

VIDEO TRANSCRIPT

Video title:
The final frontier,
a conversation with Dr Jinny Rhee.

JANE CLOSE CONOLEY:

Hello I'm Jane Close Conoley
President of Cal State Long Beach
and today we're going to talk about space
the final frontier as someone very famous once put it.
For decades Cal State Long Beach has
been a vital part of supplying workers to
and getting experts from the
aerospace industry.
Through our development of undergraduate
and graduate programs in aerospace engineering,
mechanical engineering and
industrial design and by forging
immersive co-curricular experiences
and workforce pipelines with industry
partners
and spearheading research for rocket fuels,
propulsion systems and additive manufacturing.
A recent surge in the space industry
echoes the Post-World War II aerospace boom
when CSULB, the US military and

private companies forged lasting partnerships to develop a highly skilled local workforce and shape the fortunes of the first space race.

Since then CSULB has remained a constant partner of industry leaders and a cornerstone of bold initiatives that have led to our city now being referred to as Space Beach.

Helping to lead us in the space beach community is the Dean of our College of Engineering, Dr Jinny Rhee.

Dr Rhee, the newest of our deans at the Beach joined us in July.

She comes to Cal State Long Beach from San Jose State where she established academic advising programs and developed innovative curricula and the service learning program

engineering projects in community service at SJSU.

Notably Dean Rhee received her bachelor's, master's and doctorate all in mechanical engineering from Stanford University.

Her research interests include
renewable energy,
thermal management and student success
strategies particularly for students who
are engineering and stem majors.

Dean Rhee thank you so much for joining me
today to talk about Space Beach and the
College of Engineering's talent pipeline
to the aerospace industry and other
issues impacting the stem related fields.

JINNY RHEE:

Thank you President Conoley
I'm thrilled to be here.

JANE CONOLEY:

Dean Rhee can you talk about the impact
our college of engineering graduates are
having on the aerospace industry
Space Beach?

JINNY RHEE:

Absolutely I think that the impact
that the College of Engineering is
having is
quite substantial if you look at the

number of
employees that we have in the industry
it's quite large
for example we have over 1200 alumni
working for Boeing Corporation and over
750 working for Northrop Grumman
and almost 600 working for Raytheon.
These are our three biggest
employers
and if you also add in companies like
Lockheed Martin, the Aerospace Corporation
and Virgin Orbit
the number approaches 3000.

So I think it's safe to say that the
aerospace industry is one of our largest
employers if not the biggest employer.

We also provide the workforce that these
companies need. We have the majors
that are relevant to their industries.
Our mechanical and aerospace engineering
department for example has over 1500
students and similarly our computer
engineering and computer science
department has about 1800 students
and we also have electrical engineering,

civil engineering, chemical engineering
and also electronics technology.

I also want to point out some of our
notable alumni who have made huge
contributions to the field.

One example is Chris Hernandez.

He was the Sector Vice President at Northrop Grumman
and he's led projects for them
such as the B2 Bomber,
unmanned flight
and most recently in their
research division.

And another example I can think of is
Patrick Goggin who was the President of
Boeing Defense.

He's retired now but he
obviously contributed substantially to
defense and security while he was there.
So those are just two examples who come
to mind because they both serve on our
corporate advisory board for the college.

I think in general, aerospace
has an enormous impact on society in general.
They make direct contributions to many
industries including telecommunications,

travel and tourism of course
logistics
and of course defense
and I think they permeate many other
industries as well so that would include
electronics and computing,
also advanced materials
due to the aerospace industries efforts,
even construction and manufacturing.
So I think it's safe to say that the
aerospace industry influences society as
we know it today.

JANE CLOSE CONOLEY:

Wow I bet people are
surprised at the numbers that you shared
and I know Chris and Pat and they're
both great.

Yeah

JINNY RHEE:

I have an advisory board meeting coming
up and I'm looking forward so much to
meeting everyone.

JANE CLOSE CONOLEY:

Yes I've met some
of your advisors they're terrific yeah.
Tell us about CSULB's role
in the space beach community.

JINNY RHEE:

Well a number of new space companies
have recently moved to Long Beach and
we're all very excited
by the emergence of Space Beach.
I see a lot of potential for
collaboration between our faculty and
some of these new companies that have
moved into the area.
We all watched very excitedly
the Falcon 9 launched by SpaceX
and it's just really exciting to see the
frontiers of
reusable rocketry and commercial
rocketry being advanced right here in
Long Beach.
Another area that I think is really
exciting is the advanced manufacturing
area and the 3D printing

the new company's Relativity and Morph 3D are 3d printing rockets and I think that's so awesome and cool.

We have faculty who do research in this area so there's a lot of potential for collaboration and I really see the potential for technology advancing in these areas.

Of course our core business as a college of engineering is to produce top-notch engineers for the region and beyond.

We provide the talent pipeline that these companies need and we're dedicated to continually improving our curricula and our student programs so that we can ensure that we meet the demands of the ever-changing workforce.

So in summary I think I see ourselves as part of an ecosystem.

The industry provides sponsorships and partnerships for our research programs and our student success programs and that

partnership is vital for our ability to stay current and in return we produce engineering grads that they need for their enterprises to continue to thrive and flourish.

So I see it as a mutually beneficial partnership and together we work for the greater good.

Well it's really a win-win-win-win isn't it and I'm sure faculty research is enhanced as well through those collaborations and industry is advanced because of our faculty members research.

JANE CLOSE CONOLEY:

Yes absolutely.

Switching gears a little bit diversity, equity and inclusion are important aspects of many discussions now in higher education.

Why is it important to the College of Engineering and the field of aerospace?

JINNY RHEE:

Basically I see two main reasons why it's important to the aerospace industry and also to engineering and technology and computing generally speaking.

The first reason is an ethical one so it's one of fairness so if society or institutions are putting up barriers whether they be knowing or unknowing that make it more difficult for certain groups of people to advance or to break into fields such as aerospace I think that we can all agree that that's inherently unfair.

So that's one thing we need to address.

I think the awareness of how this happens in the U.S. is increasing and hopefully that will continue to be a priority.

The second reason is one of missed opportunities and untapped potential. So for example just imagine all of the talent and the contributions to society that we're leaving on the table if we're excluding certain groups of

people from participating and contributing so that's another area that we need to address.

For example I think it's well known that diversity

fosters innovation and competitiveness.

Corporations who have a board of advisors that includes women generally outperforms

those that are composed of only men

and another example would be team

projects that include a diverse array of perspectives

generally come up with solutions that are more creative and more innovative and reach a larger audience than those that are more homogeneous in

composition so those two examples just illustrate why it's important to have a big range of perspectives at the table and a representative range of

perspectives at the table and lived experiences when we're solving problems.

Another point I want to make is that the demand for engineers is projected to

increase in the future
and the supply of high school graduates
is projected to start declining in the
U.S. in a couple of years
and so one way that we're going to meet
that demand is we need to more actively
recruit and retain and nurture the
talent in groups that have been
historically underserved in engineering programs.
I'm also really proud that the
Beach is one of the few universities
in the country that has an HSI designation
and also an AANAPISI designation.
HSI stands for Hispanic serving
institution and AANAPISI stands for, and I
always forget, it's Asian American, Native
American, and Pacific Islander...

JANE:

You got it.

JINNY:

serving institution yes.

Also I'm really proud of the fact that
the College of Engineering ranks ninth

in terms of Hispanic students and
14th for minority students overall
according to the publication Diversity
in Higher Ed.

And last but not least I just want to
throw out that we do have several
affinity groups in the college to allow
students to
find their community
such as we have SWE, Society of Women Engineers,
NSBE, National Society of Black Engineers,
and also Latinos in Science
and Engineering.

JANE:

So diversity, equity and inclusion
strategies are not only the right thing
to do but they really add to our success.

JINNY:

Oh absolutely and this is an imperative
for everybody.

JANE:

It really sounds like
we're on our way but always more

work to be done.

JINNY:

Yeah.

JANE:

So we have now witnessed Astro Access which gave 12 people with disabilities the opportunity to experience weightlessness on a zero-gravity flight.

CSULB had some involvement in this project.

What does this mean do you think to space flight?

JINNY:

Yes I think the work that this organization Astro Access is doing is wonderful.

They're advancing diversity inclusion in the space industry all for the benefit of humankind. They had an inaugural flight with 12 incredible experts

on it.

They included scientists and communications experts also professors and students and I think there are even athletes and artists aboard and all of these people have visible or non-visible disabilities.

They were able to conduct experiments in a microgravity environment while they were on board and of course they were able to provide invaluable feedback on how to design space flight to be inclusive of those people who have disabilities.

So I think this has been a historic step. Basically it demonstrates that having a disability doesn't preclude you from having a career in space or even to be able to participate and contribute and that's a great thing.

We saw the range of expertise that was brought by this inaugural crew

and their unique perspectives
and how that really benefited the mission
and enhanced the mission.
So as fields such as space exploration
and commercial space tourism open up
I think it's important to
consider accessibility
for some of the reasons that I mentioned previously.

JANE:

Yeah very important
and one of those 12 people is an alumna
of CSULB.
So we're especially excited about that.

JINNY:

Yeah another thing to be proud of.
Yes.

JANE:

How does the College of Engineering meet
the current demand for talent in aerospace
and what are the plans as new areas open?
This would include reusable
rockets and sustainability,

new kinds of engines and fuels,
commercial and tourism operations.

JINNY:

I think the College of Engineering at the
Beach is uniquely positioned to meet
this demand and to continue to meet this demand.
So number one our location right
here in Long Beach is an advantage for us.
We're located so closely with a lot of
these aerospace corporations that it's
only natural that we seek to have
partnerships with them and then we also
have top executives from many of these
companies who serve on our advisory board
and they give us invaluable feedback on
the directions that their industries are
going and also the skills that they
require from our graduates.
All of our programs are professionally accredited
and they're designed with industry input.
We pride ourselves on our hands-on and
practical curricula and
it's a good marriage of theory and implementation.
Most of our

programs also have a senior design project requirement and this project is a culmination of all of their years of study and the curricula that they've undergone.

We also have about 30 student clubs and this provides opportunities for students to get engaged and involved in something outside of class and also to practice their soft skills which are also highly valued by industry and these include things like communication, teamwork and leadership.

JANE:

So important and those industry connections help us stay right up with this fast-changing technology that surrounds us.

JINNY:

That's true.

JANE:

So what do you think the next

big thing is at the College of Engineering

when it comes to Space Beach?

What should we be on the

lookout for at the college?

JINNY:

One project that we're currently working on is a

feasibility study for a new engineering

building and so this is a project that

we're very excited about.

We are looking to this new building to

help modernize our facility

and also add some capability that we're currently seeking.

For example we have

faculty who do research on combustion

and their research could really take off

if we had facilities that could be

rated for energetics so that would be one area.

Another area that I would like to expand in

and pick up capability in is in the

area of advanced manufacturing.

So if we could increase our capability

in metal 3D printing and

large scale 3D printing in particular

I think it would be really great for the college as well.

New technologies like AR and VR that would be really great for us too. Ultimately a facility like this would benefit our students who would benefit from the opportunities that arose from it.

I think you can also look to us to roll out some diversity and equity initiatives moving forward.

We recently received a grant from the Center for Inclusive Computing at Northeastern University and this is funded by Melinda Gates and this is to...well the overall goal of this program is to increase the percentage of women in our computing fields so this is a project that we're really excited about and I'm really excited to see the good work that comes out of it and finally I'll just throw out there that long term I'm going to be trying to attract a naming opportunity for the College of Engineering.

We are seeking the right partner who shares our vision for a modern and diverse College of Engineering.

JANE:

Well there's a lot to look forward to
you have a bunch of big things on the horizon.

Thank you.

That wraps up our conversation today
about our College of Engineering,
Space Beach, STEM,
diversity and more and there will be
more to discuss in the future
that I'm sure of.

I want to thank College of Engineering
Dean Jinny Rhee for joining me today and
I want to thank you
for taking the time to learn more about
the College,
Space Beach and
the Beach.

Go Beach