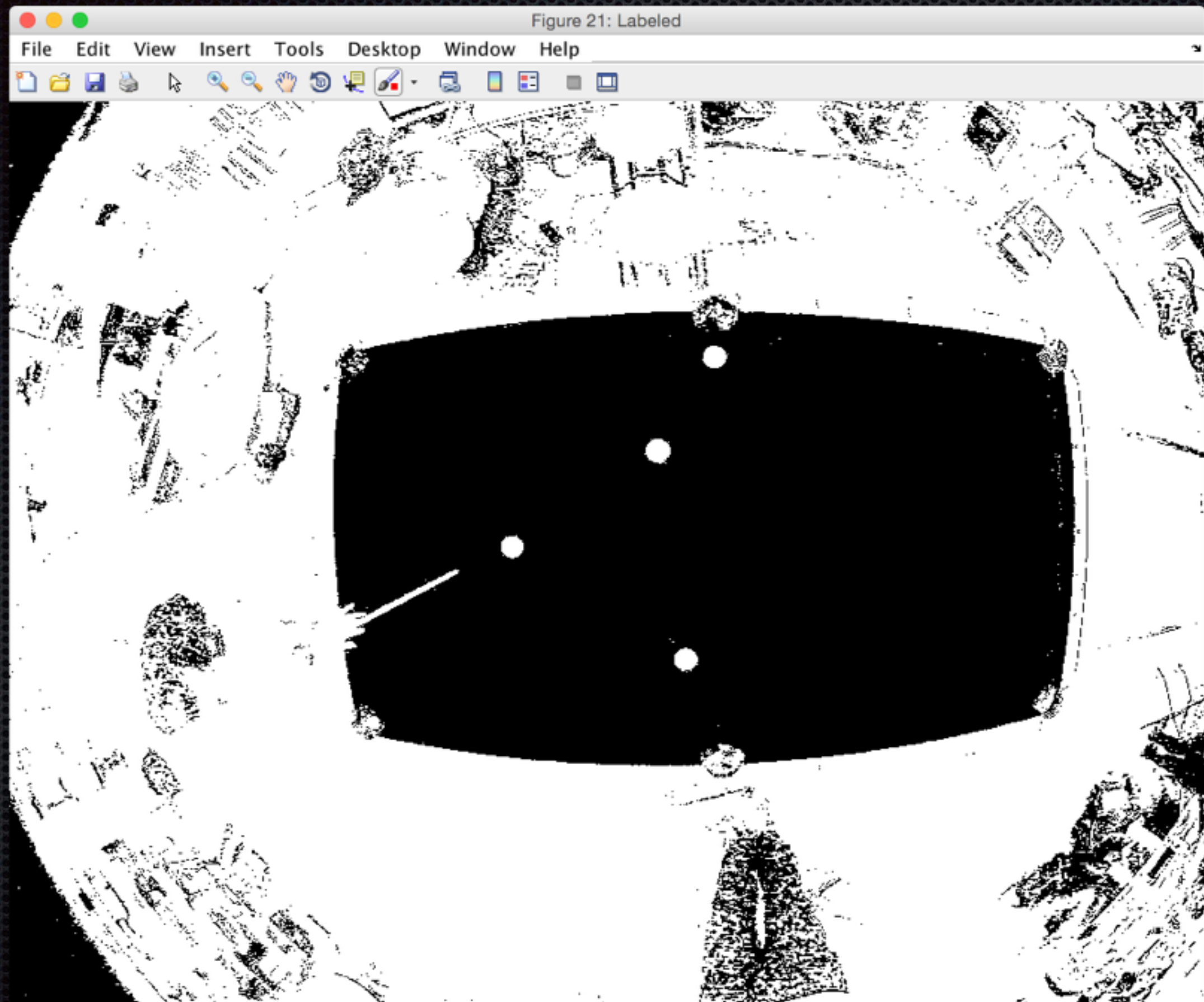


# Finding the cue...



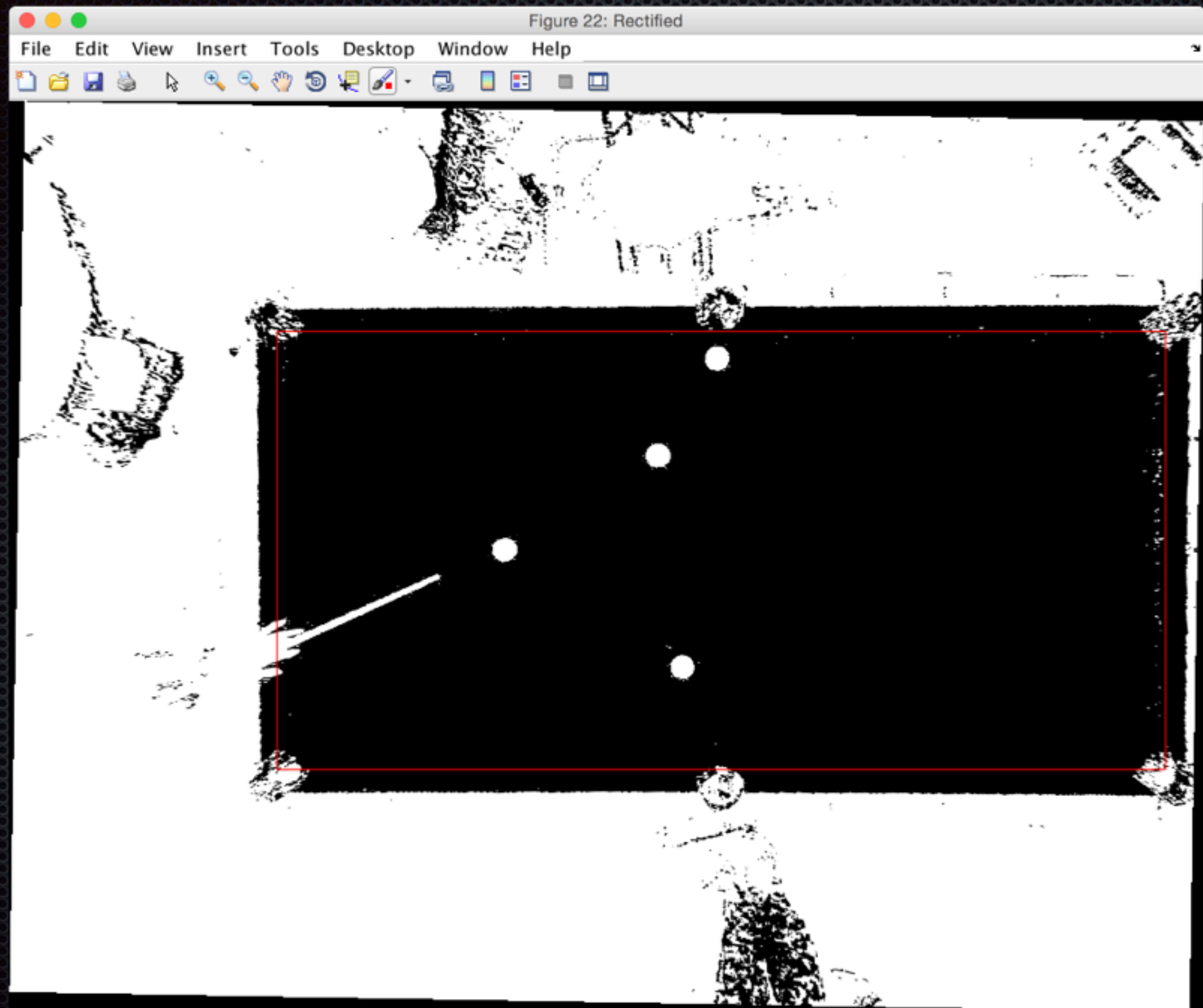


# Finding the cue...



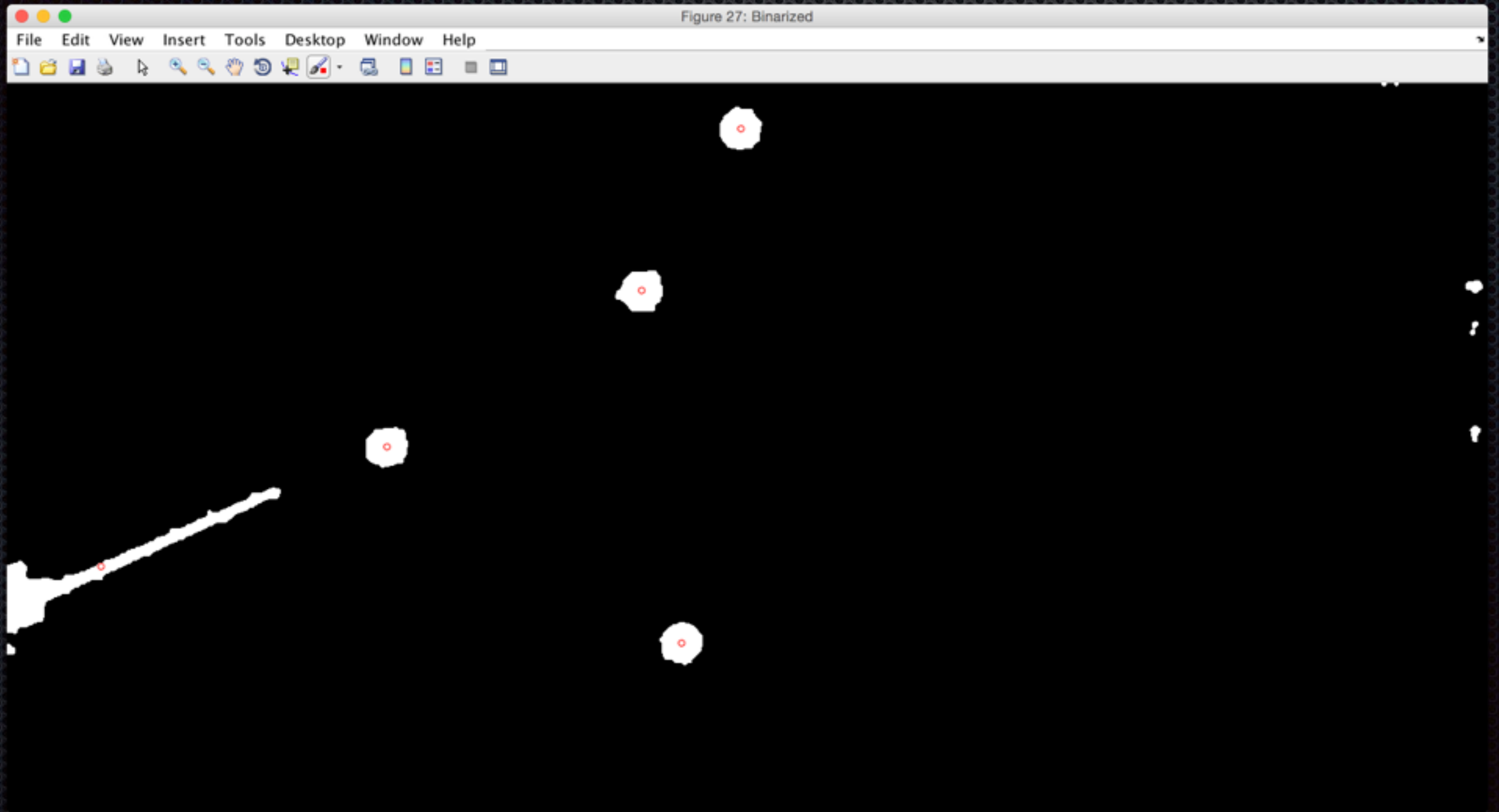


# Finding the cue...



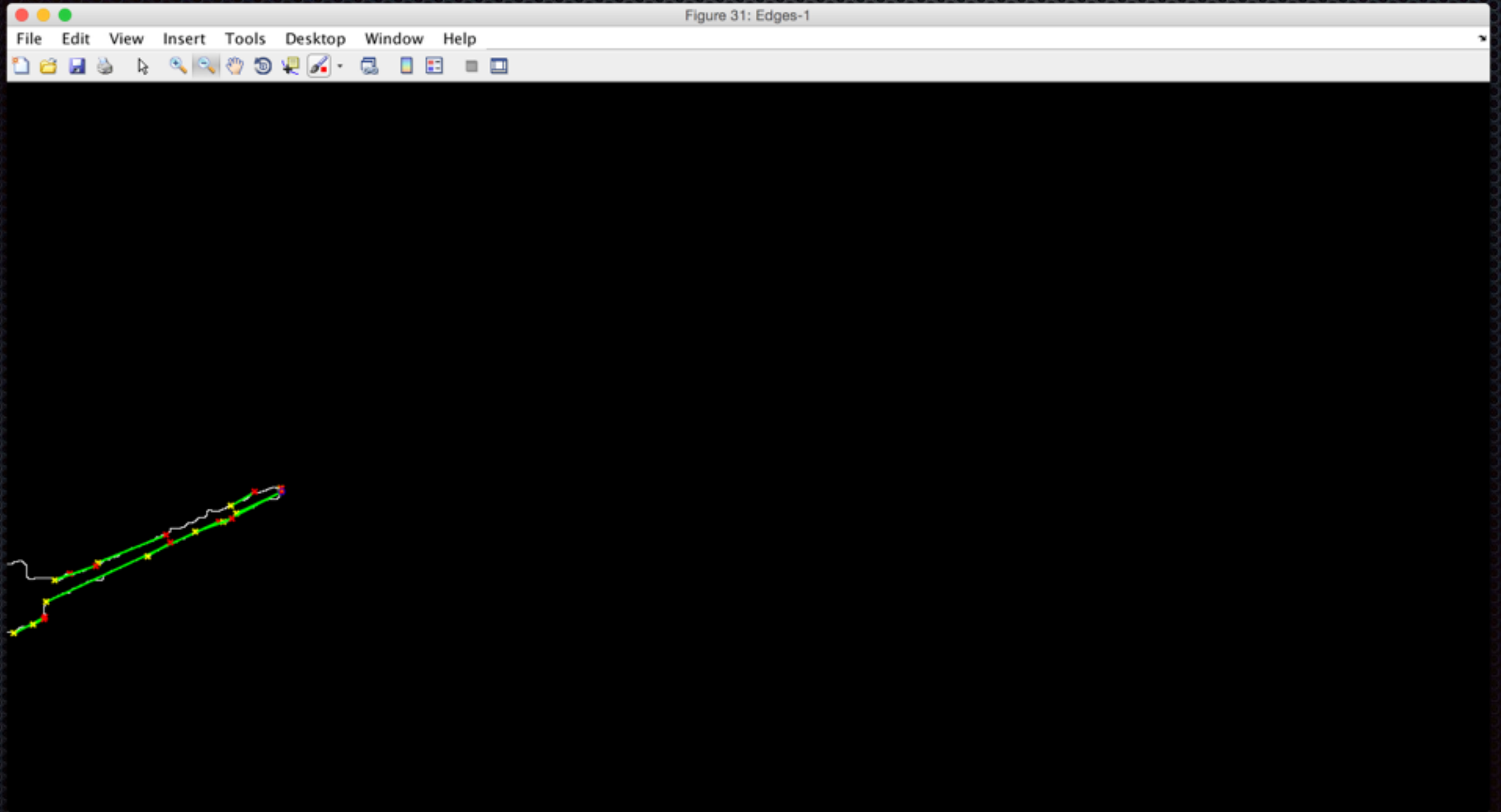


# Finding the cue....





# Finding the cue....





# Physics can make YOU a PRO





But not always...  
(predictive failure)





BUT not even scientists can  
always follow the model...

