

## DPRG RBNV Chat Record – 1/26/2021

Ray

7:52 PM

I changed from McAfee to Avast and lost my mic. Some of you may think that is a good thing!

Doug Dodgen

8:01 PM

I thought Ray was going to be in quiet mode?!?

Ray

8:02 PM

I solve my mic problem. Isn't that great?

Bhanaviya Venkat

8:07 PM

Vertical:  $v_0 = ((0.88 - 0.41) - 0.5(a)t^2)/\sin\theta(t/2)$

Carl Ott

8:12 PM

Jose - could you stop sharing?

Ray

8:14 PM

A physics professor that I had was in the Marines. We asked him if he used the equations for motion to aim mortars.. He said they would shoot a few test shots. When the enemy came they were focused on lighting off as many as they could..

Ray

8:23 PM

adjustable squeeziness

Ray

8:25 PM

roughing the ref..

Ray

8:28 PM

no one got hit in the butt..

Ray

8:30 PM

it 's a good thing they are not lawn darts...

Harold Pulcher

8:30 PM

dude!!! Lawn darts!!!

Carl Ott

8:37 PM

DOE - Design Of Experiments

[https://en.wikipedia.org/wiki/Design\\_of\\_experiments](https://en.wikipedia.org/wiki/Design_of_experiments)

Carl Ott

8:38 PM

Use DOE to find out which controls have the biggest impact - and the biggest variability - and with a relatively small number of tests, you can pick a robust answer...

<https://www.moresteam.com/toolbox/design-of-experiments.cfm>

Carl Ott

8:42 PM

<https://asq.org/quality-resources/design-of-experiments>

Ray

8:42 PM

DOE seems more feasible than trying to model the aerodynamics of a rotating donut ...

Carl Ott

8:43 PM

Ray - yes -absolutely - DOE helps you take out things that are difficult to model - just like PID loops take out non-linearities in control loops..

Ray

8:43 PM

or aerodynamics

Carl Ott

8:44 PM

With DOE - you can also find out which controls are 'sensitive' - so that you can harden the solution to be most robust

Ray

8:44 PM

is baby driver available?

Ray

8:48 PM

Do you have a team member that is good at juggling?

Bhanaviya Venkat

8:48 PM

unironically we do

Carl Ott

8:52 PM

here's a Catapult Case Study for DOE <https://www.slideshare.net/LarryThompsonMfgT/catapult-doe-case-study>

Carl Ott

8:59 PM

another DOE catapult example writeup <https://www.sigmaxl.com/DOECatapult.shtml>

Carl Ott

9:00 PM

here's a DOE plug-in for XL - maybe they have an educational discount <https://sigmazone.com/catapult/>

Carl Ott

9:02 PM

this one claims to be practical DOE - with a free template included

<https://www.isixsigma.com/training/training-materials-aids/most-practical-doe-explained-free-template/>

Ray

9:04 PM

pos is a common prefix

Ray

9:07 PM

dave you are awfully quite...

Doug P. - Rpi

9:29 PM

Carl, the gyro will only keep your robot base in the same orientation. It will not be able to tell you your direction.

Carl Ott  
9:35 PM

Doug - yup - I get that. I was just wondering about thoughts on options to maintain heading - general thoughts on having a constant heading loop based on gyro (heading velocity) versus a constant heading loop based on a heading position (absolute heading value from some other sensor (e.g. compass or optical flow, etc.)

Doug P. - Rpi  
9:45 PM

Carl, You will have to use an additional sensor (optical flow, the direction of a castor wheel, or something else).

Ray  
9:49 PM

Hillcrest Laboratories

David  
9:53 PM

<http://www.geology.smu.edu/dpa-www/robo/rcat/calibrate.html>

Jian Shi  
9:58 PM

Thanks David! I haven't calibrated yet, this is a perfect procedure!

Robots New Zealand  
10:01 PM

Odometry on a Mecanum Robot Using an Optical Flow Sensor  
<https://robots.org.nz/2020/06/29/odometry-pmw3901/>

Ray  
10:03 PM

I think it is 35x 35 pixels

Carl Ott  
10:05 PM

Thanks Murray - that's another item for my backlog ;-}

Iron Reign  
10:07 PM

I gotta go.. Thanks everyone for advising my team!

Carl Ott  
10:07 PM

Thanks Karim !

Pat Caron  
10:29 PM

Thanks guys, talk to you next week

Harold Pulcher  
10:29 PM

I gotta bolt. you folks take care!

Carl Ott  
10:29 PM

See you Harold!

