



From STEM to STEAM:

Presented by MATEC NetWorks

The webinar will begin at 1pm Eastern Time.
In the meantime you may wish to perform an Audio Check.
Go to Tools → Audio → Audio Setup Wizard.



NETWORKS



From STEM to STEAM:

Importance of Arts In STEM

Presented by MATEC NetWorks



NETWORKS



NETWORKS



**MARICOPA
COMMUNITY
COLLEGES**

NetWorks is part of MATEC, a member of Workforce Development, at the Maricopa Community Colleges, and funded in part by the National Science Foundation



**National
Science
Foundation**

Funded, in part, by a grant from the National Science Foundation. Due 1104159

Illuminate Live! - NetWorks Webinars

File Session View Tools Window Help

Participants

- Participants
- Shannon Payne (Mod...)
- craig holzinger
- mike lesiecki

3 Participants

Chat

Show All

Send to This Room

Audio

Microphone Speaker

Whiteboard - Main Room

15/29 Welcome to MATEC NetWorks Webinar

Follow Moderator Roam

From STEM to STEAM:

Importance of Arts In STEM
Presented by MATEC NetWorks

MATEC NETWORKS

Chat

Whiteboard

In session for 1 hour, 21 minutes.

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File Session View Tools Window Help

Participants

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15/29 Welcome to MATEC NetWorks Webinar

Follow Moderator Roam

Poll Buttons

Emoticons

Raise hand

From STEM to STEAM:

Importance of Arts In STEM
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NETWORKS

In session for 1 hour, 21 minutes.



STEM to STEAM

Importance of Arts in STEM

Who

Please select the category that best describes your day job or reason for participation today.

- A. Academic Teacher
- B. CTE Teacher
- C. University Teacher
- D. Education Administrator
- E. Other



What

Please select the most important take-away for you today.

- A. Discover free resources for my school and community
- B. Define what arts integration is and how to do it in STEM subjects
- C. Experience case studies of STEM+ARTS
- D. Clarify the overall philosophy and pedagogy of the arts way of learning in the STEM context
- E. Get exposure to new ideas I can use in my teaching

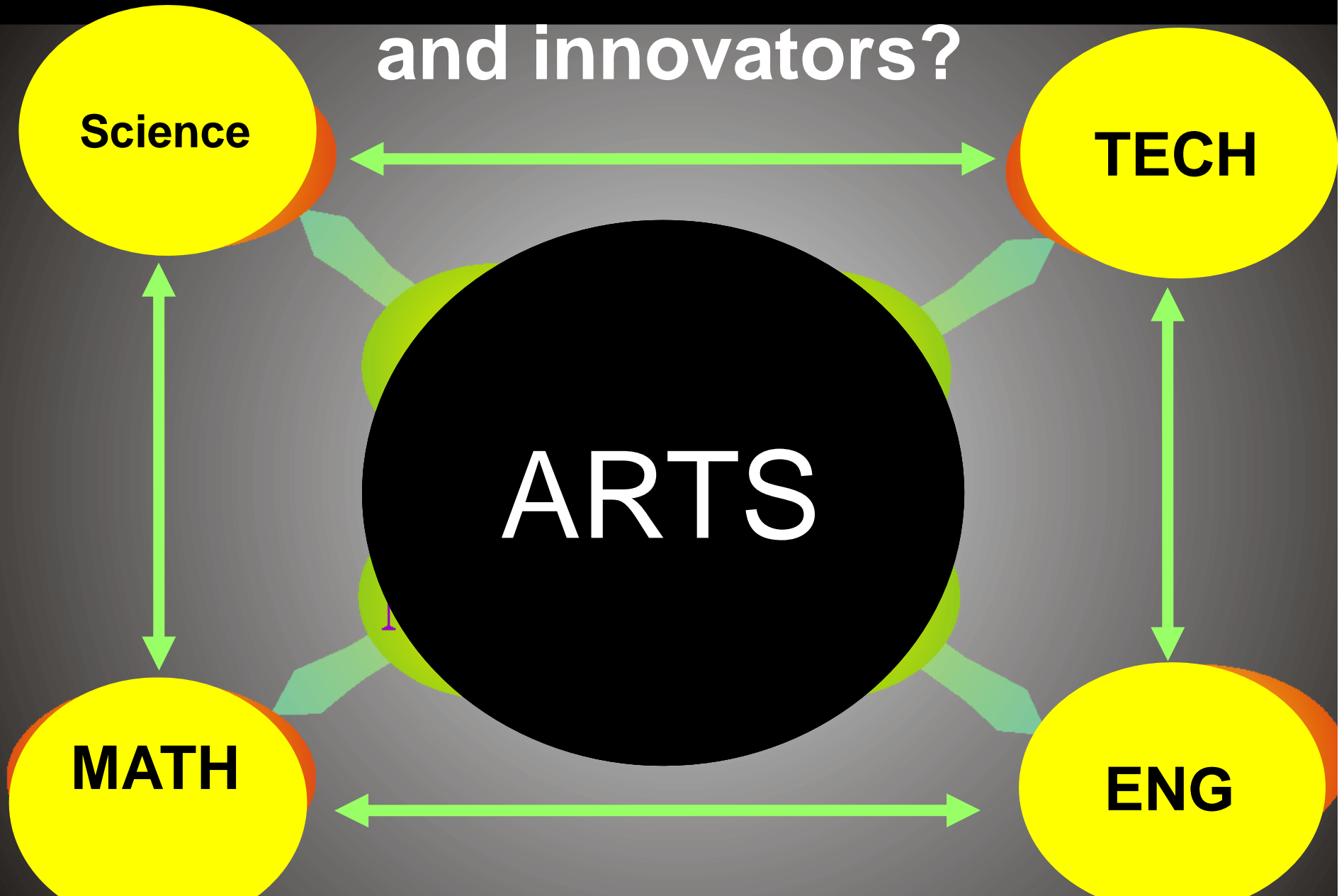




STEM to STEAM

Importance of Arts in STEM

How do we cultivate innovation and innovators?



Education shift – Beyond the disciplines

We are here!



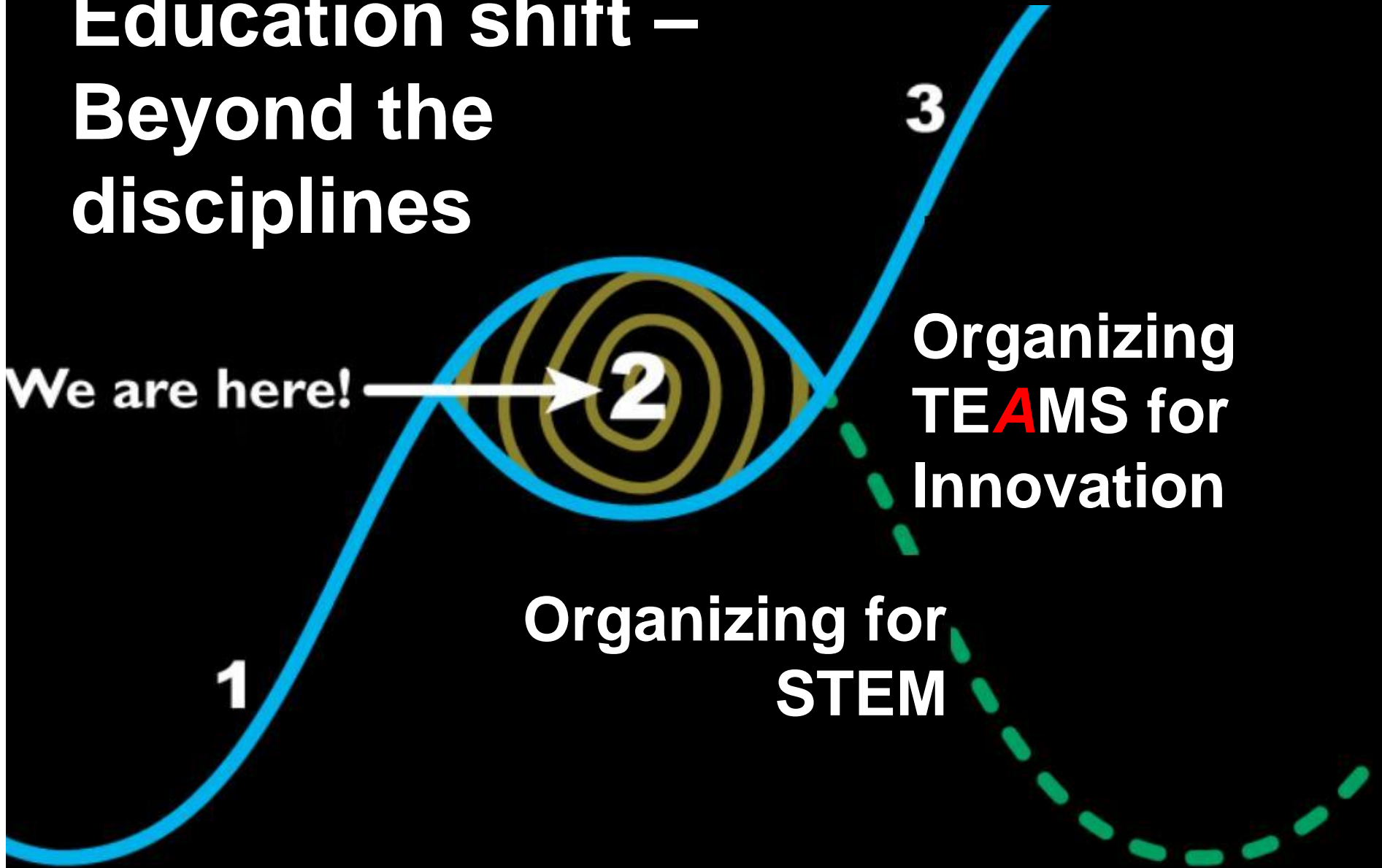
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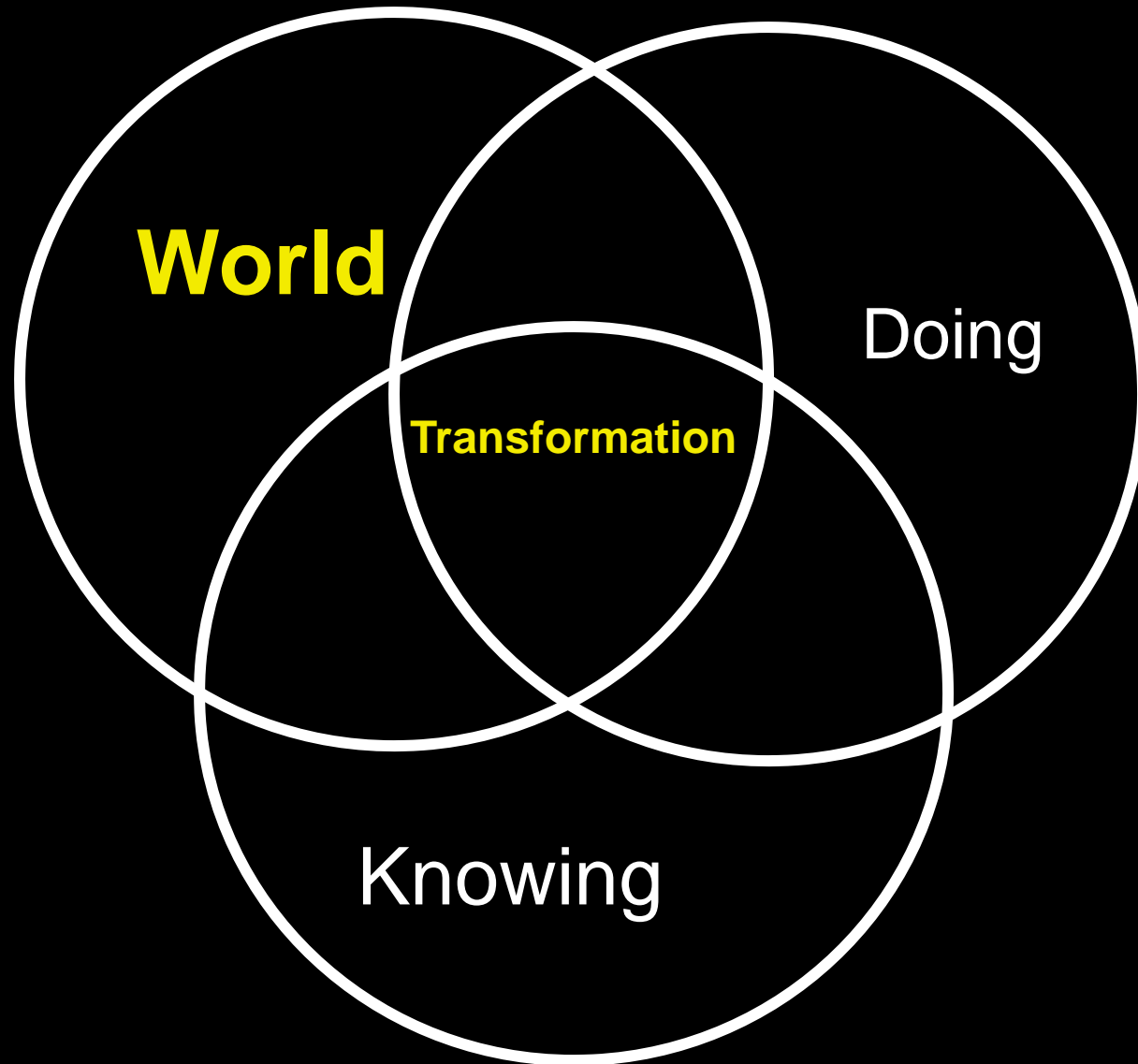
Organizing
TEAMS for
Innovation

1

Organizing for
STEM



Techne', Art or Craft, Our purpose is to create. To give meaning to transformation.



NUEVO

MUNDO

2030



FUTURO

TODOS UNIDOS

Keystrokes on canvas Mixed paints in a petri dish And murals of math

Authors, Pre-Kindergarten-to-12th Grade
Academic, Arts and CTE Teachers, Schools and
Classrooms for Tomorrow: [Instructional Leadership
in the 21st Century](#), The David O. McKay School of
Education and The Brigham Young University, Salt
Lake City, Utah, March 9-11, 2011

Haiku - Abilene TX

(5) All the venues merge

(7) Technology – arts – science and

(5) Our future opens

Haiku - MCC

Create new stuff now
get a good group together
make it really cool

Haiku - MCC

Intelligence dies
when interaction is lost
the future is gone

Haiku - MCC

Experimental
trial and error, follow me
where is the answer?

Erector Structural Steel Builder

The advertisement features a central illustration of a man in a suit on the left and two boys on the right, all interacting with a large metal structure made of interlocking beams. The man asks, "Hello Boys! What are you Building?" while the boys respond, "Come Daddy! See What We've Built." The structure is a bridge-like frame with a train on top. The title "The Mysto ERECTOR" is prominently displayed in a red banner at the top, with a small circular logo featuring a figure. Below the title, it says "THE TOY - WHOSE GIRDERS RESEMBLE STRUCTURAL STEEL". At the bottom, it reads "STRUCTURAL STEEL BUILDER" and "MYSTO MFG. CO. NEW HAVEN, CONN.". A small red circle in the bottom right corner contains the text "No. 1".

Hello Boys!
What are you
Building?

The Mysto
ERECTOR

THE TOY - WHOSE GIRDERS
RESEMBLE STRUCTURAL STEEL

Come Daddy!
See What
We've Built.

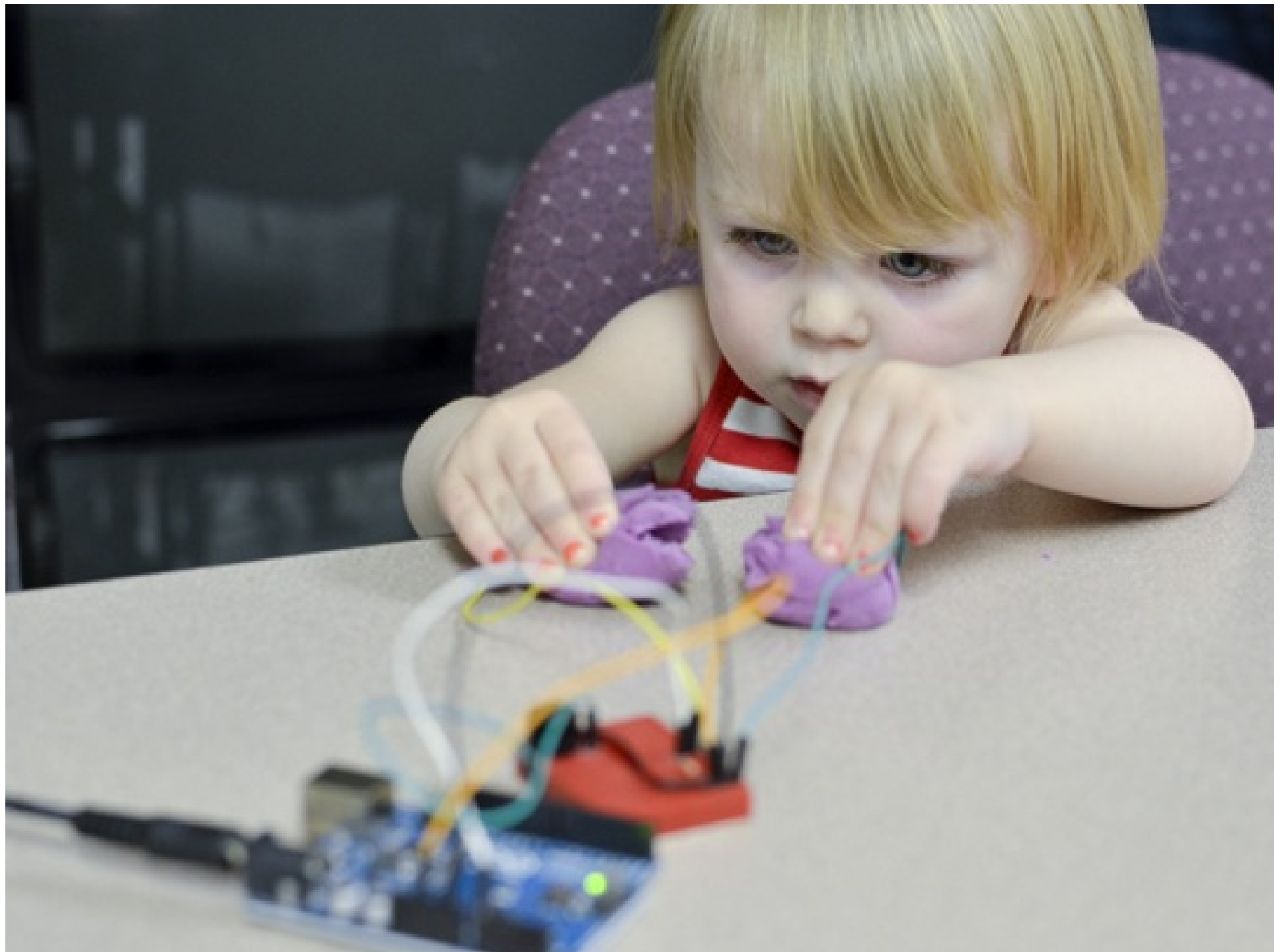
STRUCTURAL STEEL BUILDER
MYSTO MFG. CO.
NEW HAVEN, CONN.

No. 1

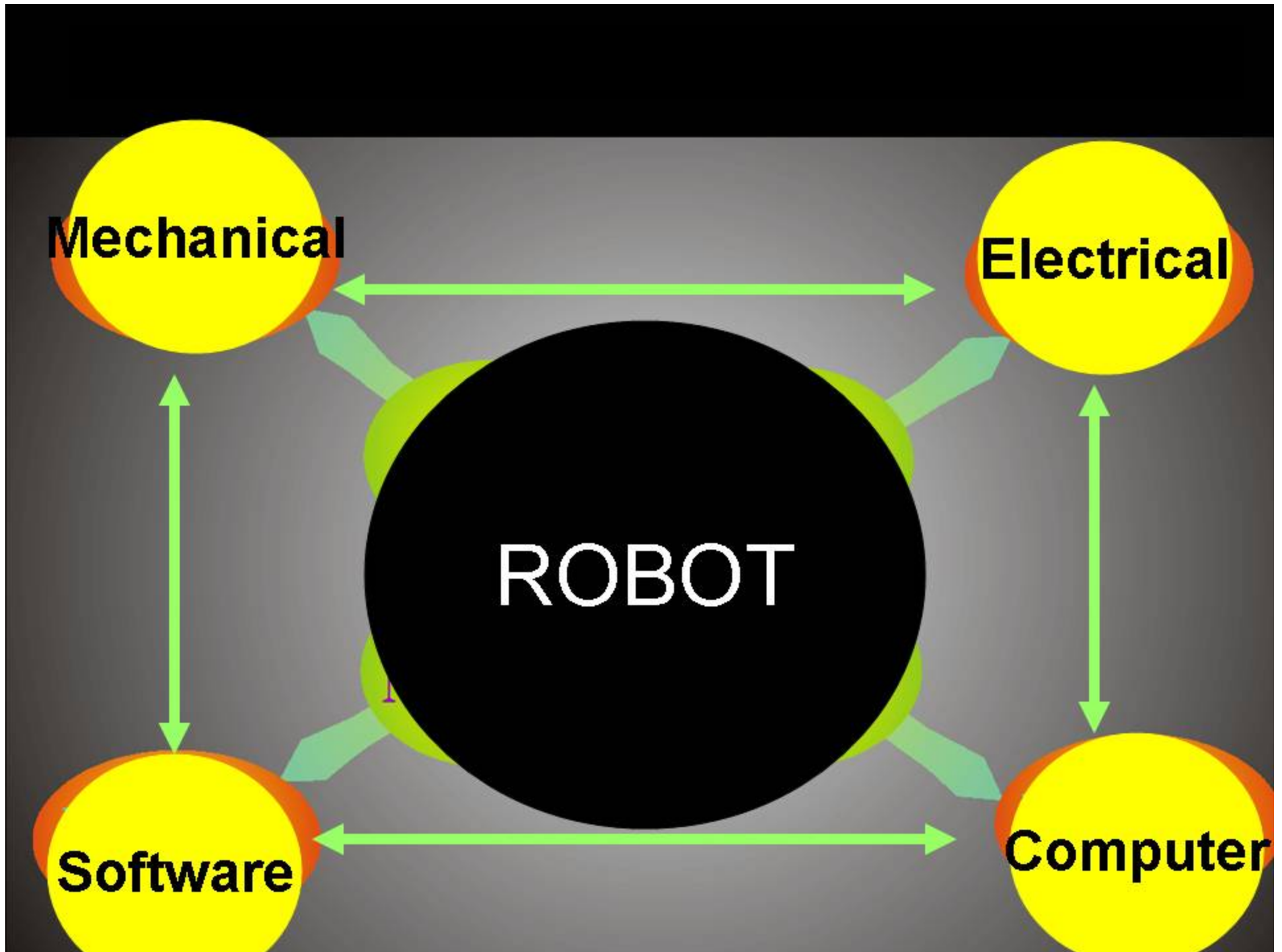
Patented 1914 by Mysto Mfg. Co.

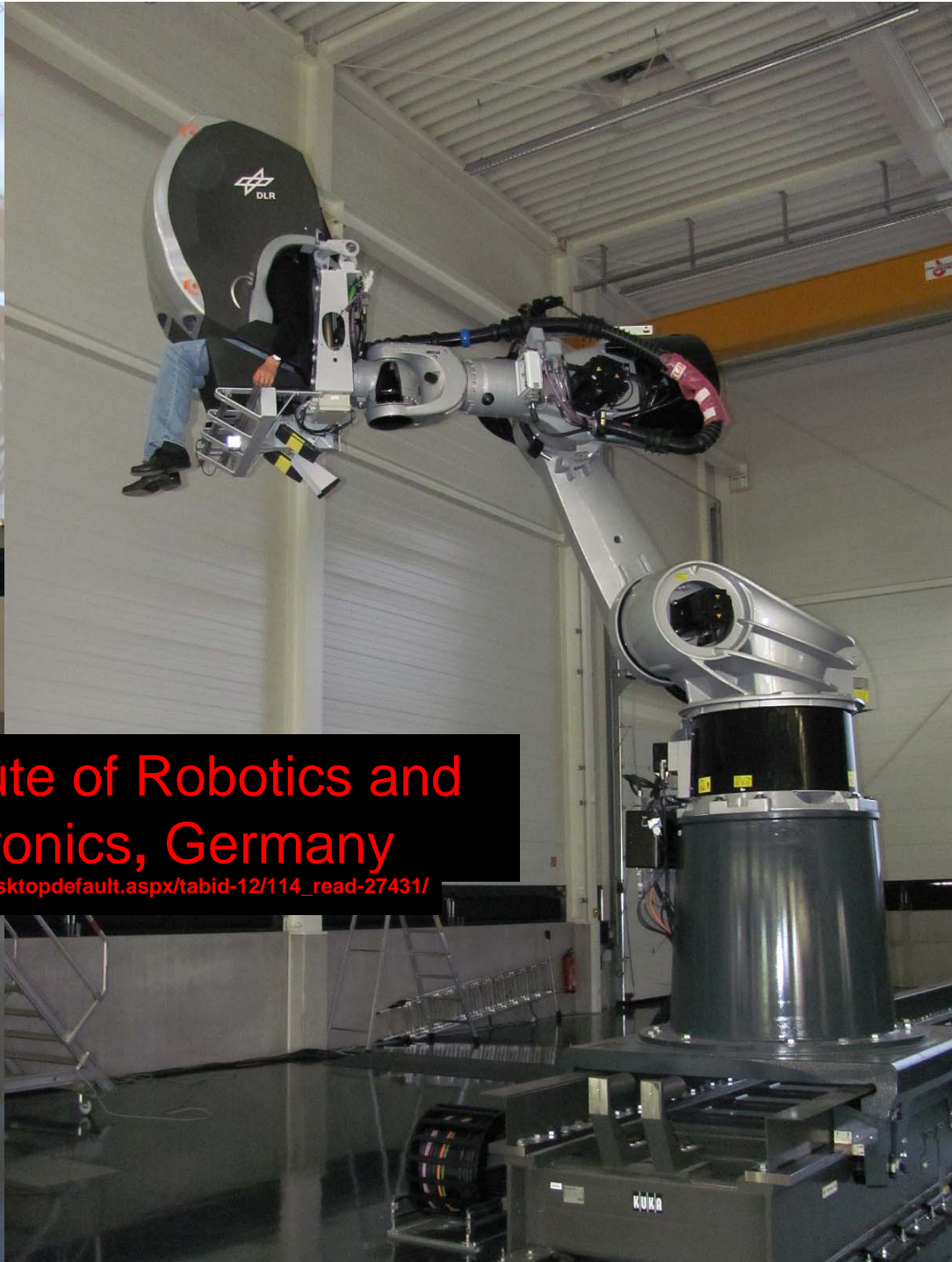
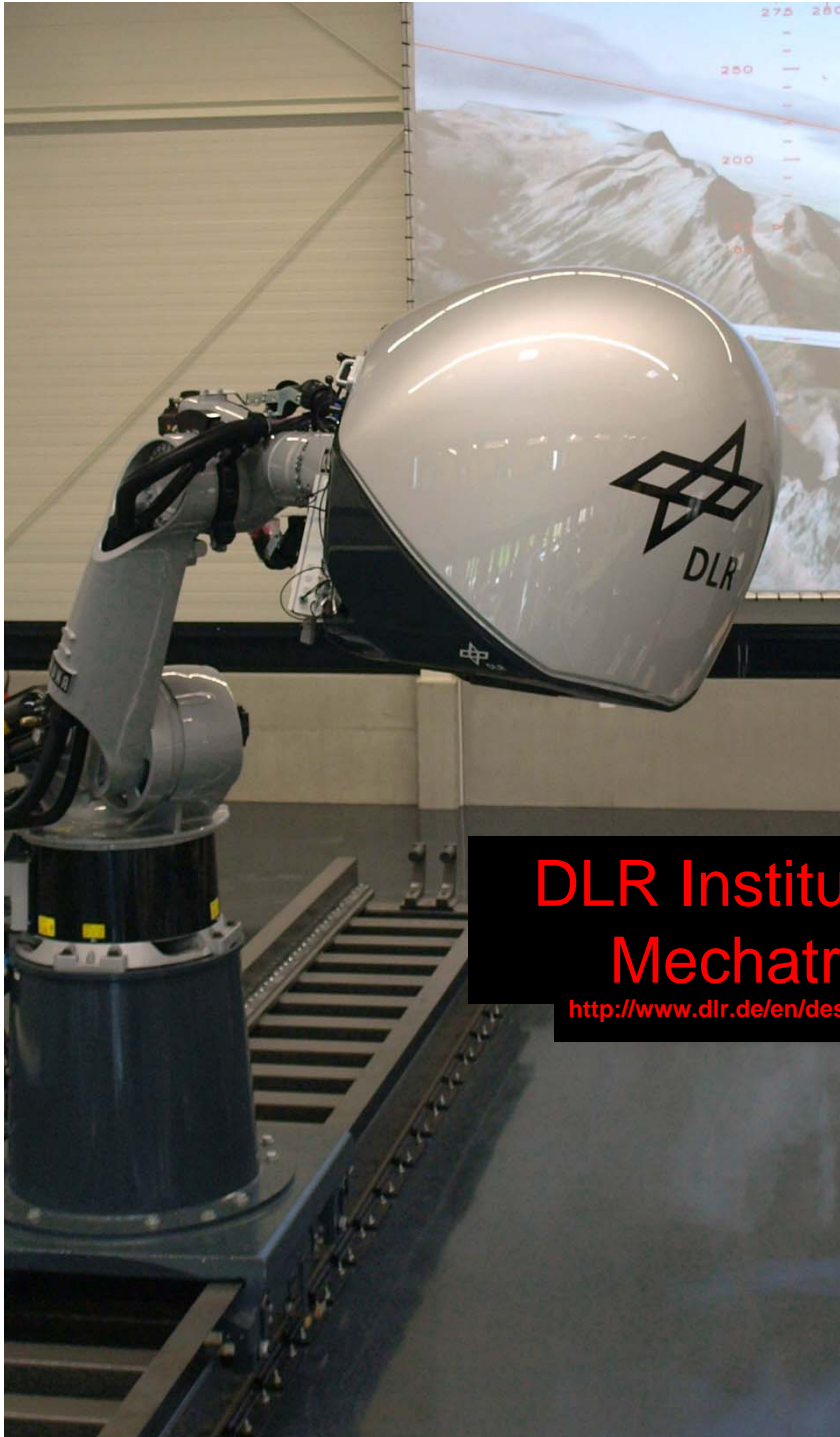
Erector Science Career Kits











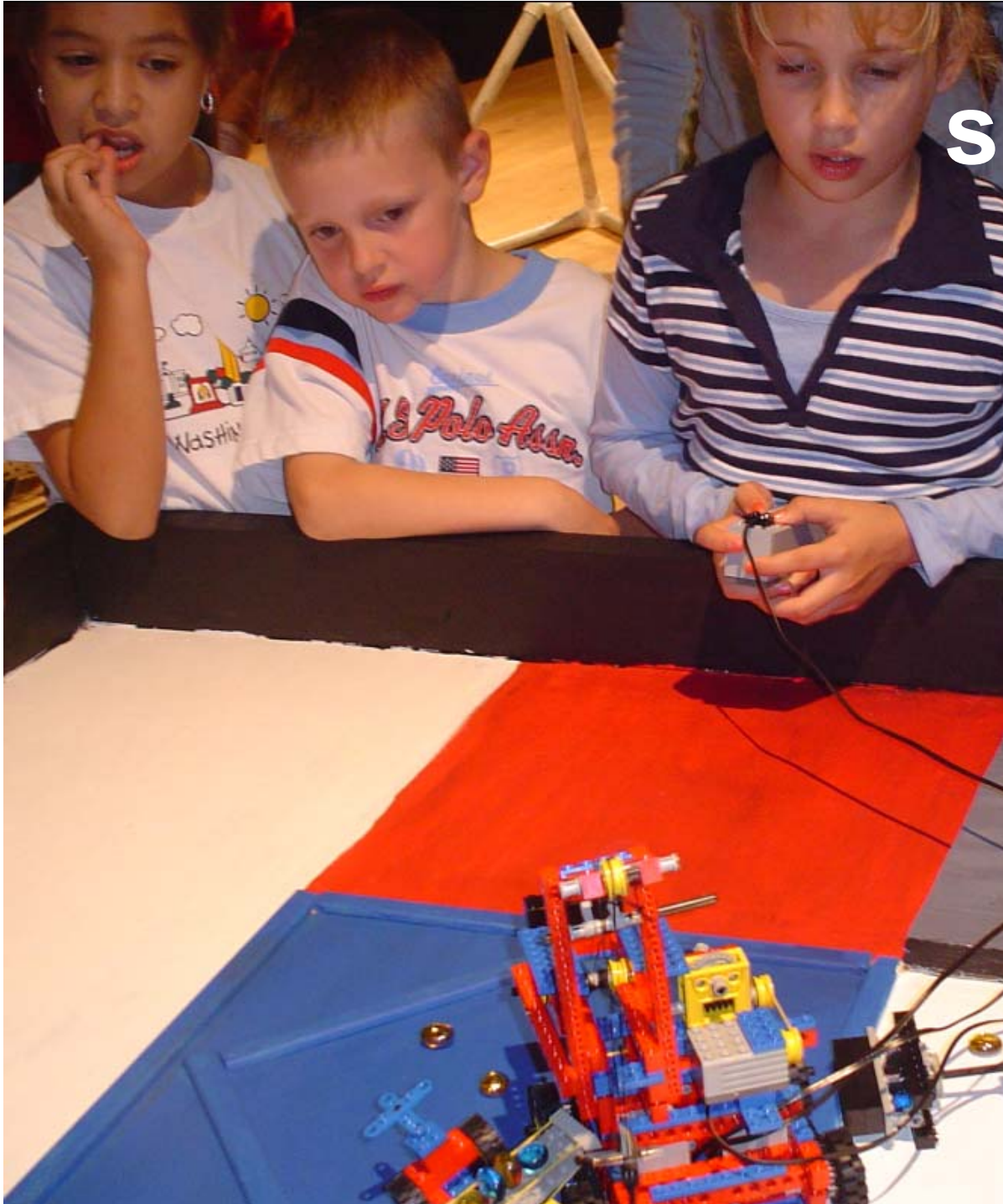
**DLR Institute of Robotics and
Mechatronics, Germany**

http://www.dlr.de/en/desktopdefault.aspx/tabid-12/114_read-27431/



Harry Potter & the Forbidden Journey

<http://www.coaster-net.com/park-gallery/37-islands-of-adventure/photos/90-harry-potter-and-the-forbidden-journey-artwork/12887>

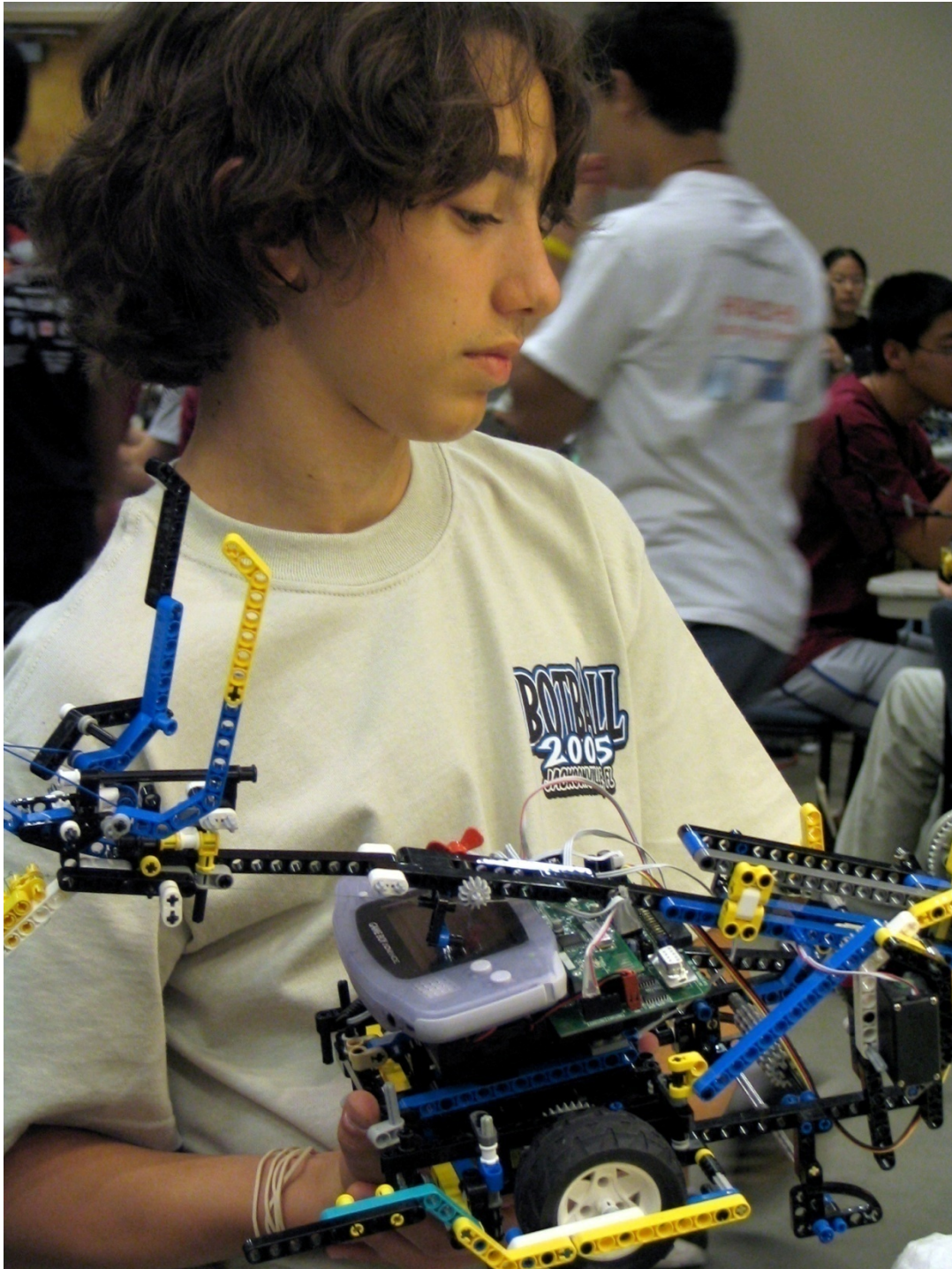


spaceTEAMS

San Antonio, TX

**Robot competition
plus career and
academic
exploration.**

Elementary



spaceTEAMS

San Antonio, TX

**Robot competition
plus career and
academic
exploration.**

Middle School

ACCD

Andrew Schuetze



Origo may be the last toy you ever have to buy for your child. The prototype 3D printer under development by Artur Tchoukanov and Joris Peels allows children aged ten and up to design figurines and shapes on a computer, and then print them out to play with. Instead of buying your children more toys, let them make their own.

Cost: \$800.00



Origo 3D Printer/Artur Tchoukanov/ sponsored by: iMaterialise
<http://singularityhub.com/2011/10/12/origos-3d-printer-could-be-the-last-toy-your-ten-year-old-will-ever-need/>

Self determined child iPhone in hand all day long Educators scream

Authors, High School CTE Teachers and
Community College Faculty, Roane State
Community College Faculty Convocation
and Regional Tech Prep Consortia
Workshop, Roane, TN, August 24-25, 2011

Haiku - MCC

Reeling
writhing
fainting in coils

Haiku - Central Lakes MN

(5) Collaboration

(7) Has not been greatly used and

(5) It is time to start

**Change instructors.
Change student attitudes.
Redefine the future.**

Authors, 11th Grade to 14th Grade CTE/STEM Teachers and Administrators, Laramie Community College, Growing a New Generation (GANG) of Multi-Skill/Multi-Disciplinary Technicians for Wind Energy, Laramie, Wyoming, May 17-18, 2011

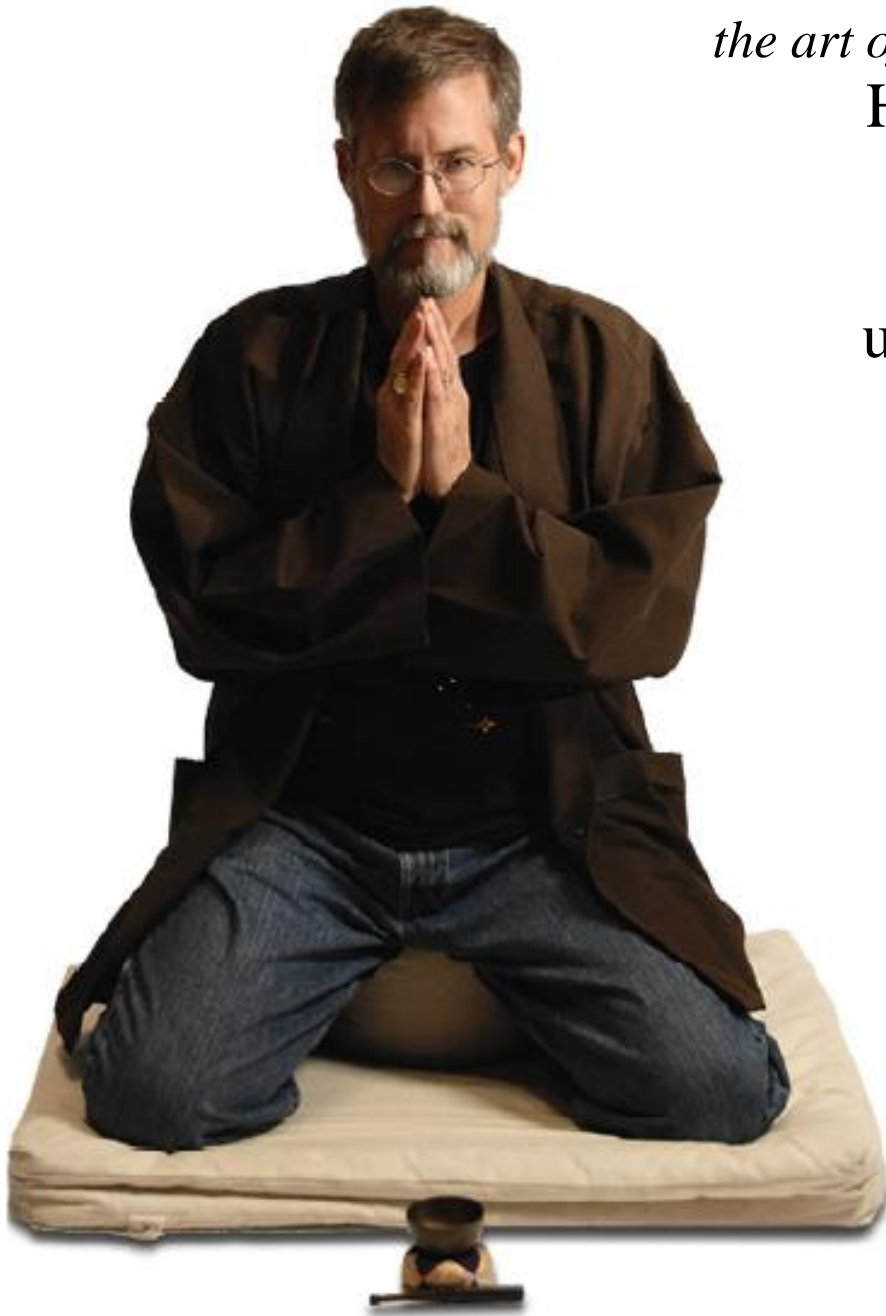
Haiku

the art of it all

Haiku is a Japanese poem composed of three unrhymed lines of five, seven, and five syllables. Haiku usually emphasizes a season, intense emotion and vivid image designed to lead to an enlightened insight.

(5) The moment two are
(7) united they both vanish
(5) A lotus blooms here.

Murakami, Kijo. (1865-1938), Adapted by Brazell
<http://www.toyomasu.com/haiku/#time>



Haiku (Syllables 5, 7, 5)

(5) The moment two are
(7) united they both vanish
(5) A lotus blooms here.

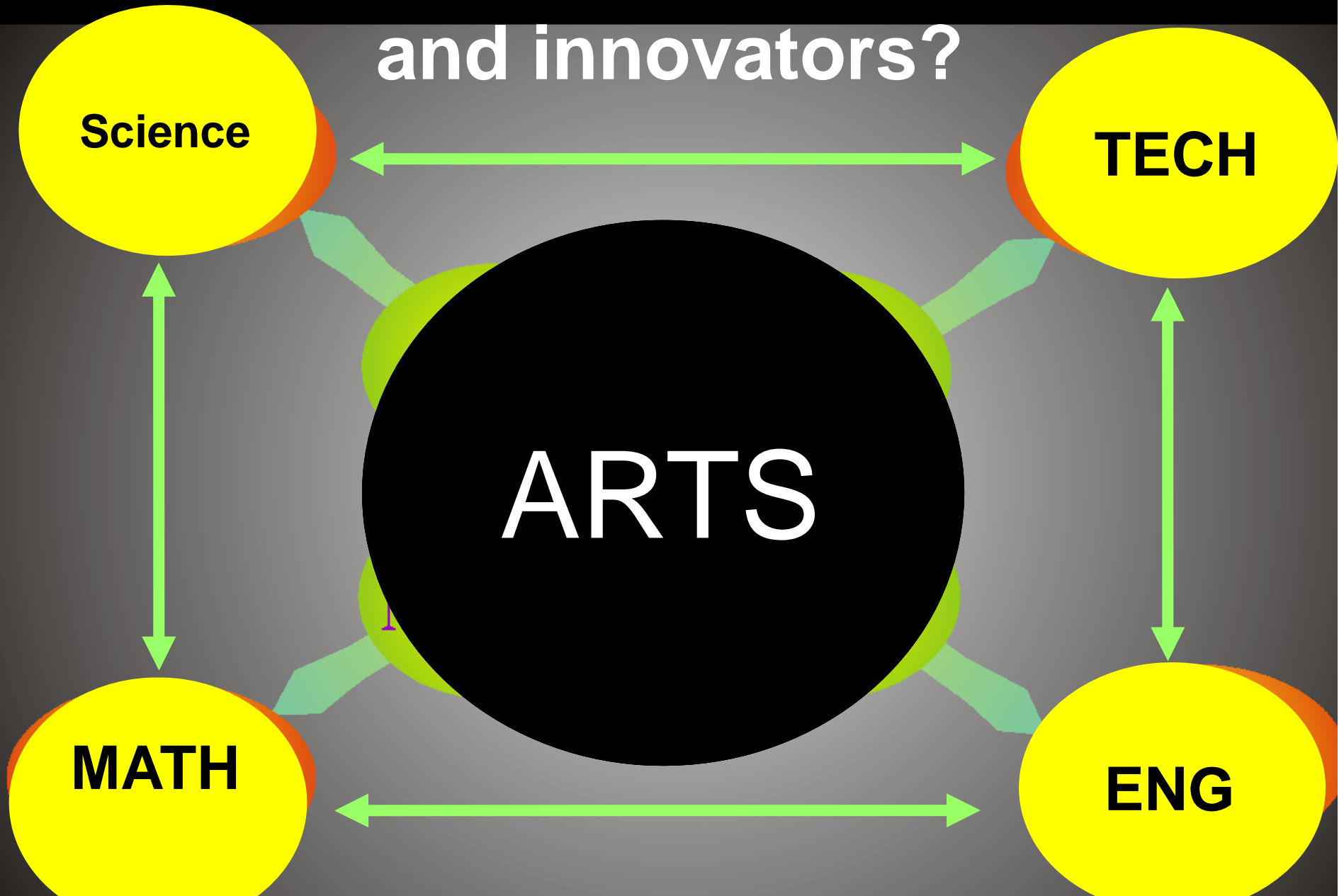
Murakami, Kijo. (1865-1938), Adapted by Brazell
<http://www.toyomasu.com/haiku/#time>

Bonus - Cinquain (Syllables 2, 4, 6, 8, 2)

The word Cinquain is derived from the French word for five. An American poet named Adelaide Crapsey invented the Cinquain. She wrote a lot of poems with this format in the last years of her life. She died early, at the age of thirty-six. The Cinquain is a short, 5-line poetry form, with a distinct pattern (2, 4, 6, 8, 2).



How do we cultivate innovation and innovators?



Education shift – Beyond the disciplines

We are here!



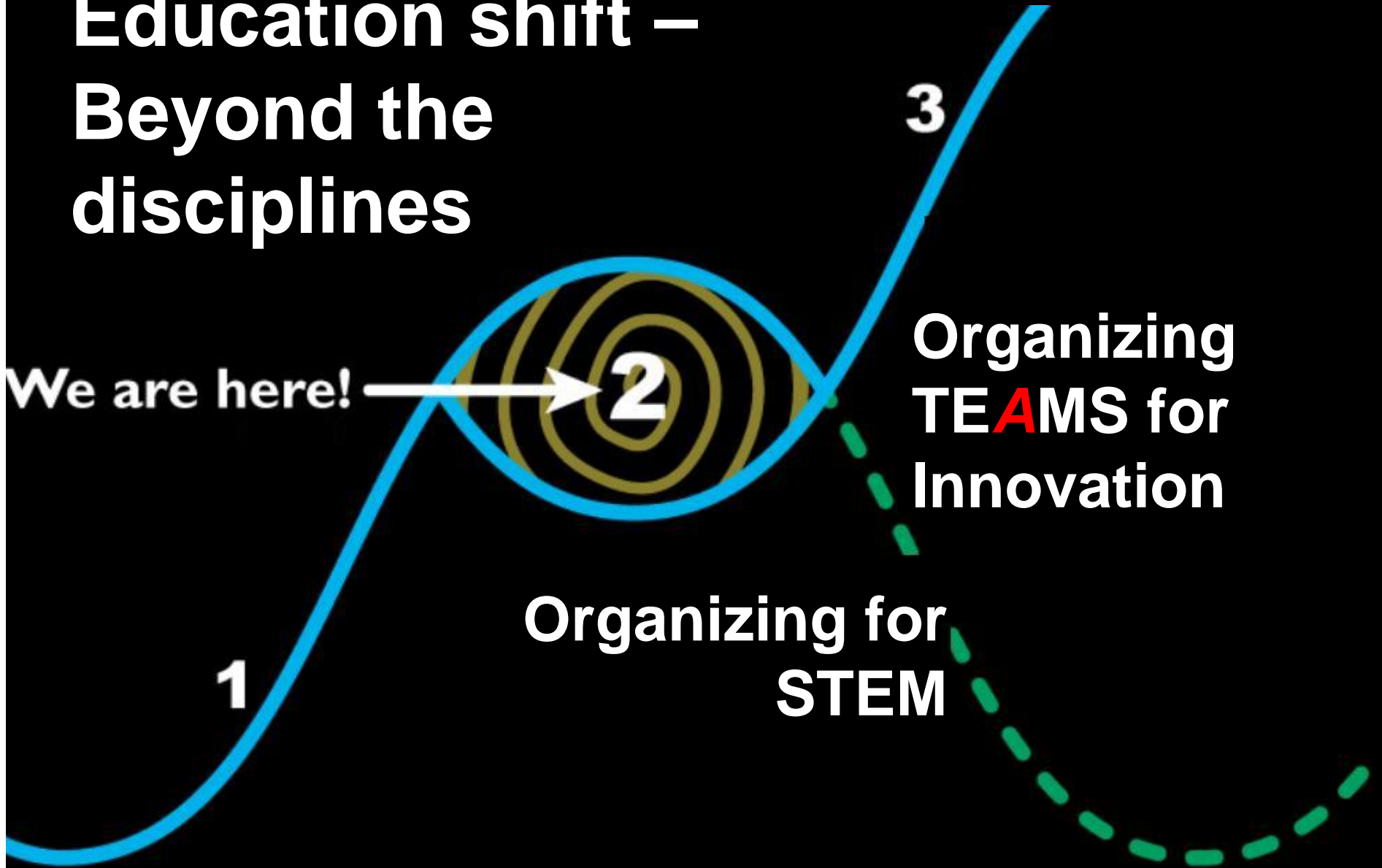
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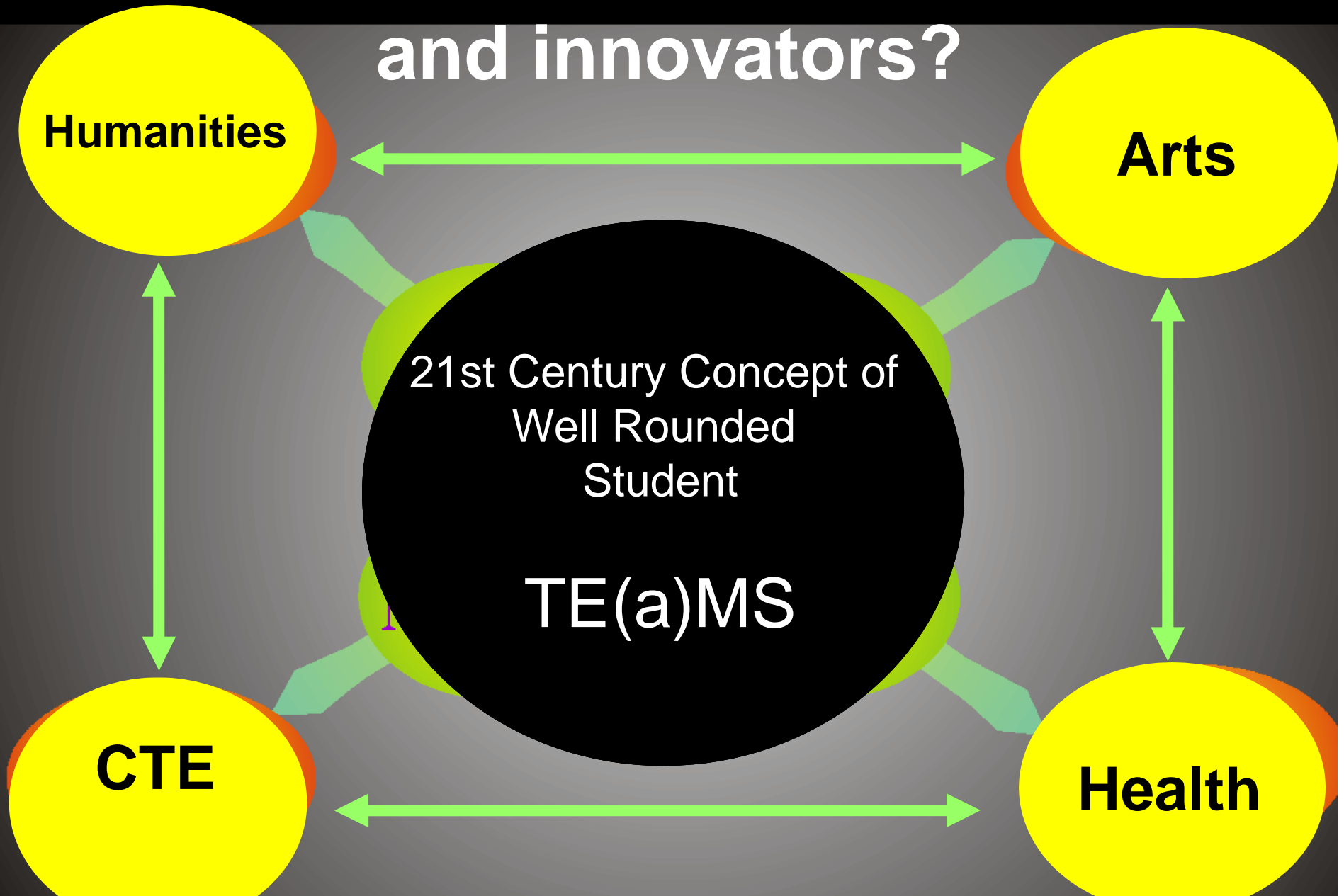
Organizing
TEAMS for
Innovation

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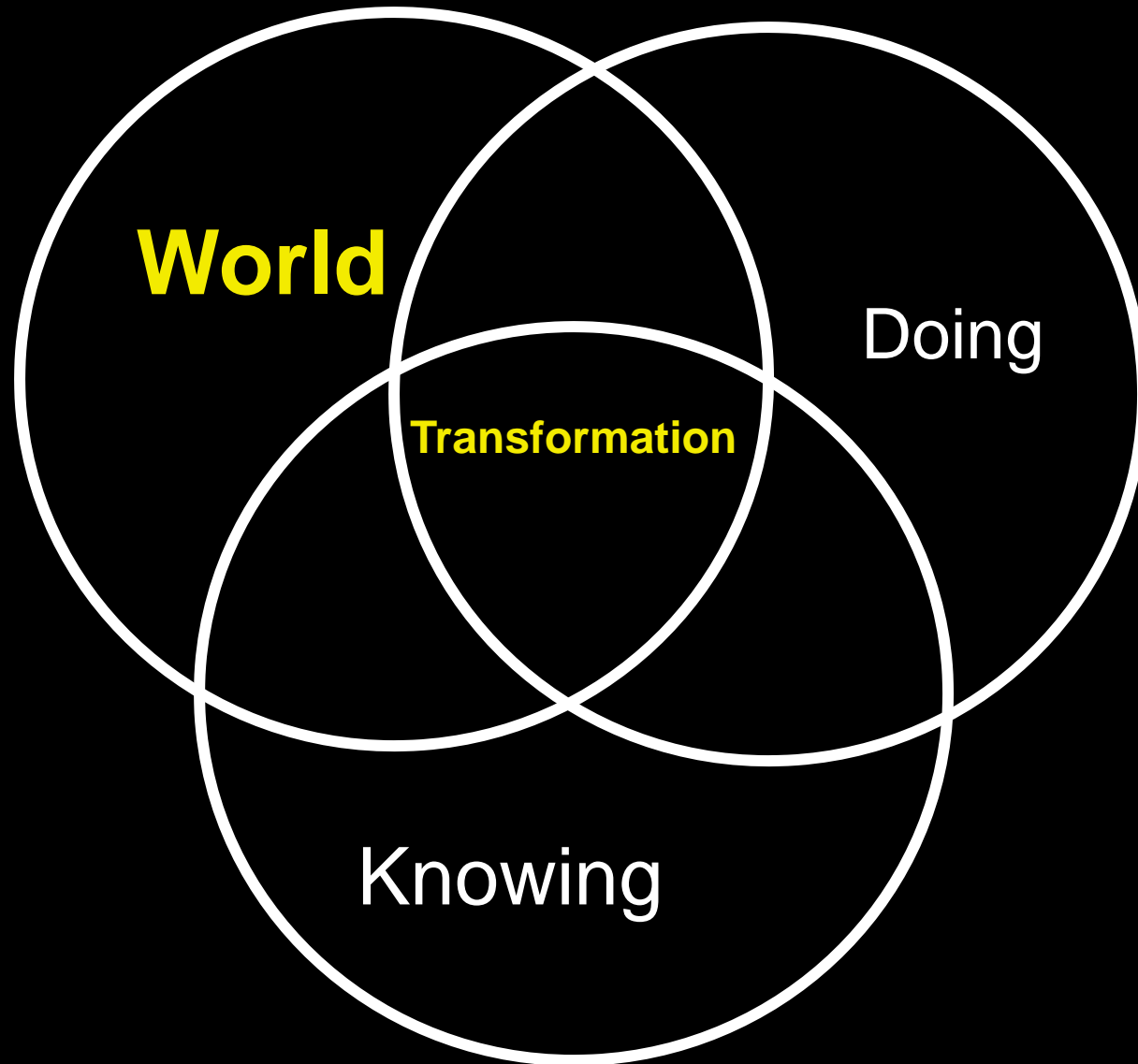
Organizing for
STEM



How do we cultivate innovation and innovators?



Techne', Art or Craft, Our purpose is to create. To give meaning to transformation.



What do
you think of
when I say
computer?





**How many of
you have a
digital phone
with a video
camera in your
pocket?**

Nokia Research Center,
Helsinki Finland in MIT
Technology Review

http://geeklit.blogspot.com/2007_03_01_archive.html



<http://www.nasa.gov/multimedia/>



next bus
8 min

Tourist
Special
£25!

Temperature 10°
Pollen Level: Low
3 messages
1 priority message

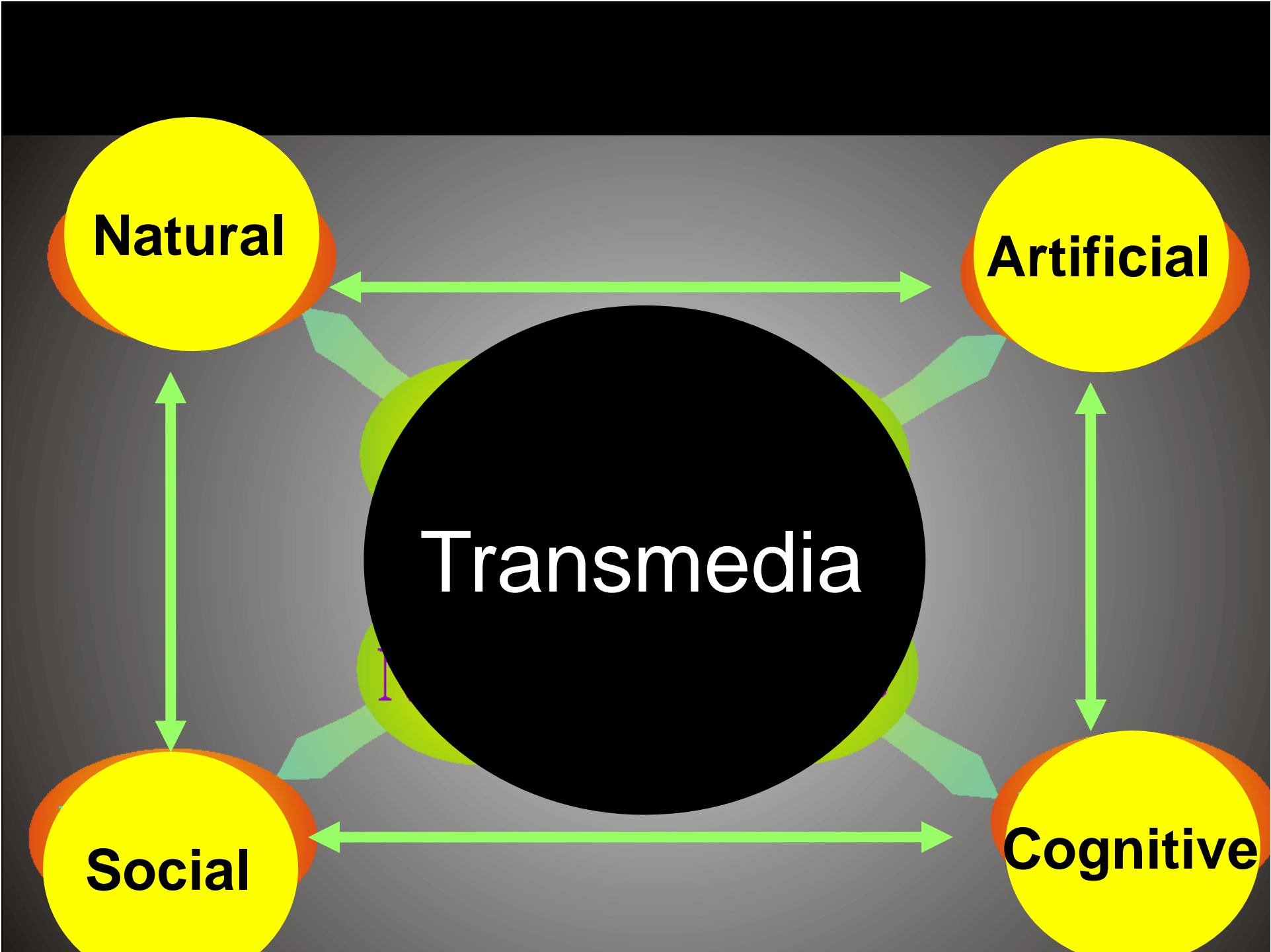
londonweb access



Mixed Reality



Babak Parviz at the University of Washington in Seattle created a prototype contact lens containing a single red LED. Using the same technology, he has now created a lens capable of monitoring glucose levels in people with diabetes.



Imagine the
games we can
play...

Pacman 1 Details:

 **Wealth** 24
Life 

Message:

[Empty text box]

Request Update:

**Nearby
Ingredient**

**Nearby
Ghost**

Yaw

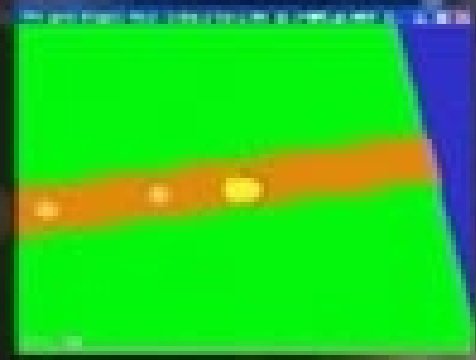
115.6300

Pitch

0.7800

Roll

3.8600

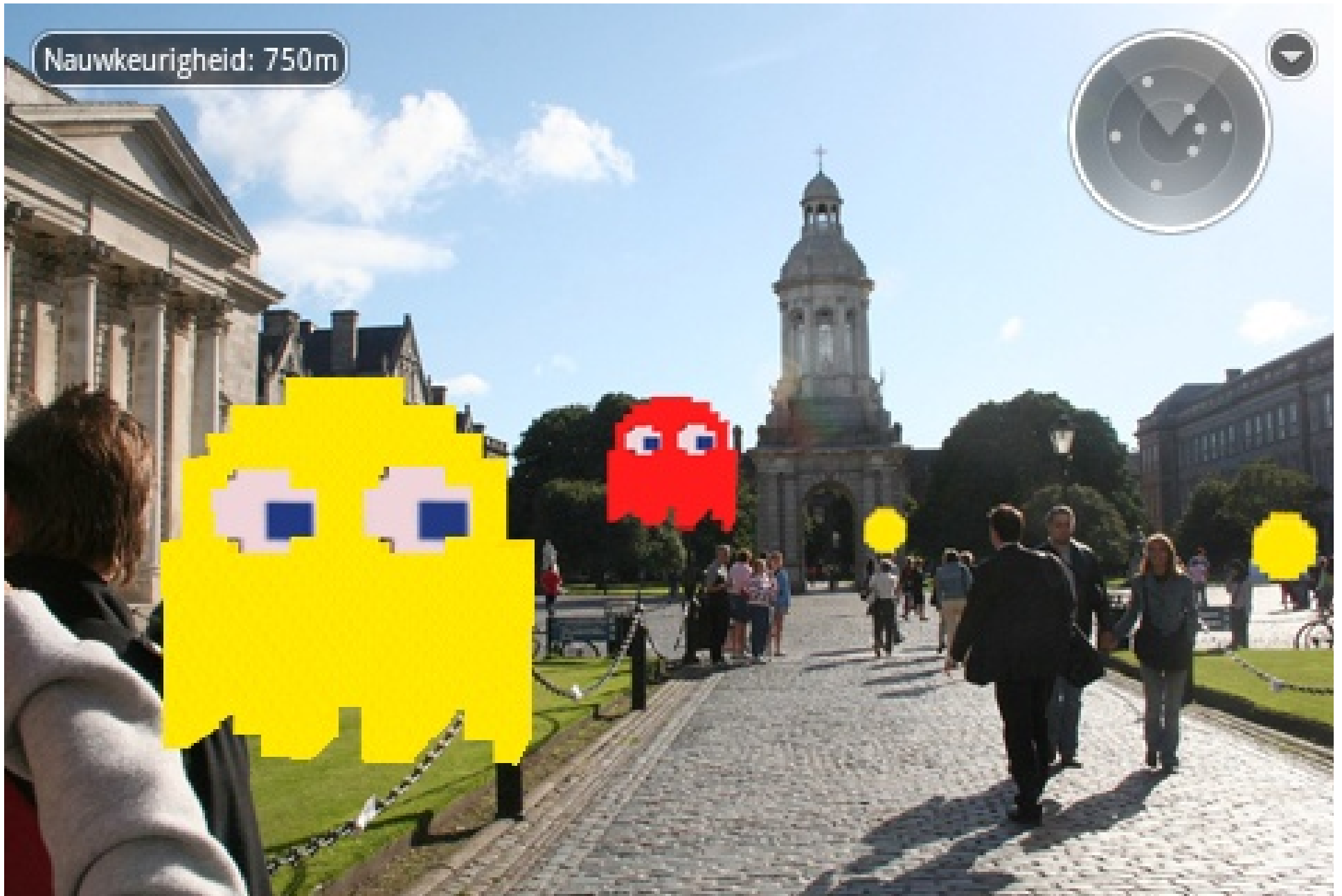


Pacman 2

Status: Normal

Position: Lat -8.39 Lon -2.73

Nauwkeurigheid: 750m



A wide array of electrical components, including sensors, transistors, power supplies such as solar cells and wireless antennas, can be combined on a single device that is a wearable tattoo. UC San Diego



Star Wars TIE FIGHTER for I-Phone







TISSOT REALITY

Experience the Touch collection in 3D on your own wrist

Experience the Tissot Collection on your own wrist. All you need to activate is a webcam and the T wristband (if you do not already have this you can print the PDF below).

Steps



Print



Cut



Wear



Download



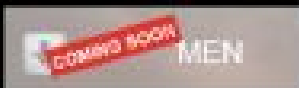
Activate



+ PRINT WRISTBAND &
READ INSTRUCTIONS

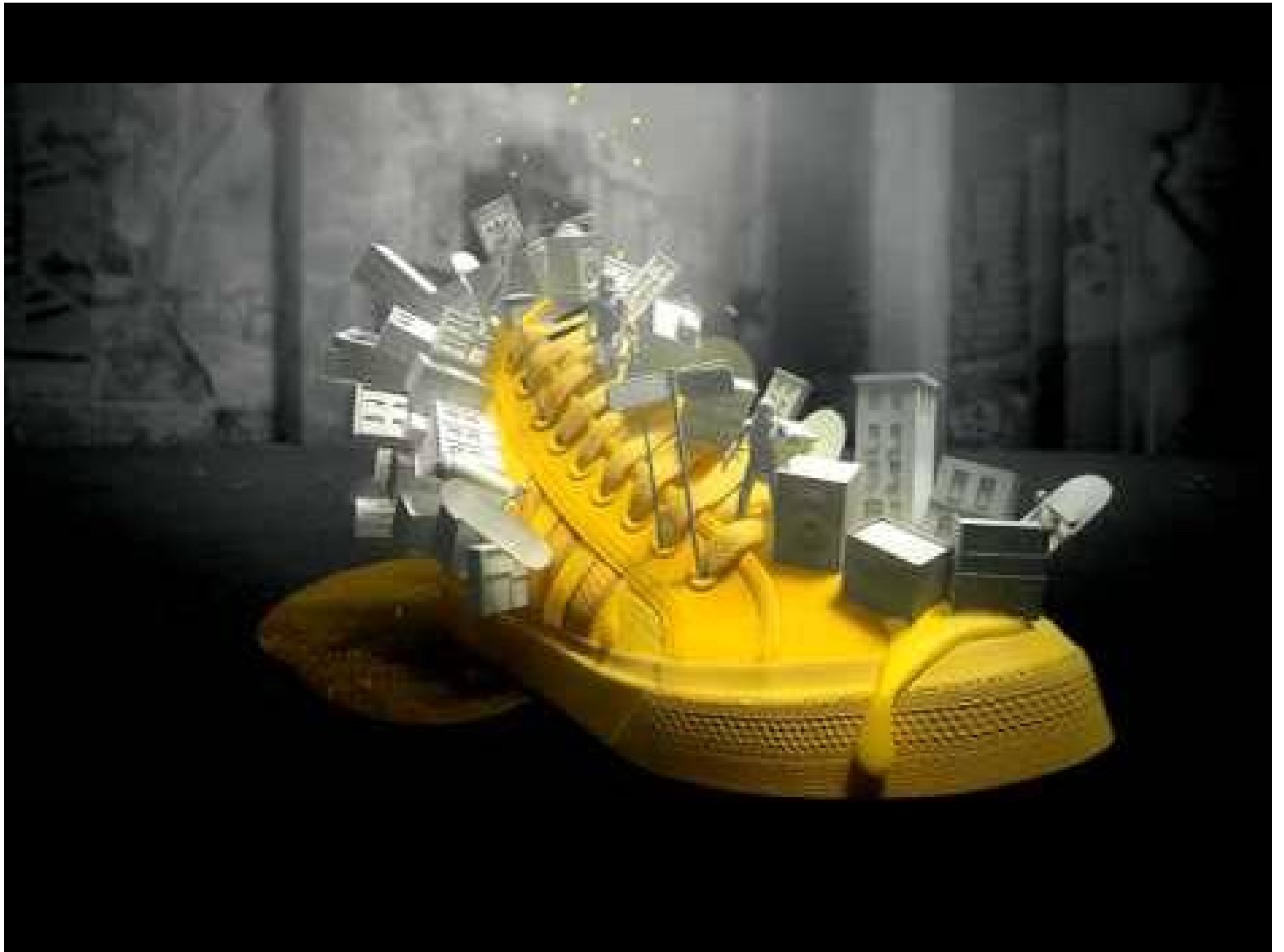
Windows

Mac OS



* Computer Requirements







What do
you think of
when I say
Robot?



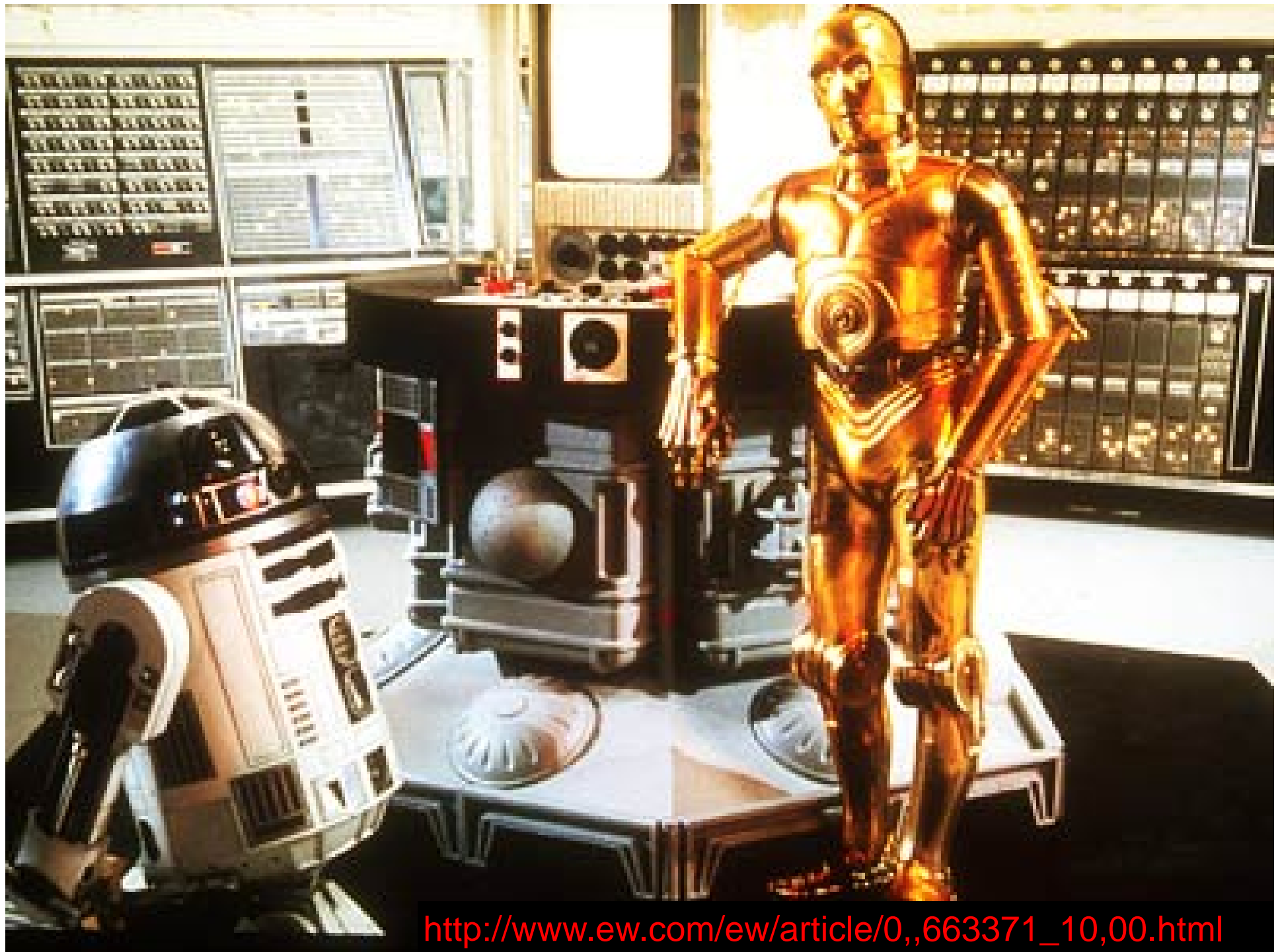


John Hart / AP



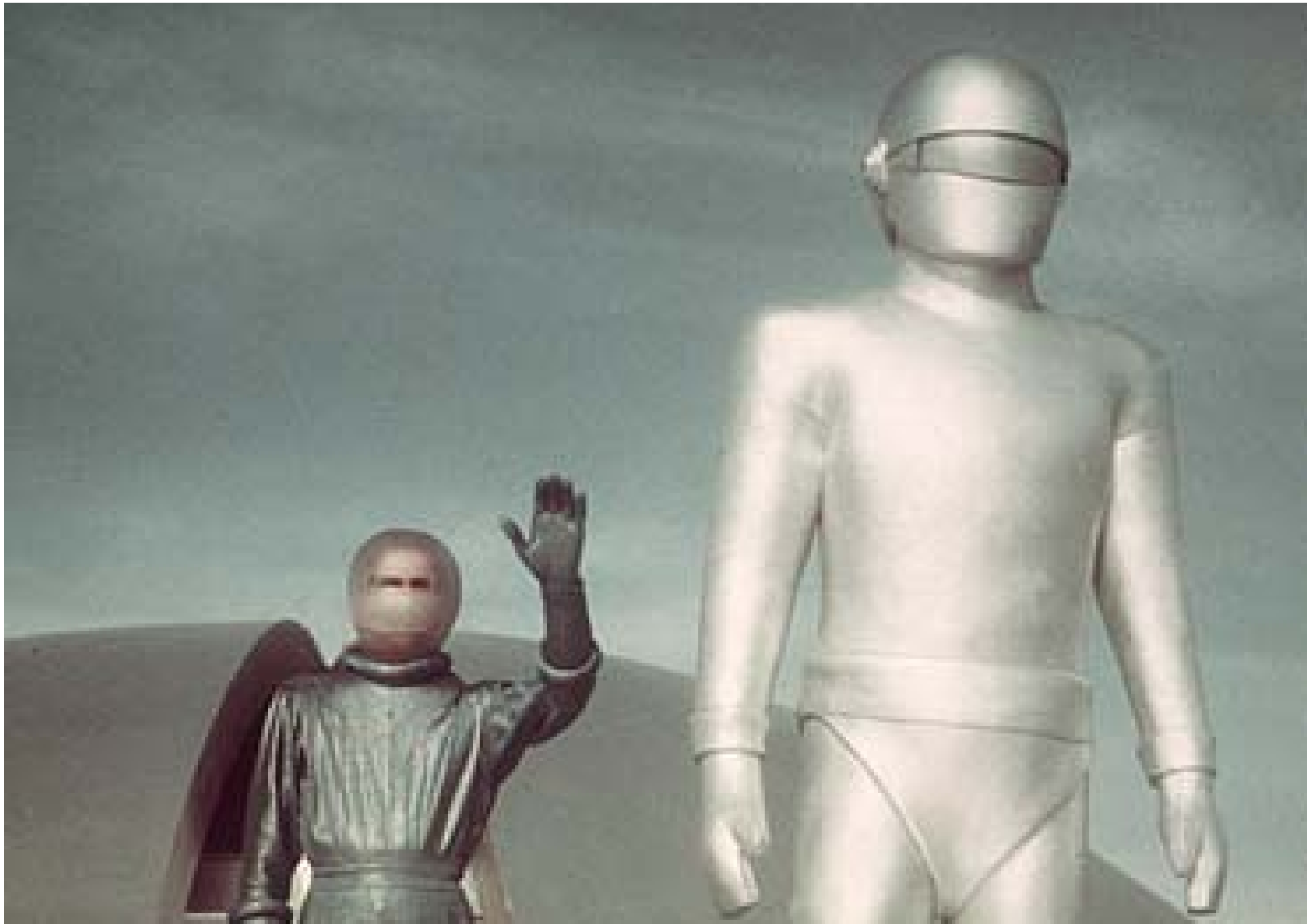


<http://ilovesubstance.com/2007/transformers-movie-posters-optimus-prime-megatron/>



http://www.ew.com/ew/article/0,,663371_10,00.html

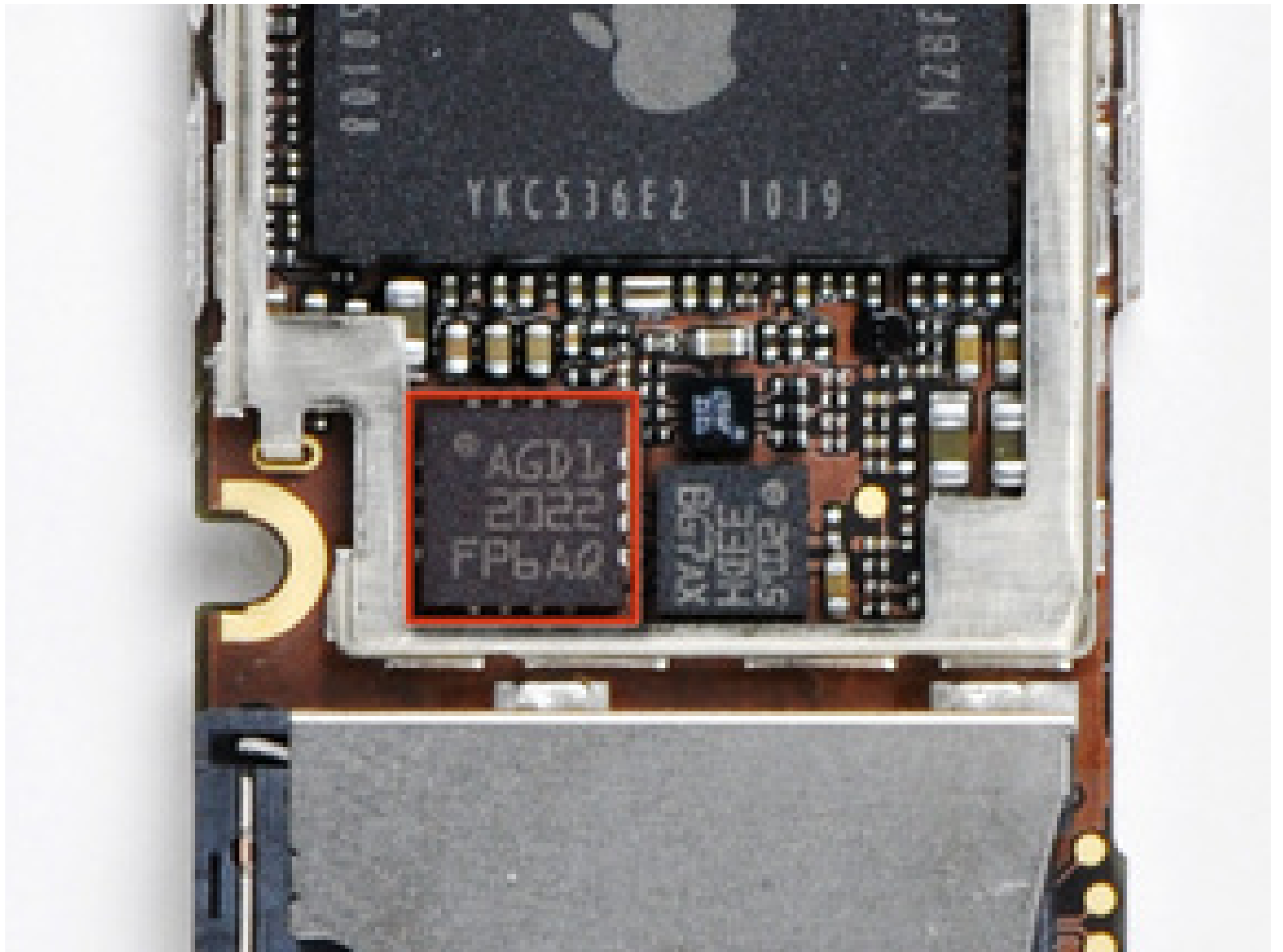




<http://www.examiner.com/classic-movies-in-anaheim/top-5-classic-sci-fi-films>

Robots are now
part of the fabric
of 21st century
life, work and
play.



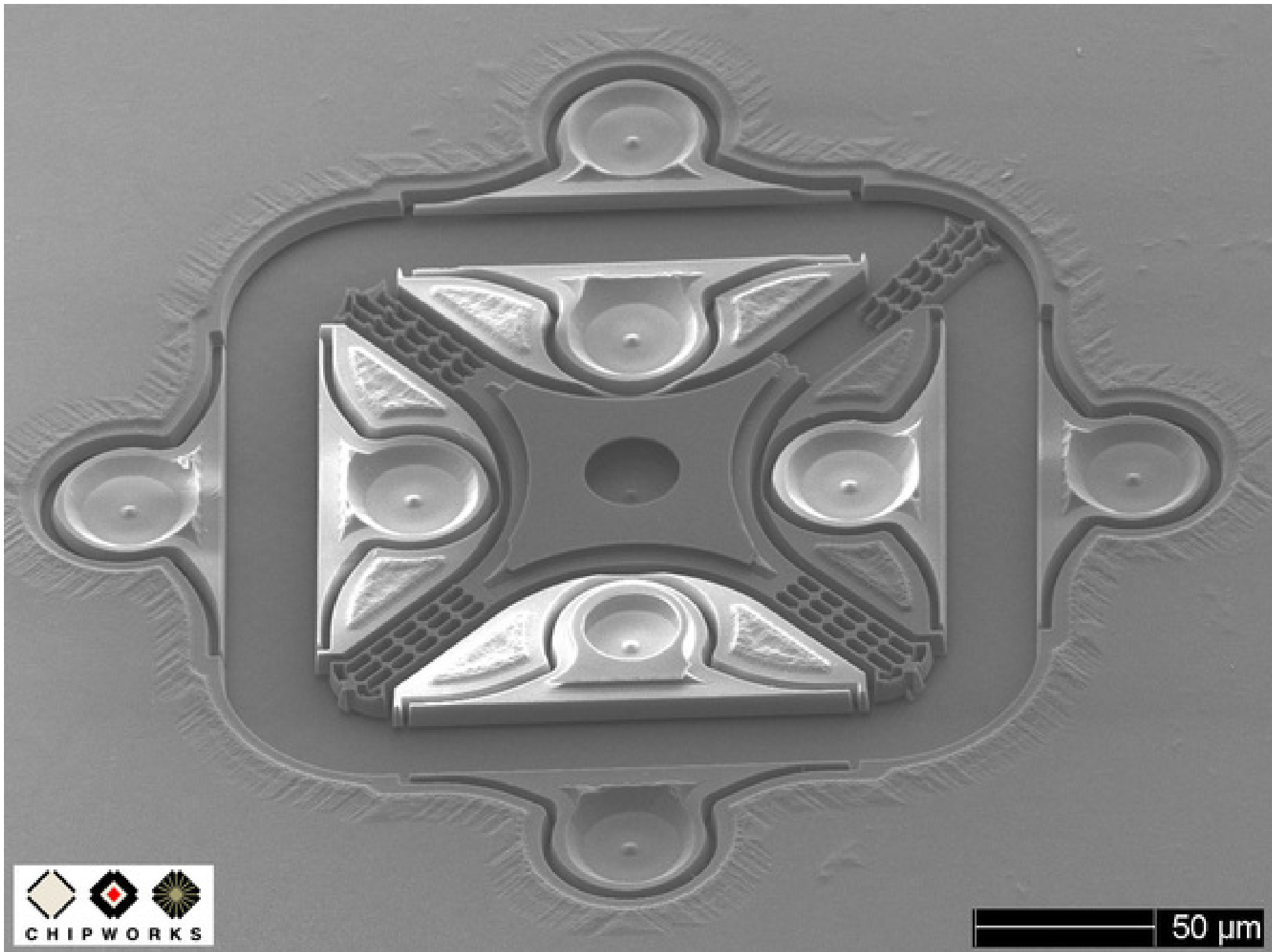


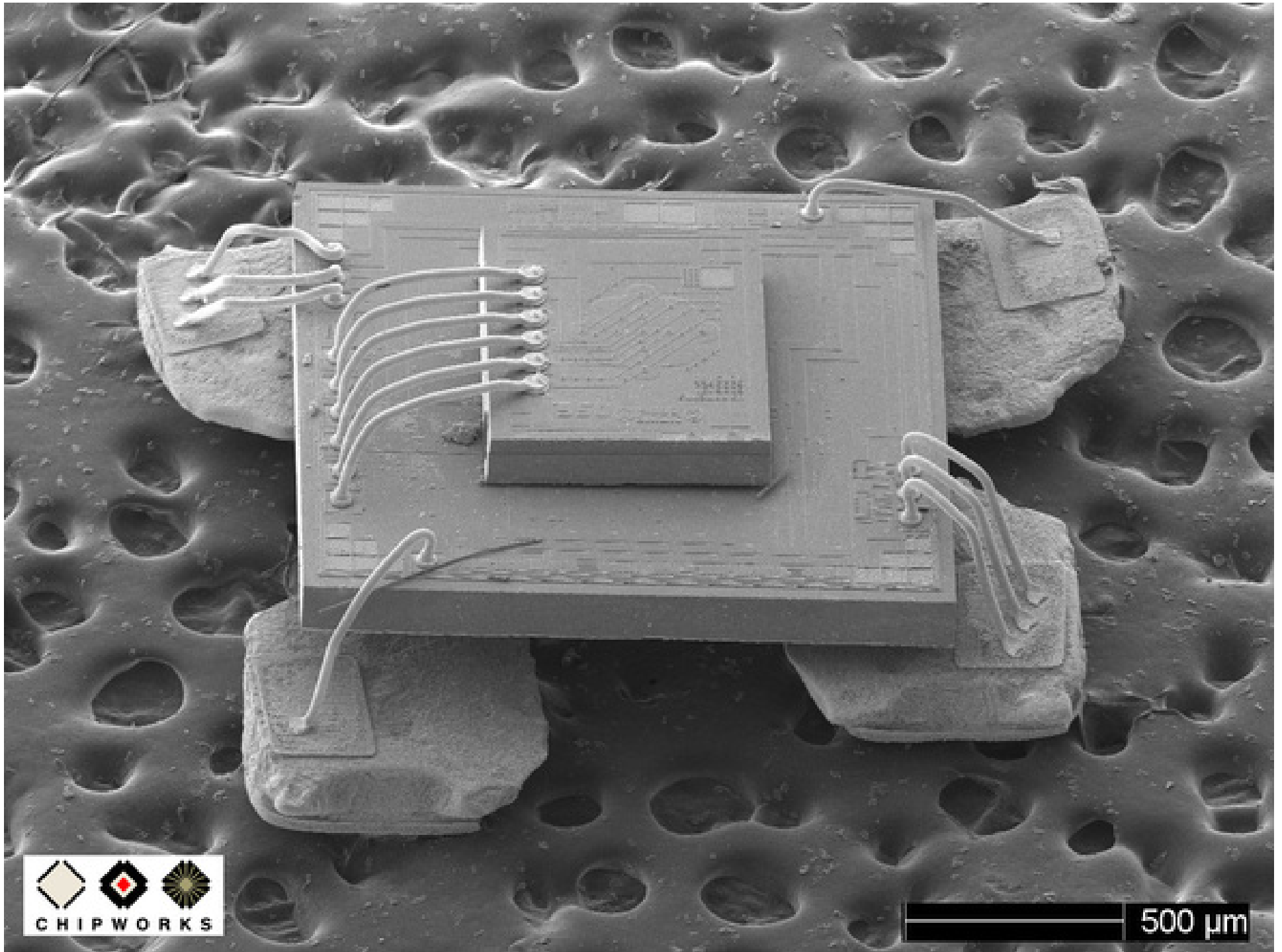
© AGD1
2022
FP6A0

© STMS
2015
B57PA

YKCS36E2 1019

W281

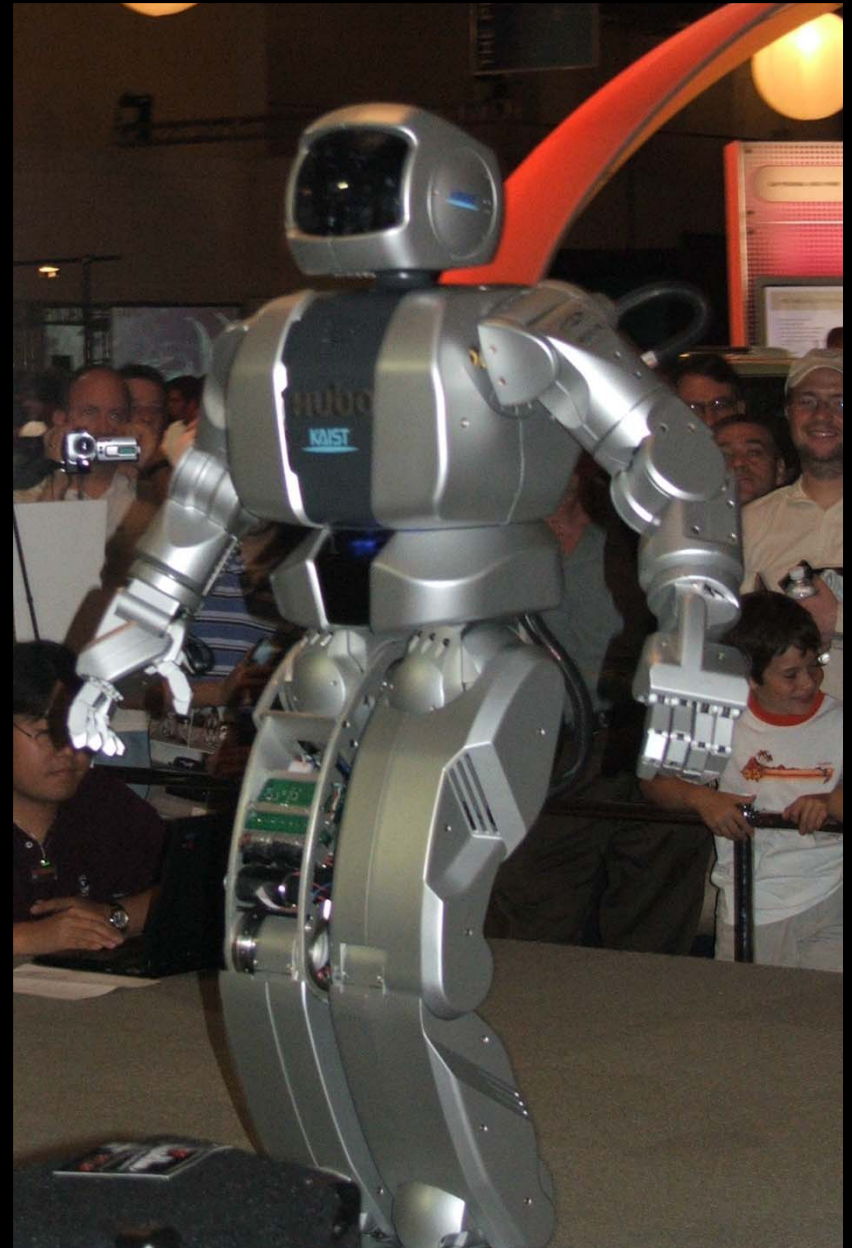




500 μm



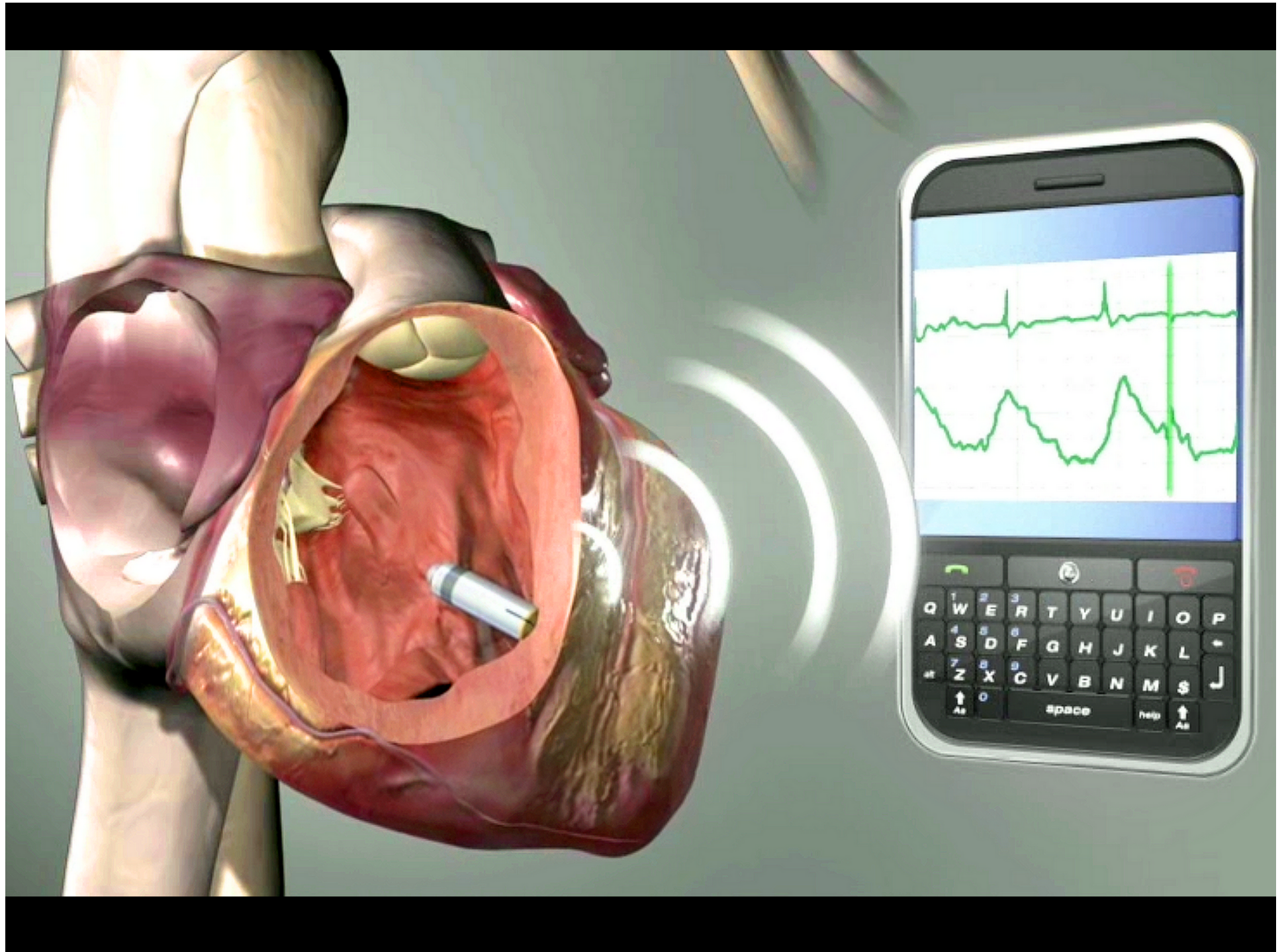
**Think beyond
traditional notion of
robotics...**





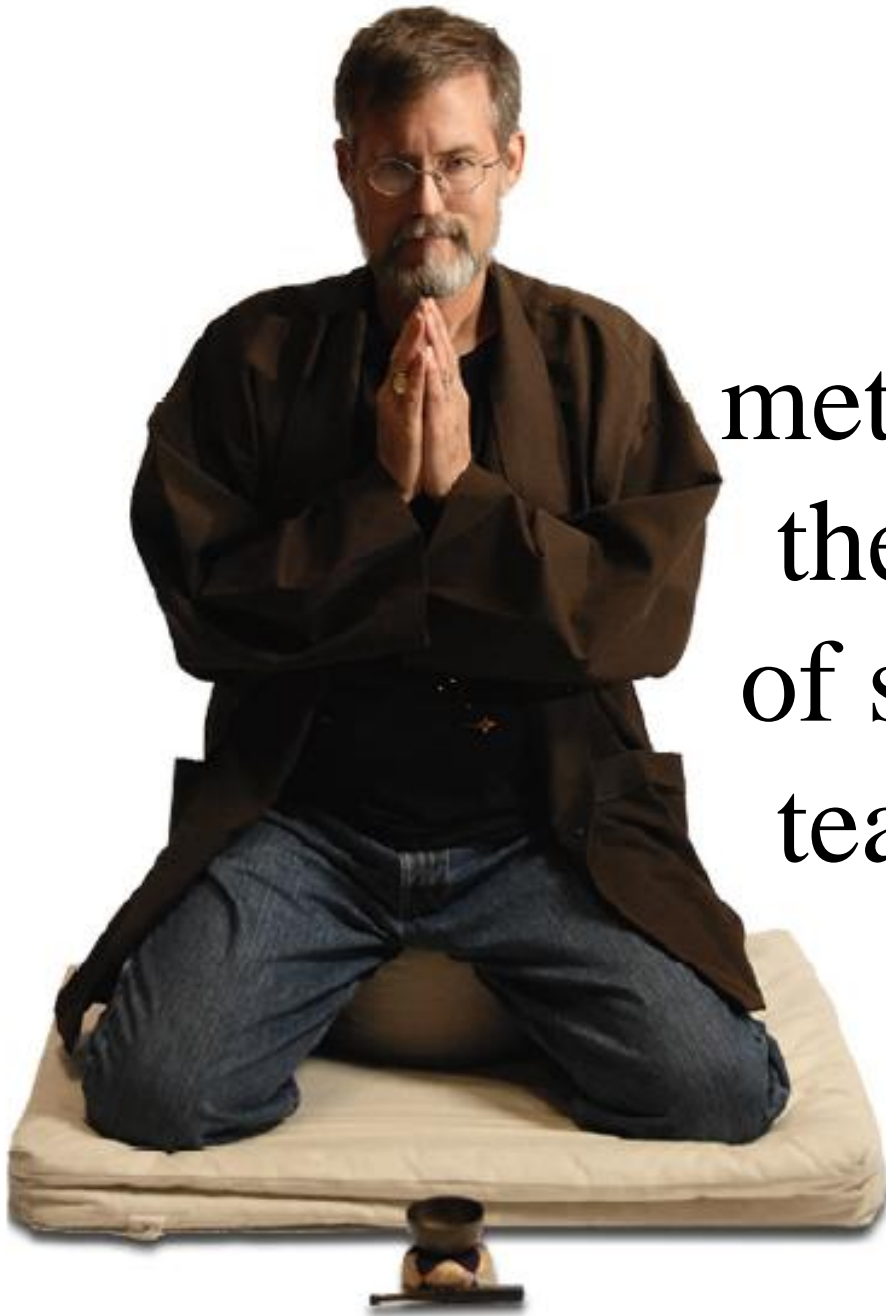
A Pacemaker the Size of a Tic Tac - Medtronic is using microelectronics to make a pacemaker so small it can be injected. Technology Review

<http://www.technologyreview.com/biomedicine/32436/?nlid=4177>

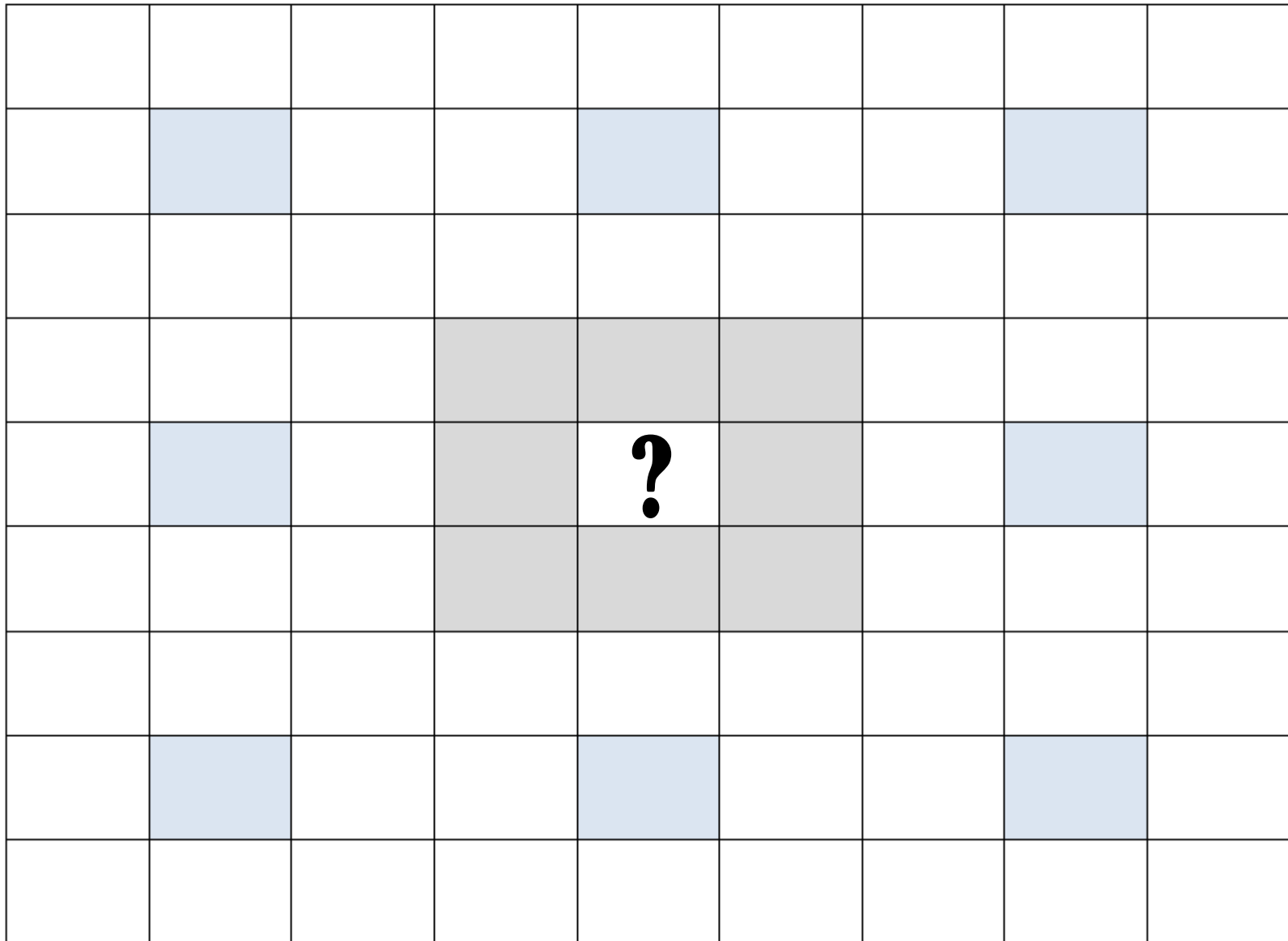


Activity

Using the blossom method, please identify the key characteristics of student learning and teaching excellence in the 21st century.



What are the characteristics of student learning and teaching excellence in the 21st century?



	Excellence			Innovation			Empowering	
			Excellence	Innovation	Empowering			
	Trans-disciplinary		Trans-disciplinary	?	Practicality		Practicality	
			Transformation	How	Entertainment			
	Transformation			How			Entertainment	



Indian River

Jumping the Gap - Connecting the dots Beyond
What is Measurable: How Indian River State
College Redefines the Well Rounded Student &
Arts Integrated Learning Across Curricula in P-20
Education

Education shift – Beyond the disciplines

We are here!



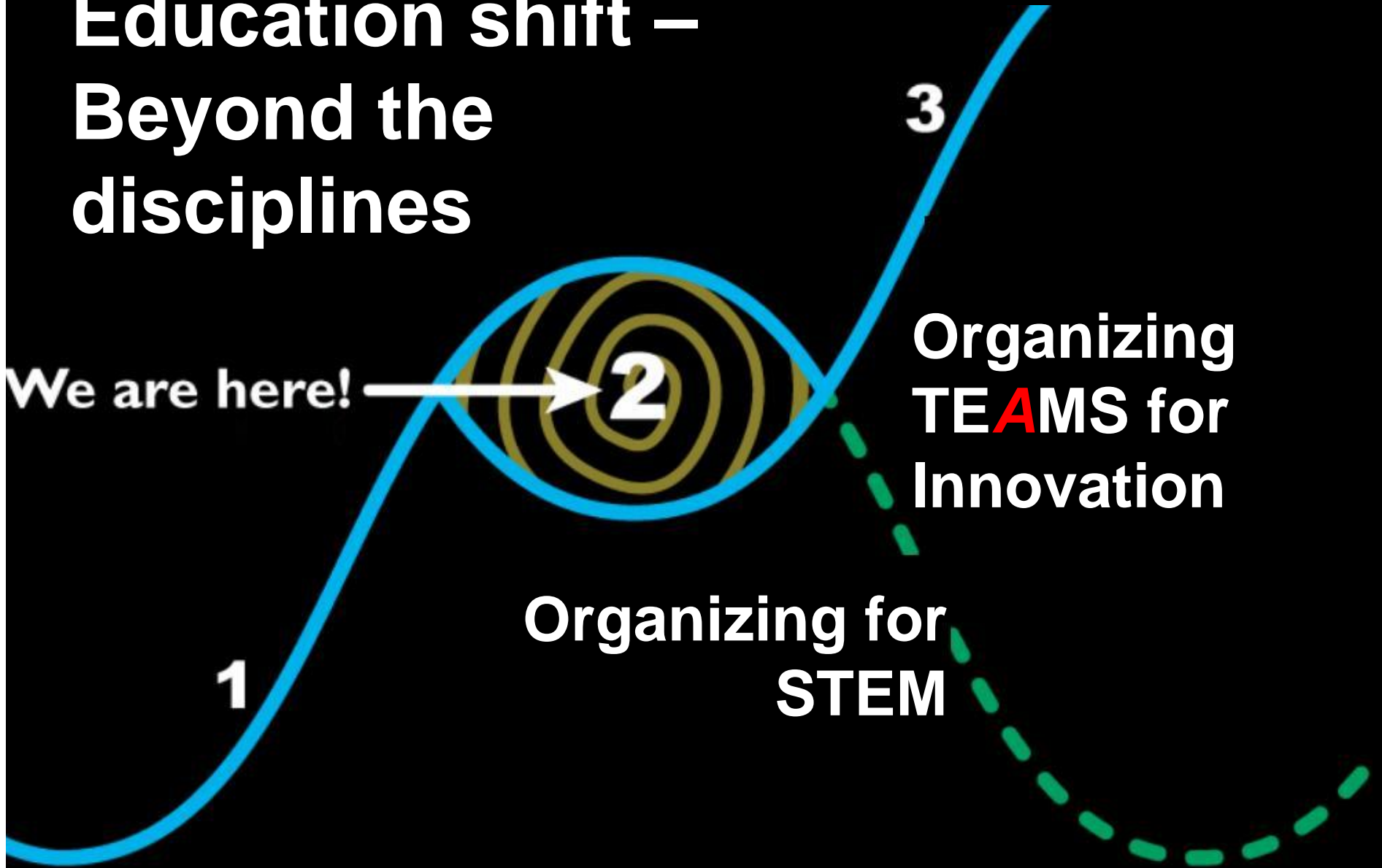
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Organizing
TEAMS for
Innovation

1

Organizing for
STEM







MARY L. FIELDS
HEALTH SCIENCE
CENTER

h

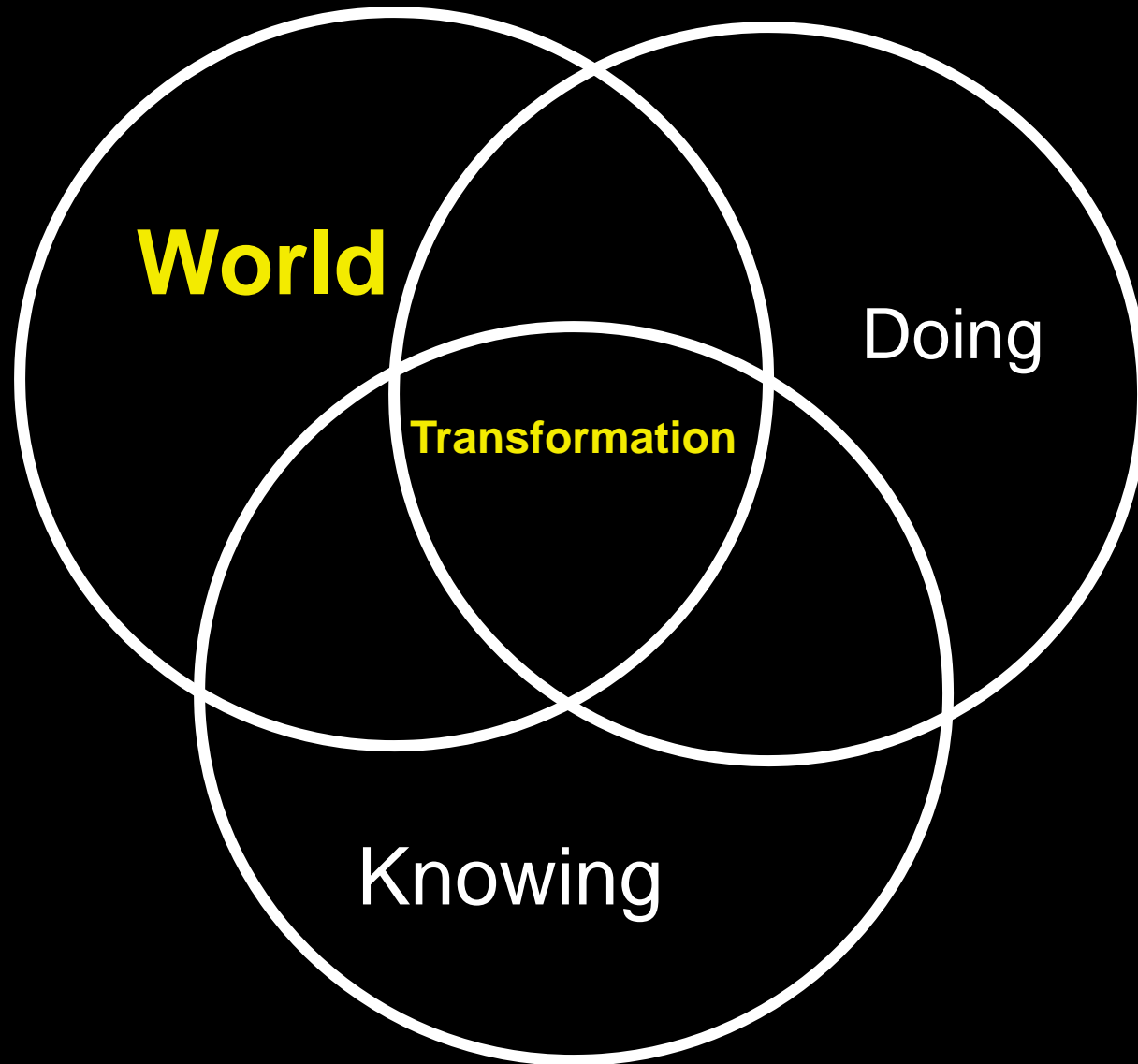








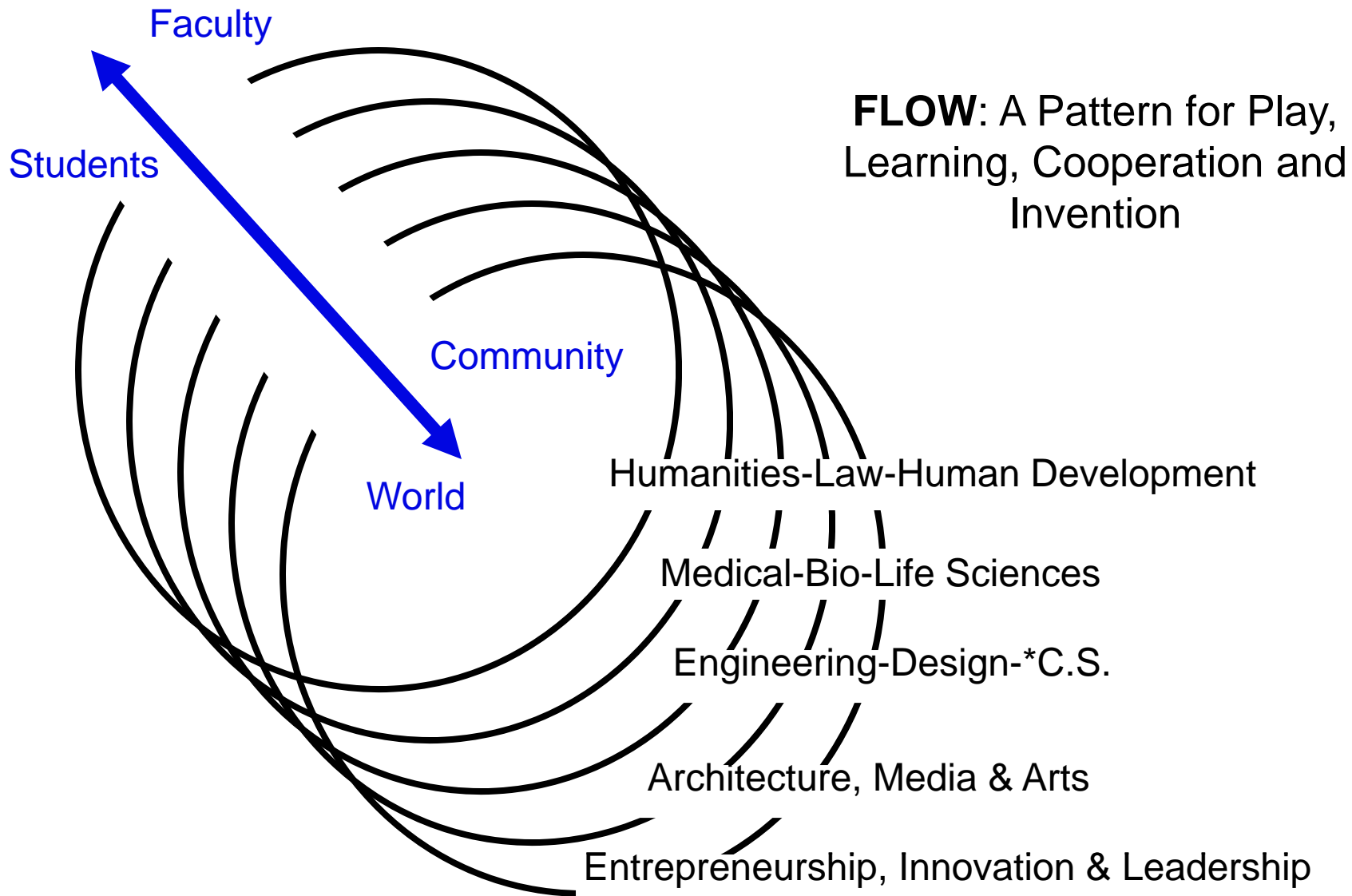
Techne', Art or Craft, Our purpose is to create. To give meaning to transformation.











Indian River State
College Current and
Emerging Pattern
Languages

*C.S. - Computer science









LONG ISLAND



Welcome to Martin Memorial *Wines*

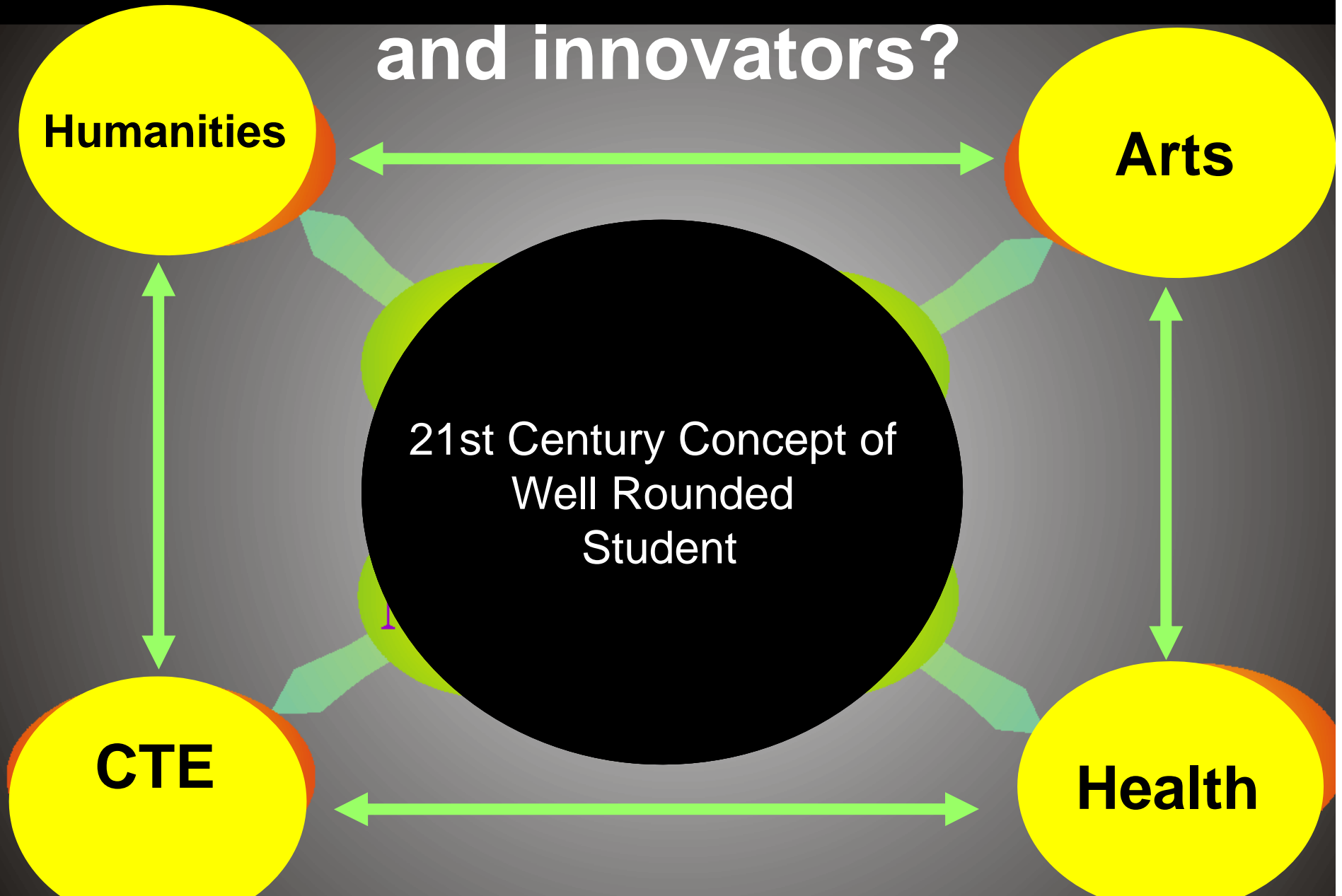
338	3938	10-24
Your room number	Your group number	Today's Date
<i>Melanie</i>	<i>Jill & Vivian</i>	
	3663	
	Your order string #	
	7600	
Diagnose name		
<i>Lori</i>	6797	
Attending doctor	Attending	

PLEASE CALL A NURSE OR ASSISTANT IF YOU NEED HELP. YOUR STAY HERE IS IMPORTANT.

MARTIN MEMORIAL
Health Systems
www.mhhs.com



How do we cultivate innovation and innovators?







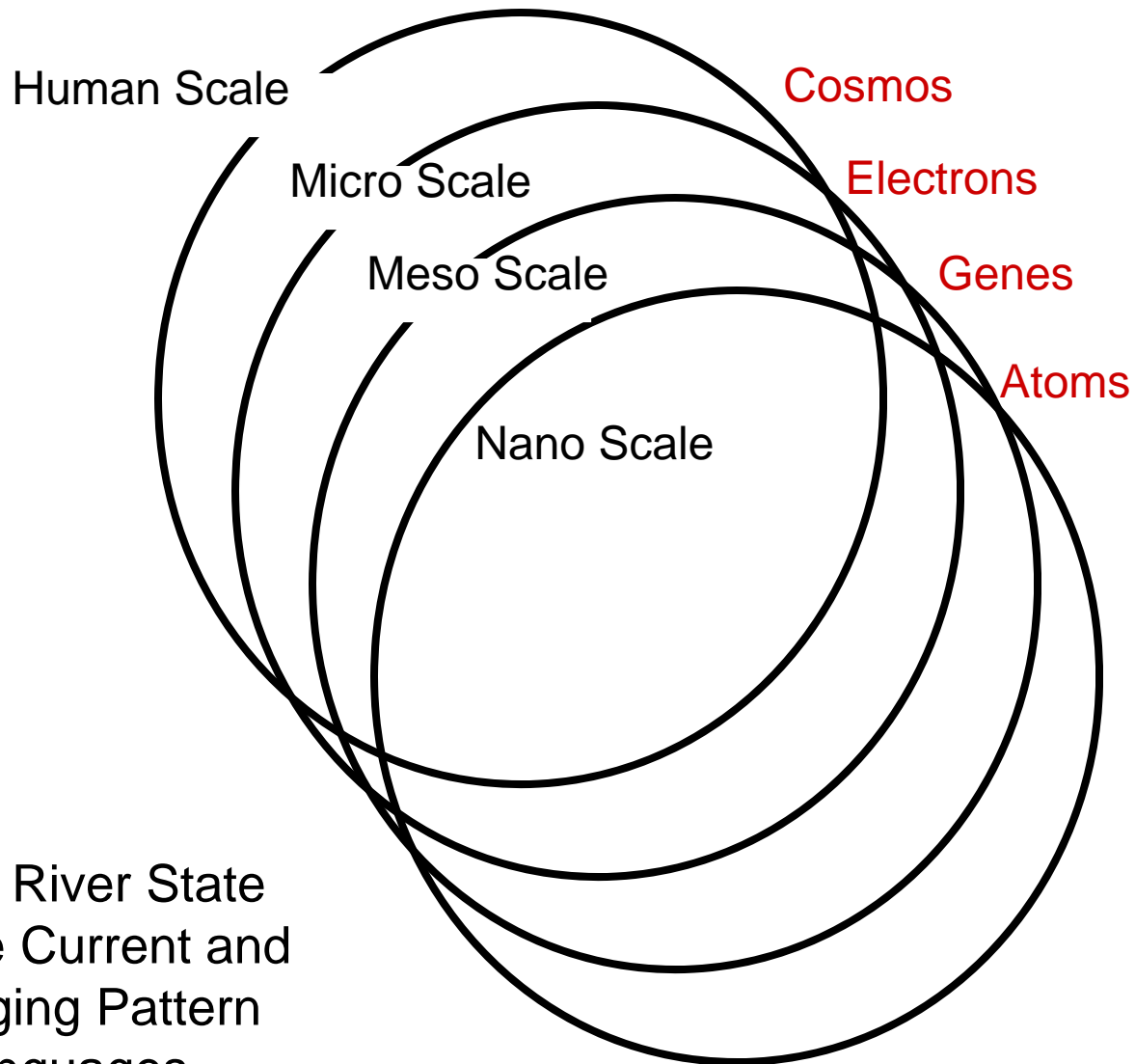


MICHAEL DASHOSH
FIRE SCIENCE DEPT.

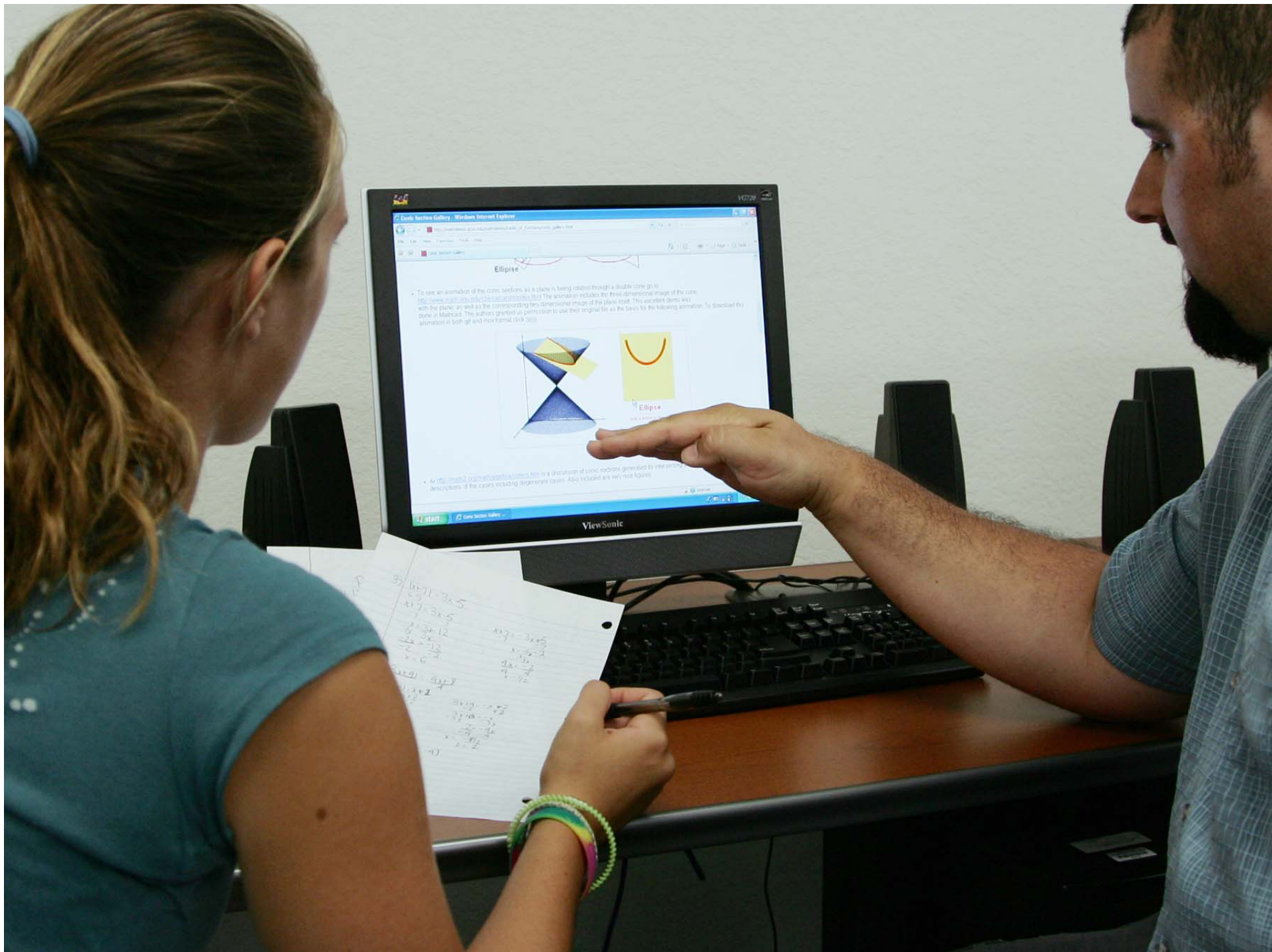
Indian River Community College
Michael Dashosh
FIRE SCIENCE DEPARTMENT
INDIAN RIVER COLLEGE
Phone: 772.335.1100
www.ircollege.edu

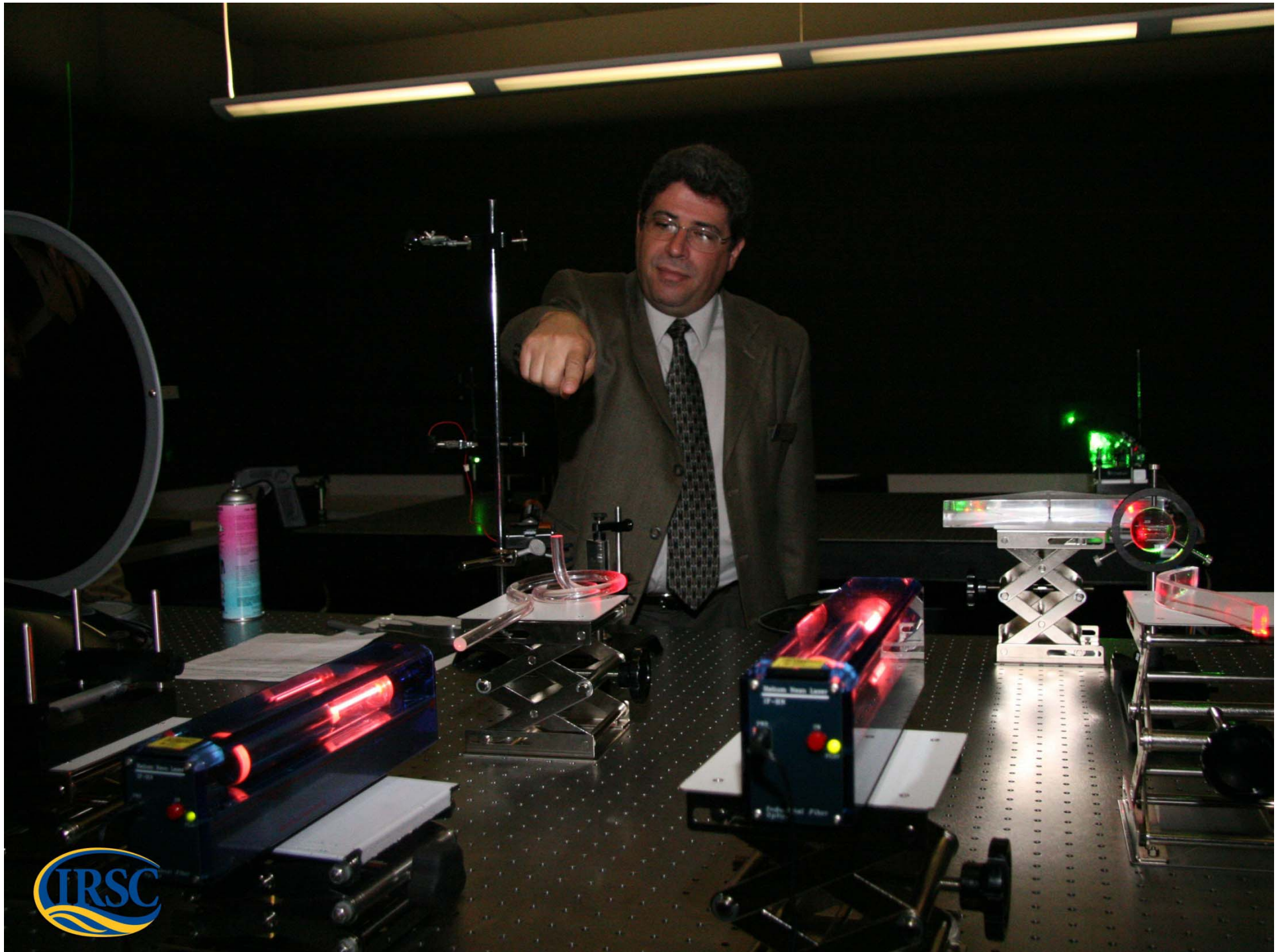


21st Century MATH Systems: Architectures



Indian River State
College Current and
Emerging Pattern
Languages

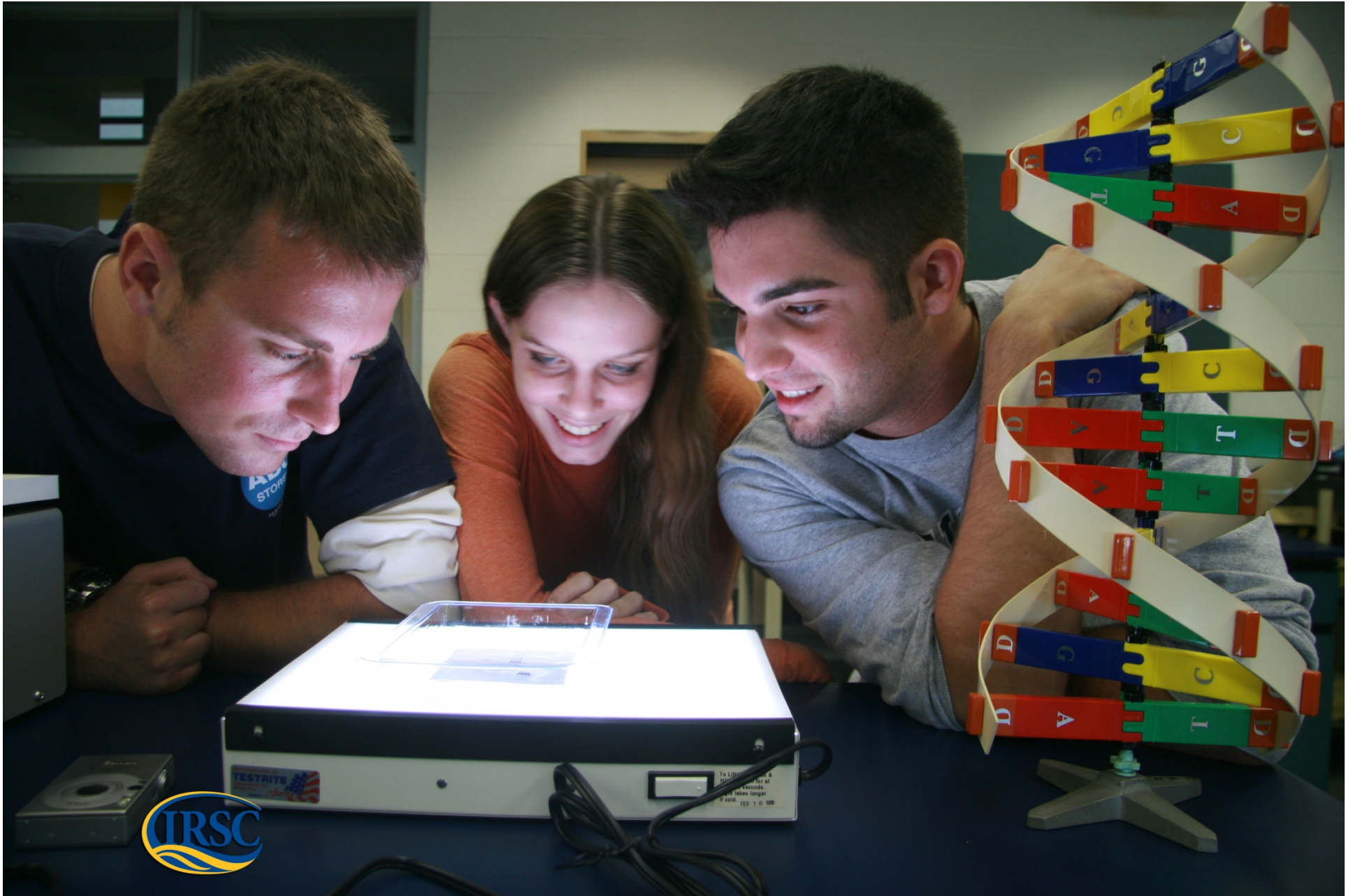


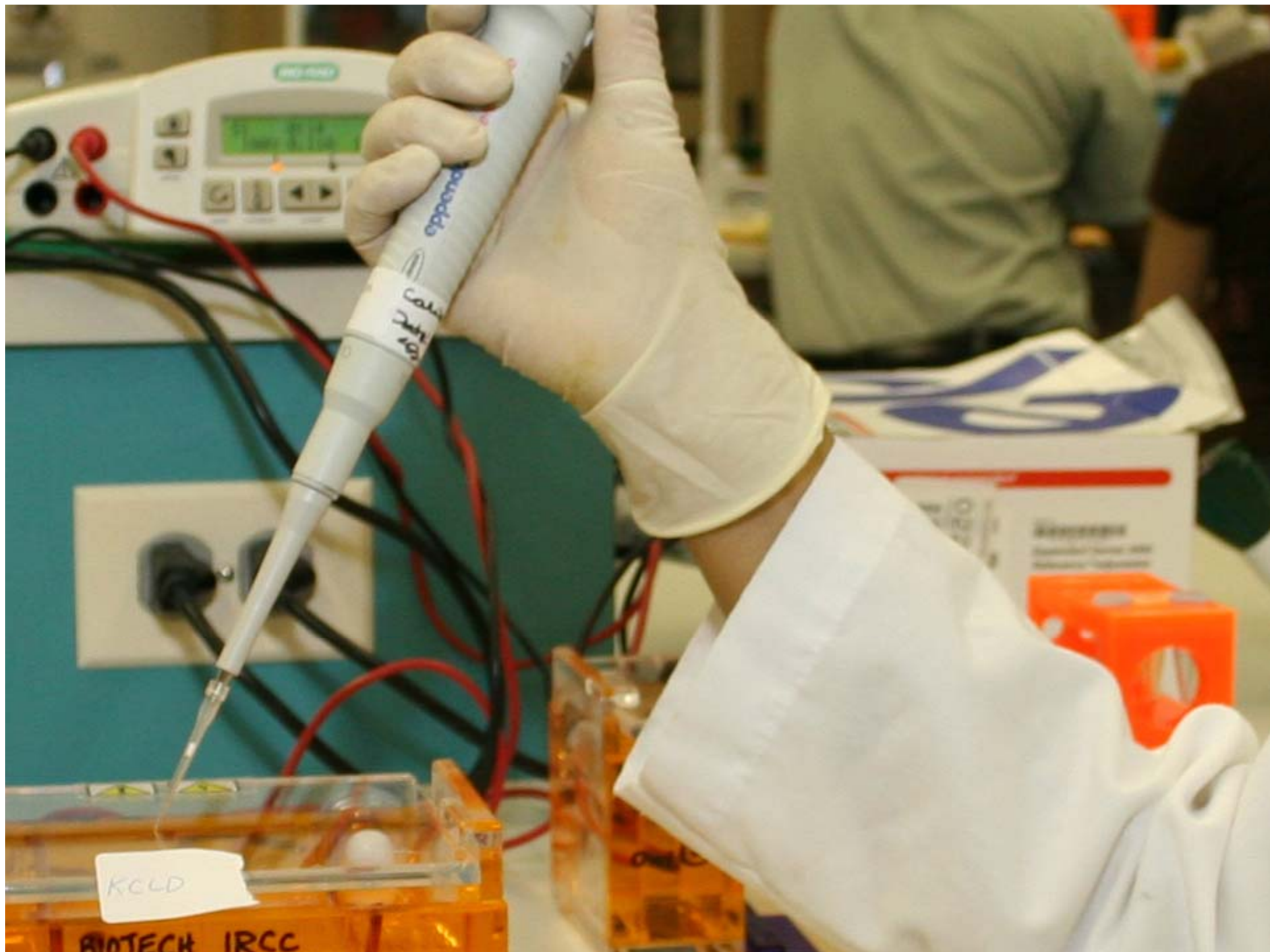






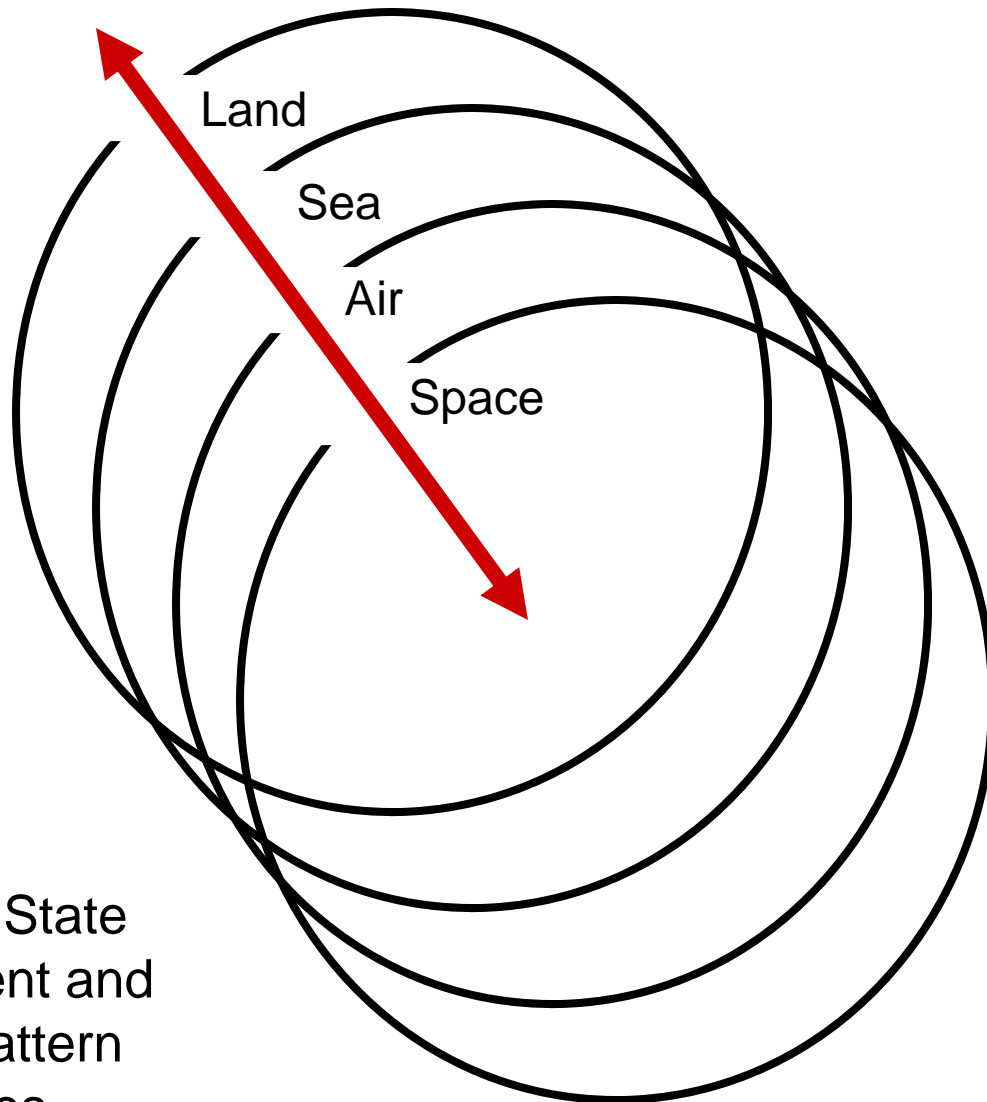






Operational Environments: A System of Systems

Cyberspace

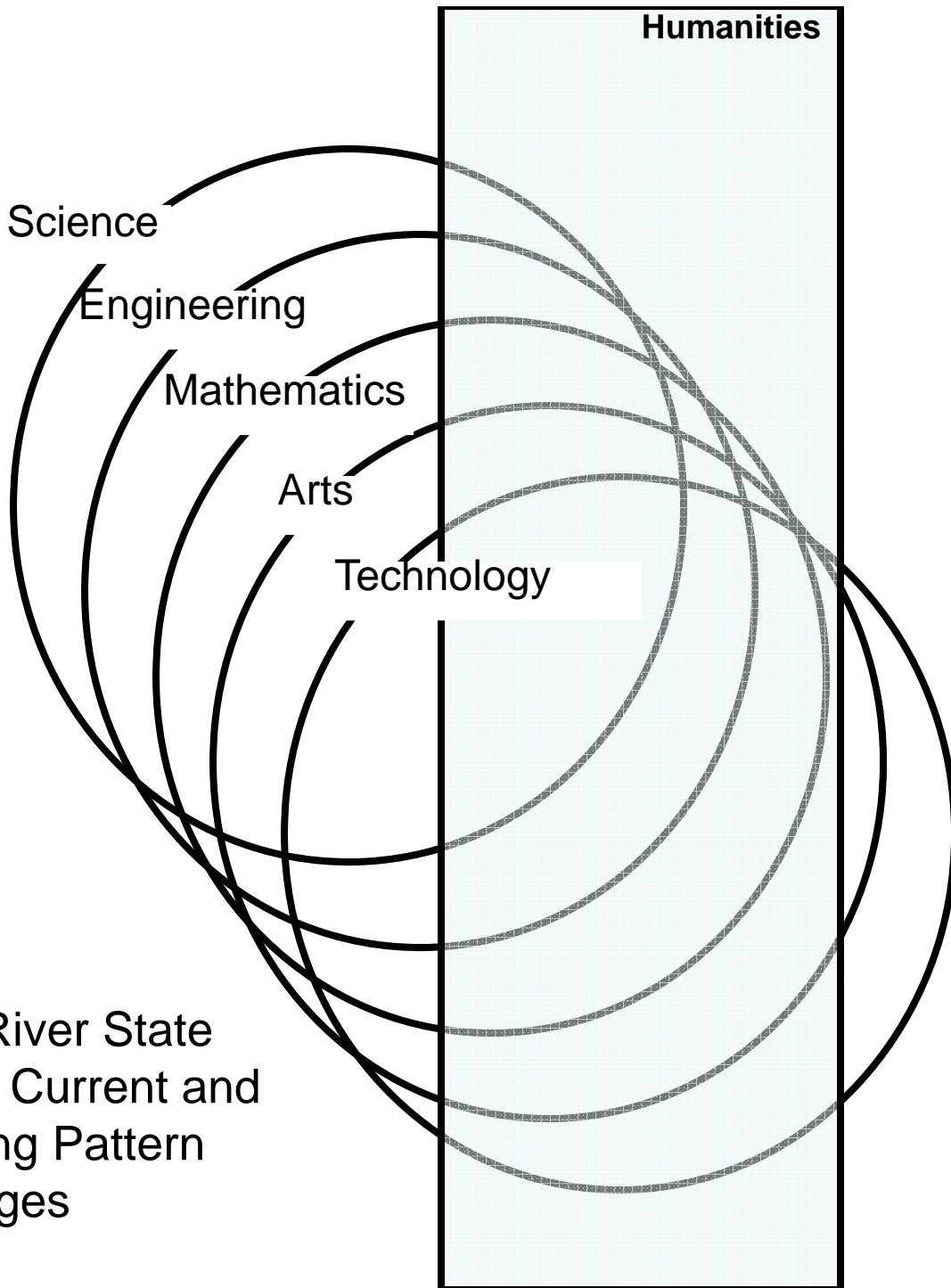


Indian River State
College Current and
Emerging Pattern
Languages



HALLSTROM PLANETARIUM





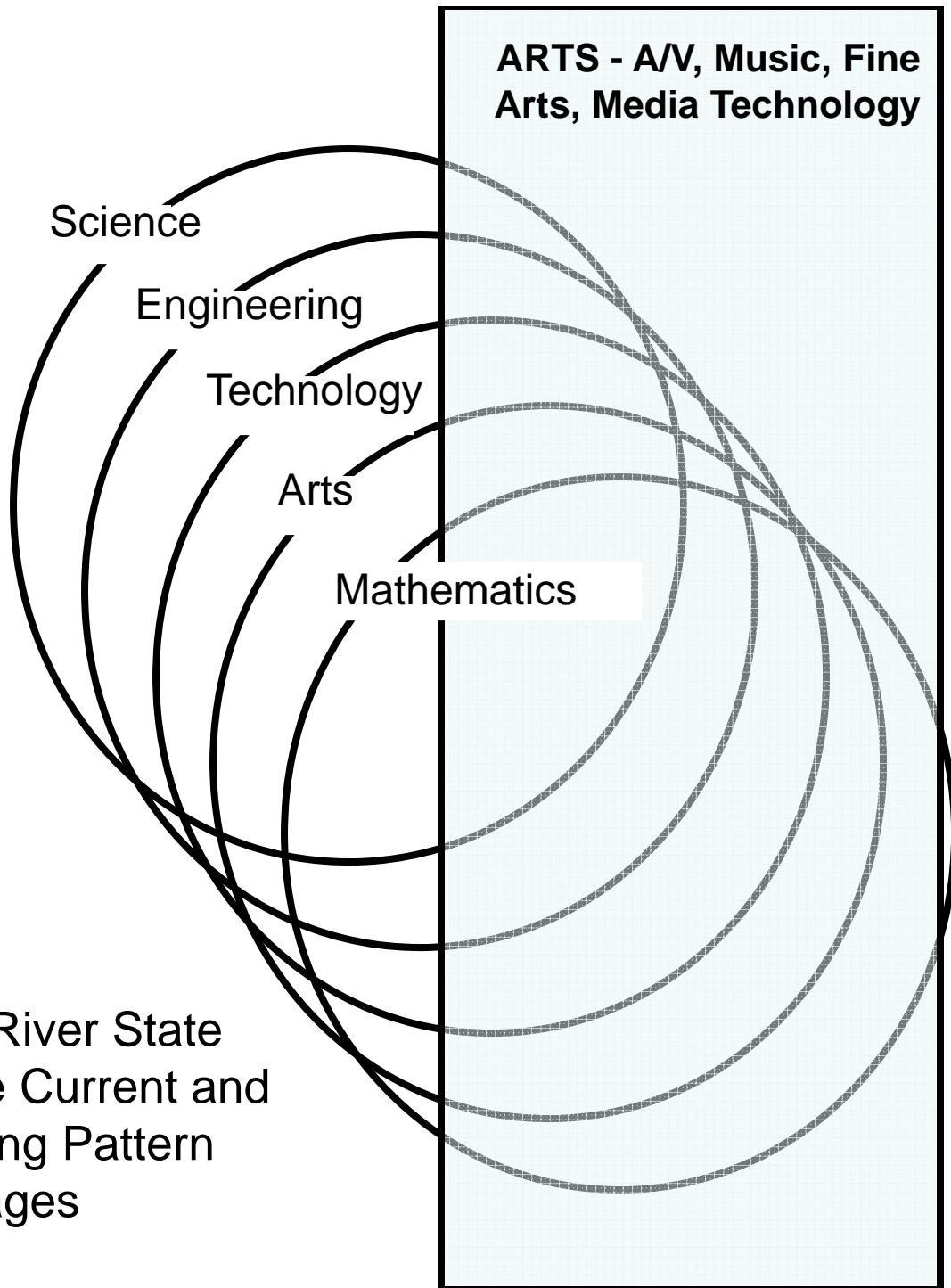
Indian River State
College Current and
Emerging Pattern
Languages

**Act 1 - Humanities
Vision, Creativity &
Criticism**

TEAMS is about engaging the whole of all disciplines to ask: ARTS ARE THE BRIDGE TO THE FUTURE

- What is the human condition and what can we do about it?
- What is the role of “design, creativity and critical thinking” in executing new designs for learning and the future of our species and the world?
- How can we work together to put knowledge into action -- to create discourse across the disciplines -- and to link & integrate curricula with the world?
- How can we shift learning so that students take more responsibility for learning and teachers can take back the sandbox of learning?

TEAMS is about engaging the whole while preserving and leveraging what is important and unique in the parts. The goal is holistic thinking, learning, and practice. The desired result is a stronger educational community of practice and better educational, social, and economic outcomes for students and civil society.



ARTS - A/V, Music, Fine Arts, Media Technology

Science

Engineering

Technology

Arts

Mathematics

Indian River State
College Current and
Emerging Pattern
Languages

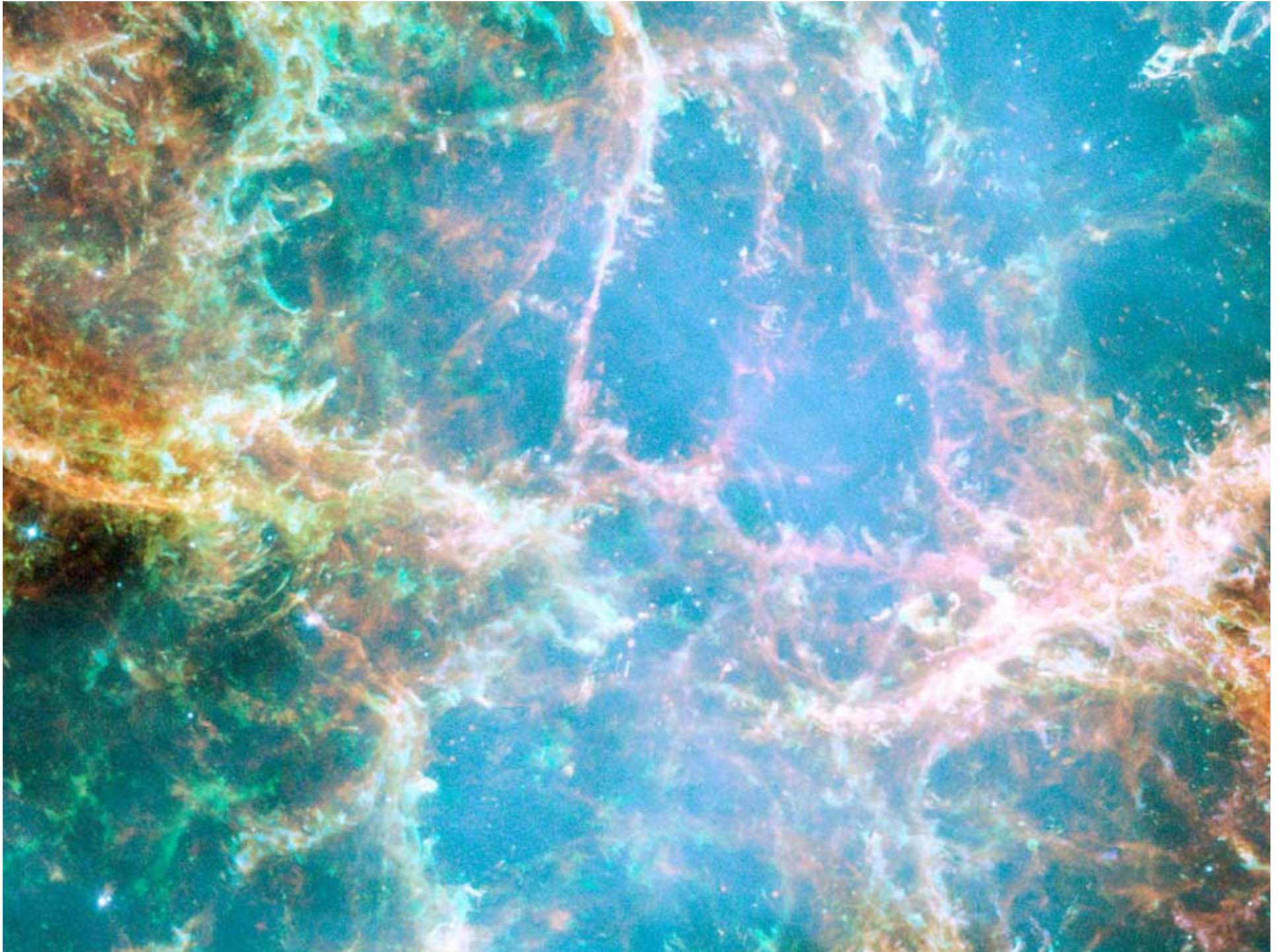
**Act 2 - Cultural and
Technical Arts**

Asimov's Final Question



HALLSTROM PLANETARIUM





Symphony No. 7 (Beethoven)

Critics and listeners have often felt stirred or inspired by the Seventh Symphony. For instance, one program-note author writes:[3]

... the final movement zips along at an irrepressible pace that threatens to sweep the entire orchestra off its feet and around the theater, caught up in the sheer joy of performing one of the most perfect symphonies ever written.

Composer and music author [Antony Hopkins](#) says of the symphony:[4]

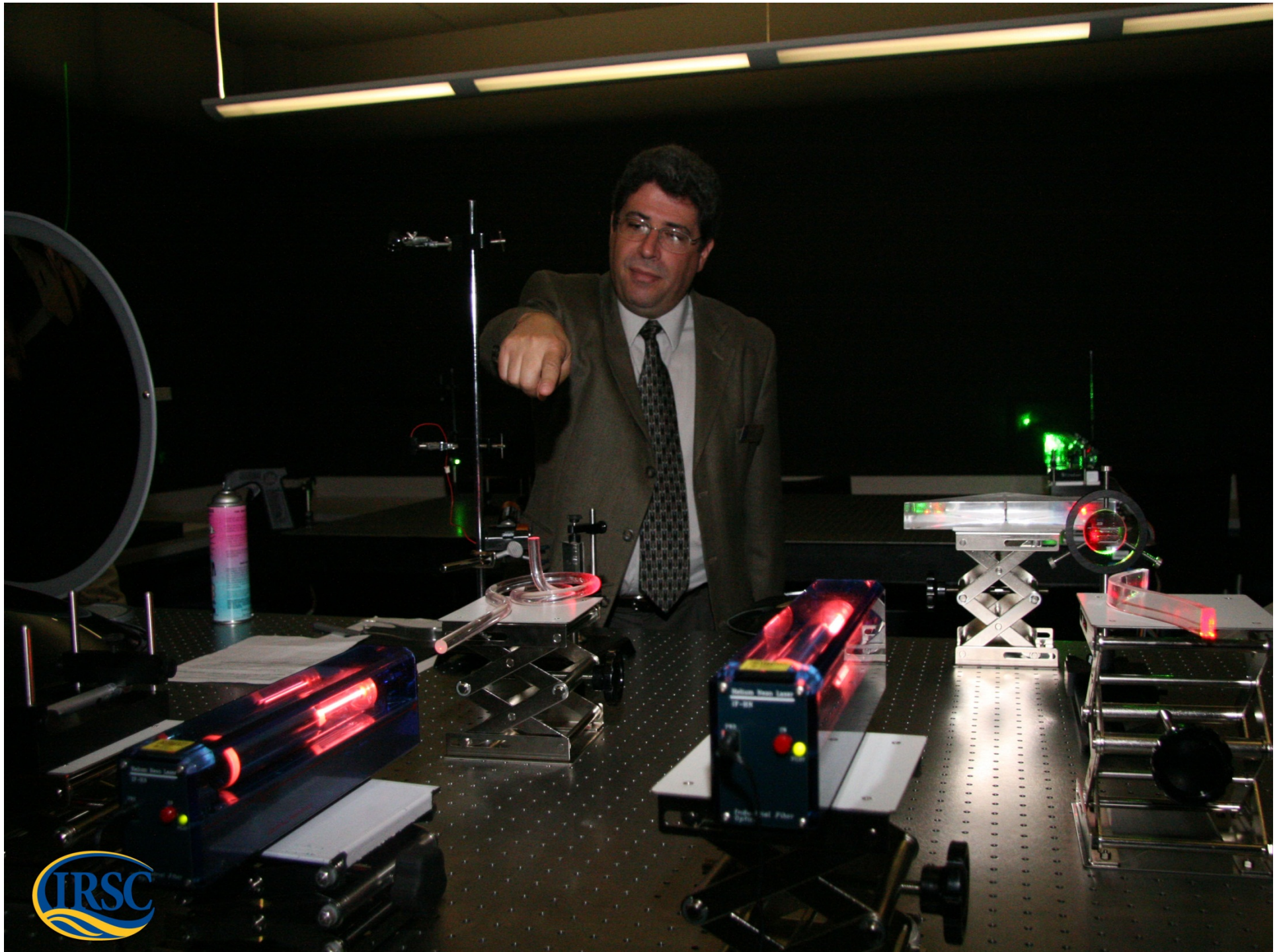
The Seventh Symphony perhaps more than any of the others gives us a feeling of true spontaneity; the notes seem to fly off the page as we are borne along on a floodtide of inspired invention. Beethoven himself spoke of it fondly as "one of my best works". Who are we to dispute his judgment?

Another admirer, [Richard Wagner, referring to](#) the lively [rhythms](#) which permeate the [work](#), called it the "[apotheosis](#) of the dance".[2]





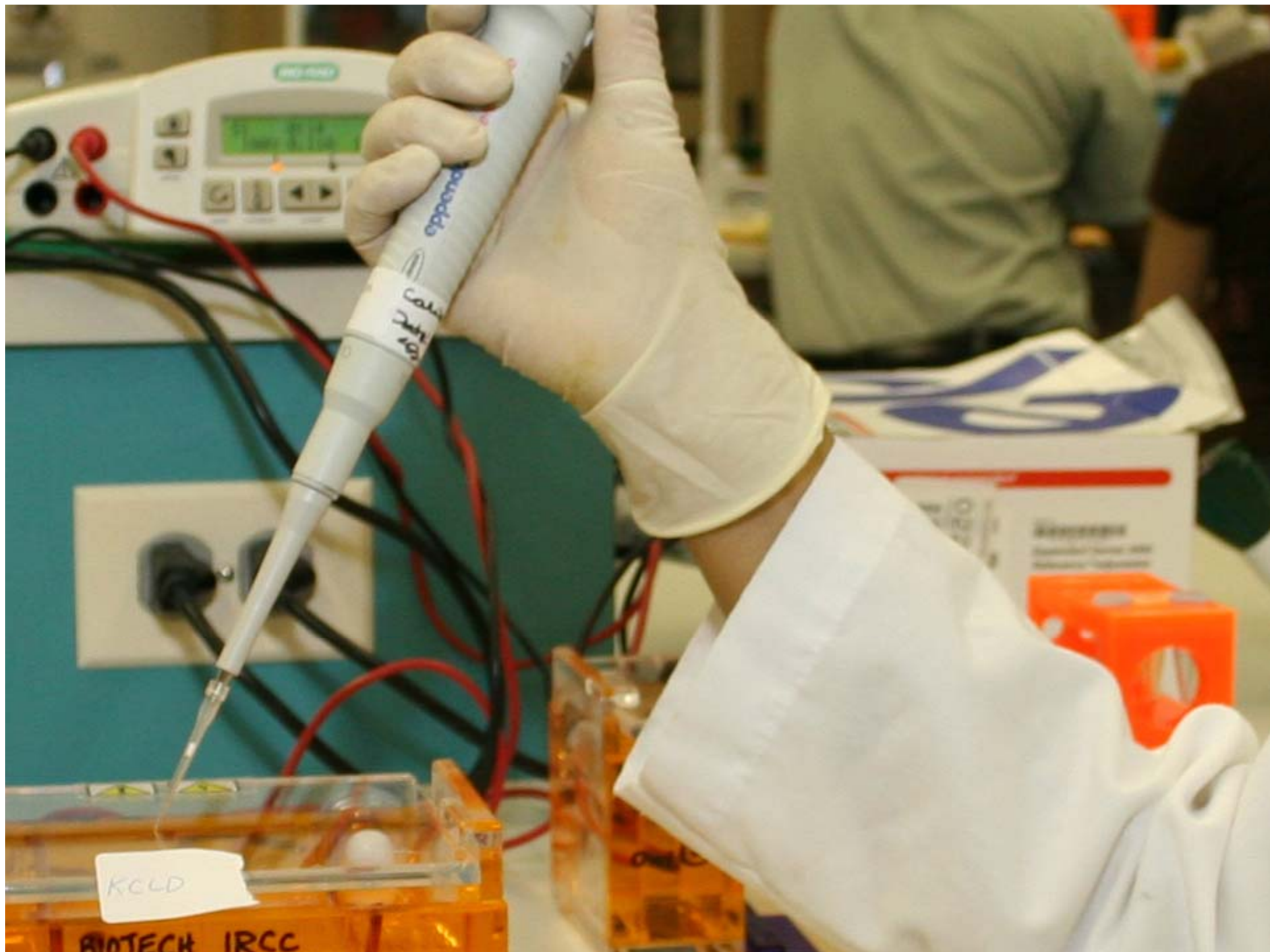




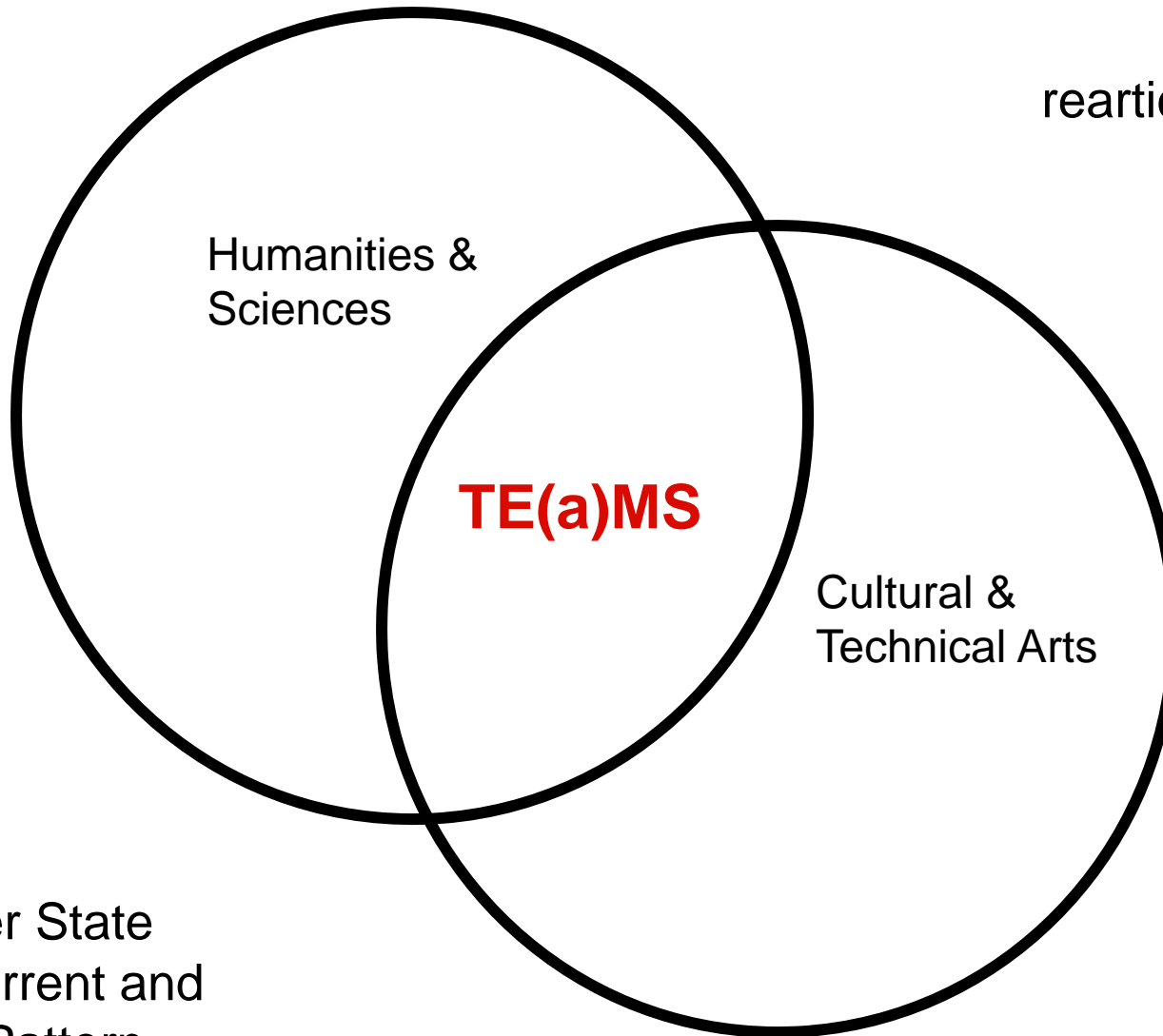


TESTRITE

To LIGHT UP & DISAPPEAR FOR at least 10 minutes. It takes longer if sold. FEB 1 0 1986



Act 3 – FUSION:
Quantitative and
qualitative
rearticulation of the
Whole

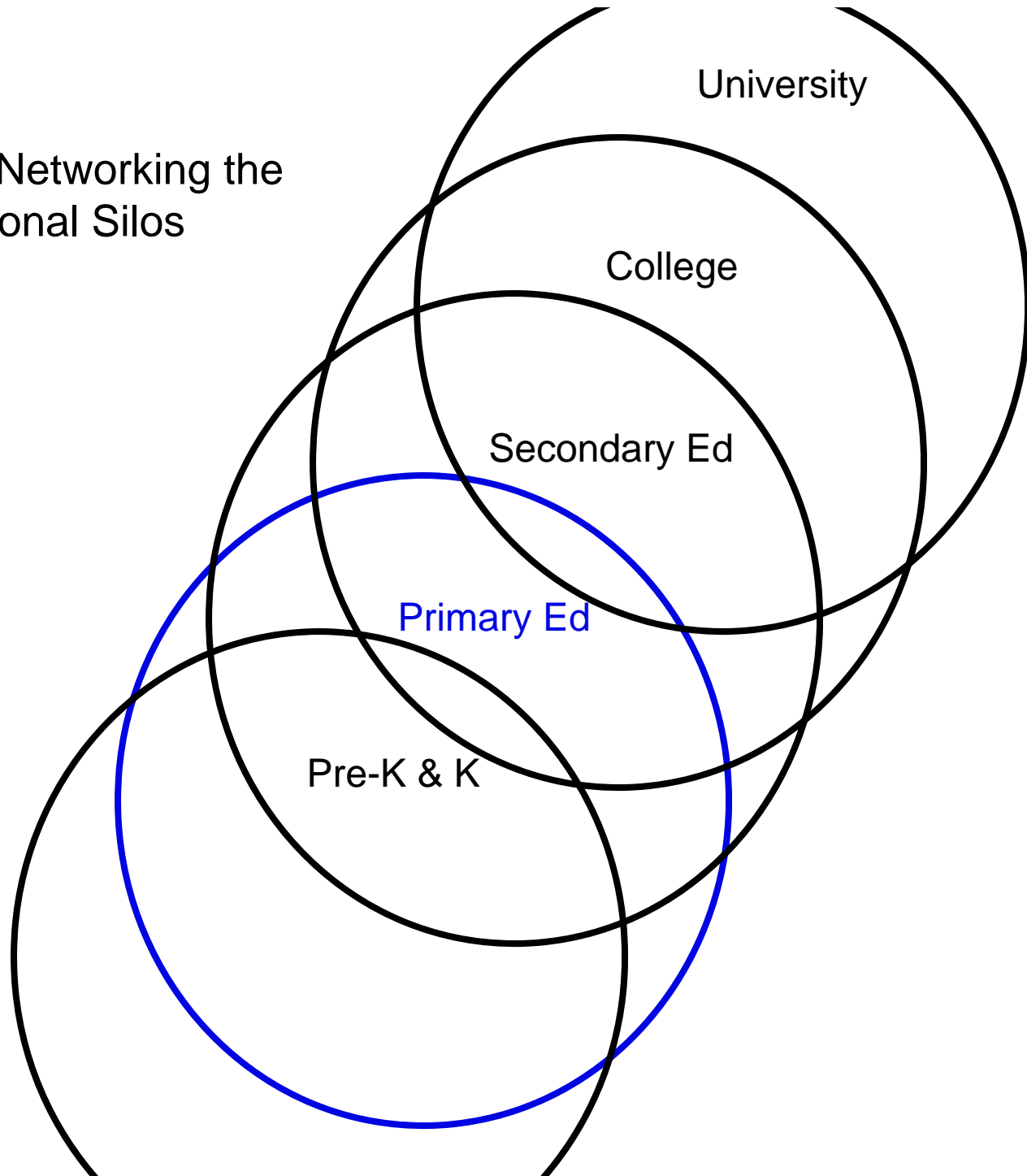


Indian River State
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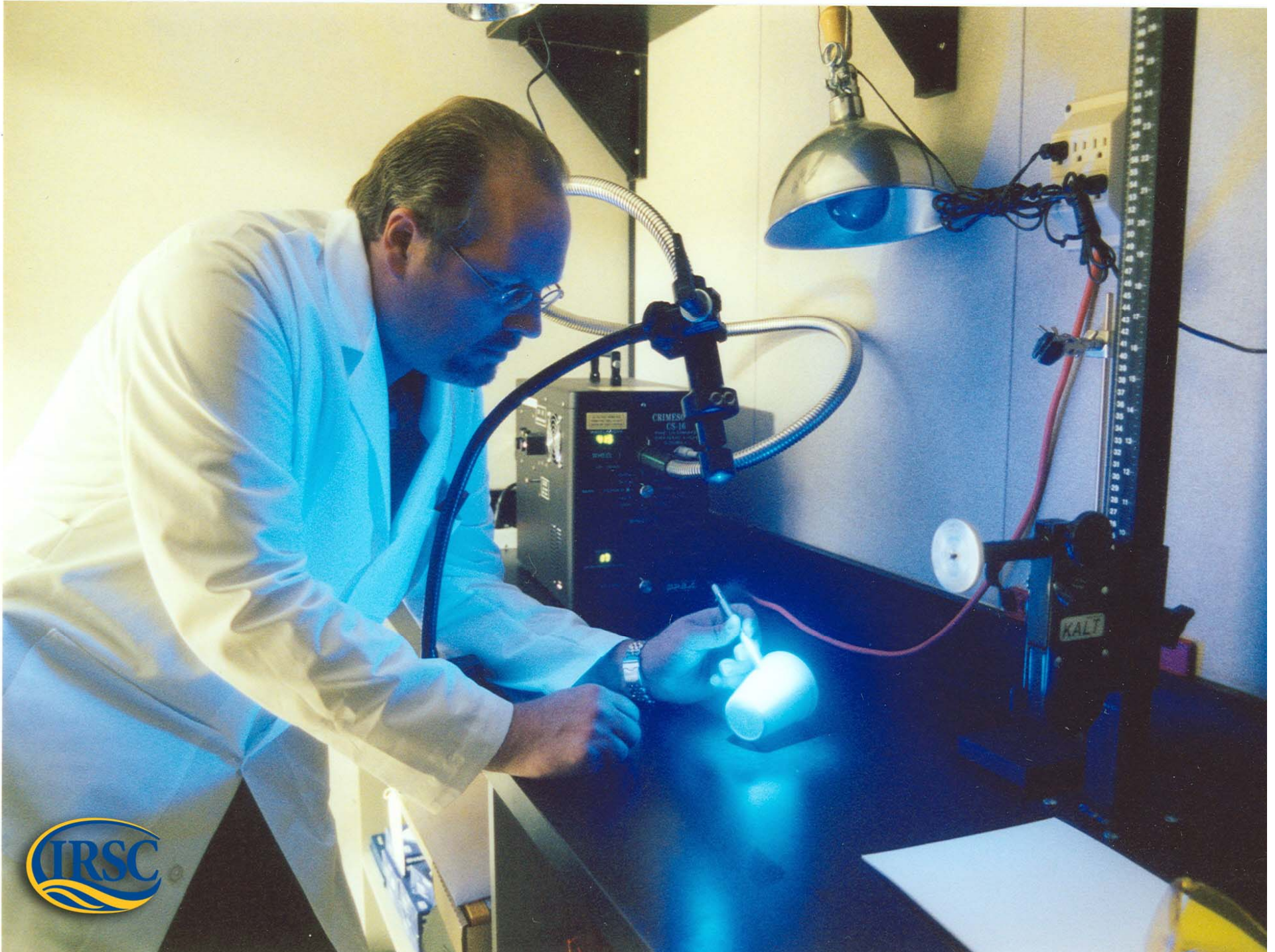


Technology - Techne - Art or craft.
The Technology are us.

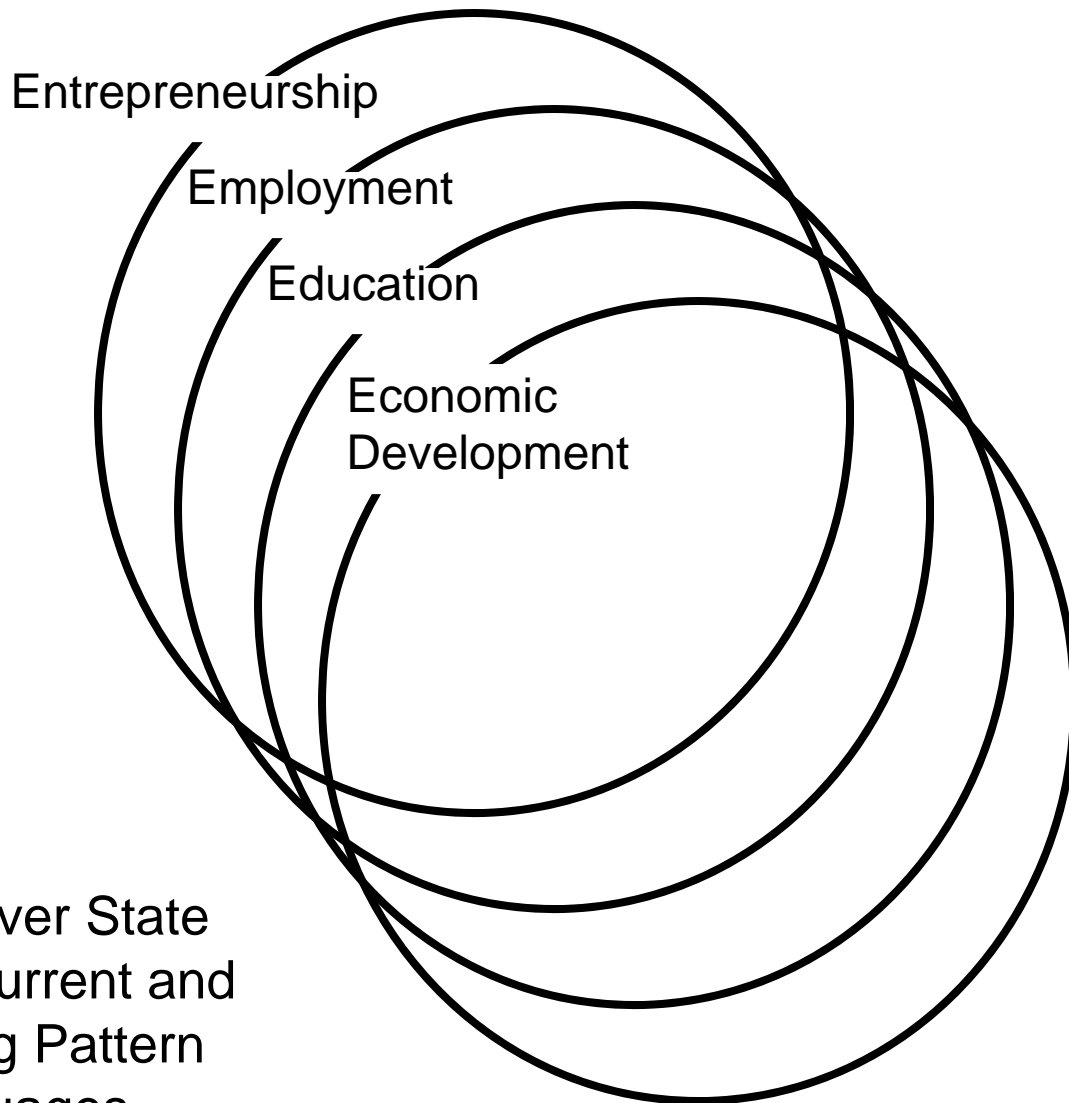
P-20 Integration: Networking the Points and Institutional Silos



Indian River State
College Current &
Emerging Pattern
Languages



Research Cove at Treasure Coast FL : Entrepreneurship,
Employment, Education and Economic Development Coordination



Indian River State
College Current and
Emerging Pattern
Languages

In the Technopolis
world there are
many research
coasts. Branding is
about experience.
And if people have
found riches on
your shore
historically. It's a
natural bridge for
the future.



STEM to STEAM

Importance of Arts in STEM

Haiku - MCC

Here I sit all broken-hearted
Loved this lecture
And then departed...

If you have time, write a haiku reflecting the transformation and changes you learned and experienced in this webinar.

(5) The moment two are
(7) united they both vanish
(5) A lotus blooms here.

Murakami, Kijo. (1865-1938), Adapted by Brazell
<http://www.toyomasu.com/haiku/#time>

Hint – Use your blossom...





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From STEM to STEAM: The Importance of Arts in STEM

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<http://questionpro.com/t/ABkVkZLIdU>



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May 11:

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HI @ TEC

The logo for the High Impact Technology Exchange Conference (HITEC) is a circular emblem. It features a stylized, multi-layered 'G' shape in the center, transitioning from dark blue to green. The text 'HIGH IMPACT TECHNOLOGY EXCHANGE CONFERENCE' is written along the top inner edge of the circle, and 'EDUCATING AMERICA'S TECHNICAL WORKFORCE' is written along the bottom inner edge.

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Thank You!

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**From STEM to STEAM:
The Importance of Arts in STEM**