

How to Present

Hod Lipson

Why Should I care?

Impact

Impact

=

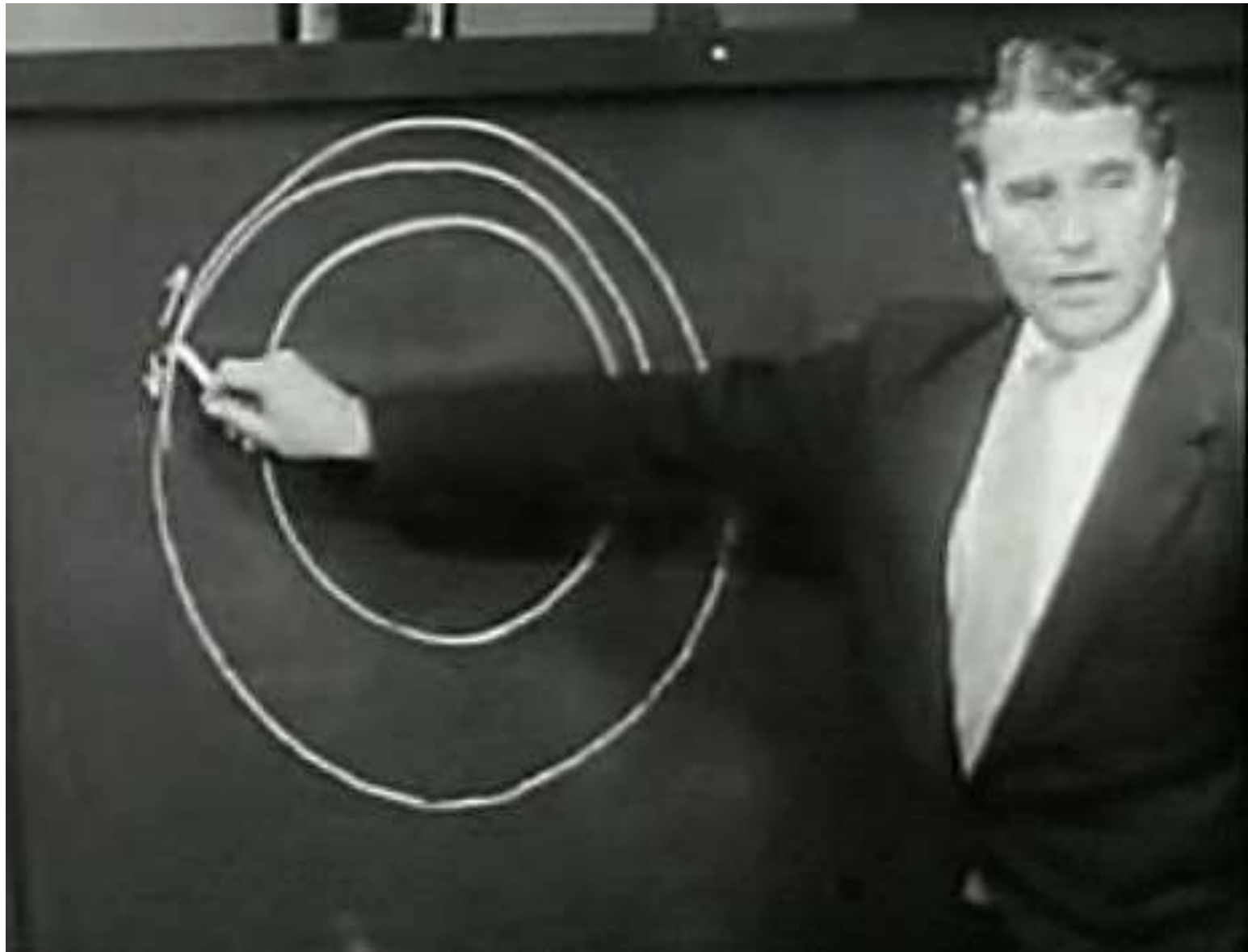
**Quality of
work**

$$\text{Impact} = \text{Quality of work} \times \text{Quality of communication}$$

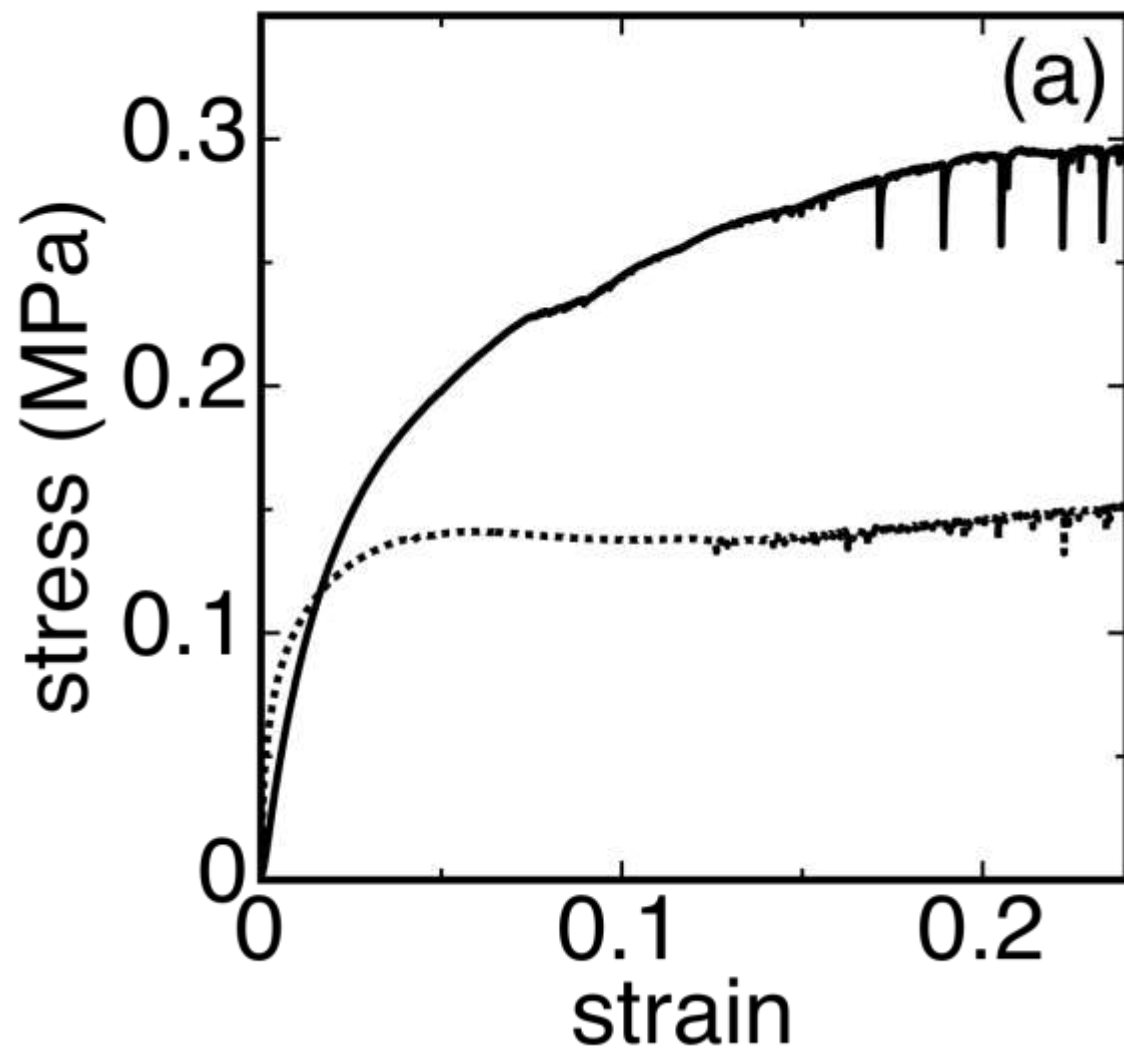
Typical Suggestions

- Use **readable colors** and **clear background**
- Font size 18pts or larger
- No more than 8 bullet points per page
- Plan no more than one slide per minute













Value Proposition

Australia

- High quality medical research - both pre-clinical and clinical
- Publicly funded, safe and robust legal & regulatory system
- Sophisticated "Workforce" medical assessment
- Quick start-up time of clinical trials, with access to 10 & 20
- Preferred for recruitment in multi-national trials

Queensland

- Strong Government commitment + investment
- State-of-the-art medical research facilities and hospital
- Strengths in pre-clinical & early clinical development phases
- Favourable destination for biotechnology start-ups

QCTN

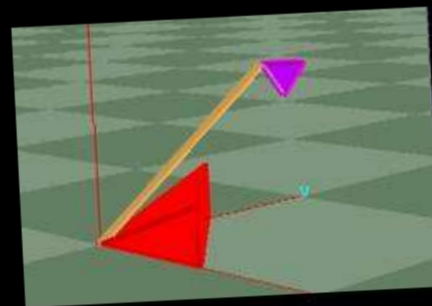
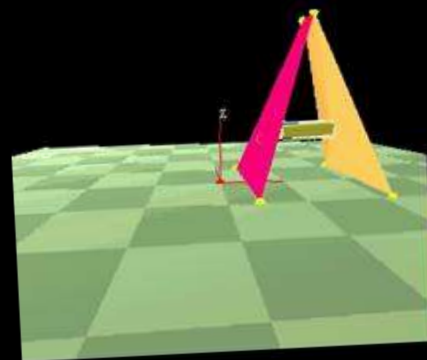
- A network of "best of breed" gene clinical service providers
- Serves as one-stop-shop for accessing genetic services
- Provides advice, scientific, clinical & regulatory advice/assistance
- Establishing very strong + influential international network

Quasi Static Simulator

- Each frame is statically stable
- Simpler to solve, easy to induce in reality
- Model degrees of freedom move to minimize overall energy

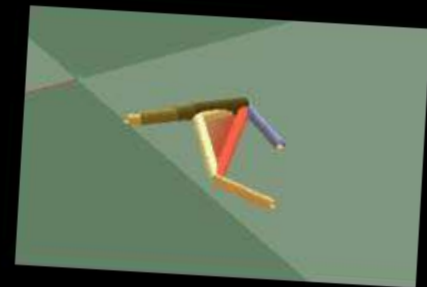
$$H = \sum k \mathcal{E} + \sum mgh + \text{contact_energy} + \dots$$
$$V_x^{(k+1)} = V_x^{(k)} - \alpha \partial H / \partial V_x$$

- Handles collision, friction, flexion, material failure. Nonlinear effects like snap-through, as well as under-constrained objects.
- Uses **noise** to cover for inaccuracies



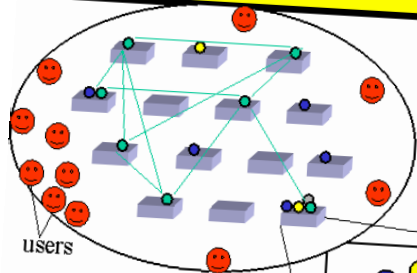
Evolving for Locomotion

- **Population:** Starts with empty/null designs. Size 200 ~ 1000 machines
- **Genotype/phenotype:** bars/actuators, and neurons
- **Fitness function:** distance center of mass moved during 12 cycles of the neural net
- **Selection function:** fitness proportionate
- **Genetic operators:** small mutations:
 - Connect/remove small bar or unconnected neuron
 - Change bar length or neuron synapse
 - Split bar/vertex
 - Connect/disconnect neuron to bar (actuator)
- **Replacement function:** random.
- **Evolution dynamics:** Steady state 100 ~ 10000 generations. Various dynamics of convergence and divergence. Parallel implementation yields “natural evolution” drive for simplicity:





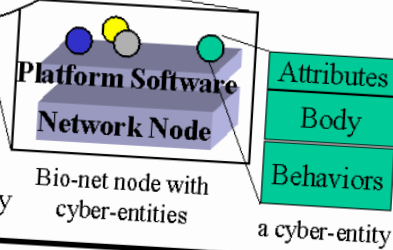
Bio-Networking Architecture



New Paradigm: use collection of interacting cyber-entities to create network application

Biological analogies:

- emergent behavior
- energy exchange
- reproduction when energy is abundant



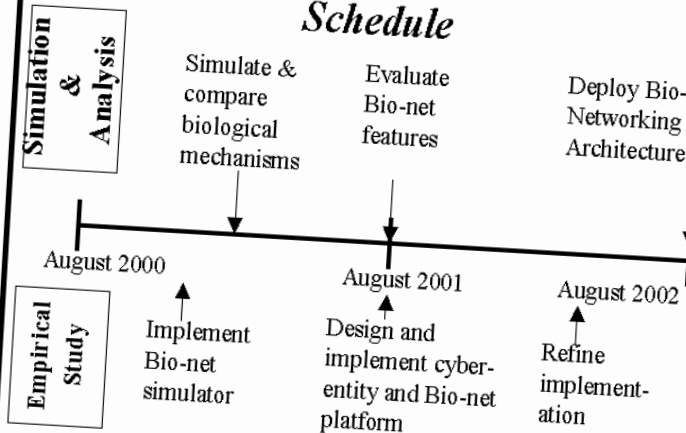
New Ideas

- Observation: large scale biological systems scale, adapt, and survive
- Apply biological concepts/mechanisms (e.g. emergent behavior, lifecycle, energy, evolution through diversity and natural selection) to future Internet applications
 - application constructed from collection of cyber-entities
 - cyber-entities have biological behaviors (e.g. migration, reproduction, death, energy exchange, etc.)
 - energy used as a control (and natural selection) mechanism
- establishment of relationships for directory service

Impact

- Bio-Networking Architecture represents a new paradigm in the construction of network services and applications
- Applications constructed using the Bio-Networking Architecture meet the key requirements of NGI (adaptable, evolvable, secure, survivable, scalable, and simple).
- Example applications:
 - scalable and adaptive information dissemination
 - targeted and measurable advertisement delivery system using deeply embedded and wearable computers
 - fully distributed resource discovery for mobile and replicated objects

Schedule



PI: Tatsuya Suda, University of California, Irvine

Caveat: Non-oral-presentation uses of PowerPoint



1. Why should I care?

the Moon • The Bowman's howling Daughter

♦ A Sense of Theft • Anansi & Turtle's Feast ♦

Tell me a Story

Timeless folktales
from around the world

♦ The Clever Girl • Searching for Fear • Rabbit on

The Selkie Bride • Two Frogs from Japan





2. Convince - Make your argument



AP / Paul Sakuma

3. You lead, not the slides



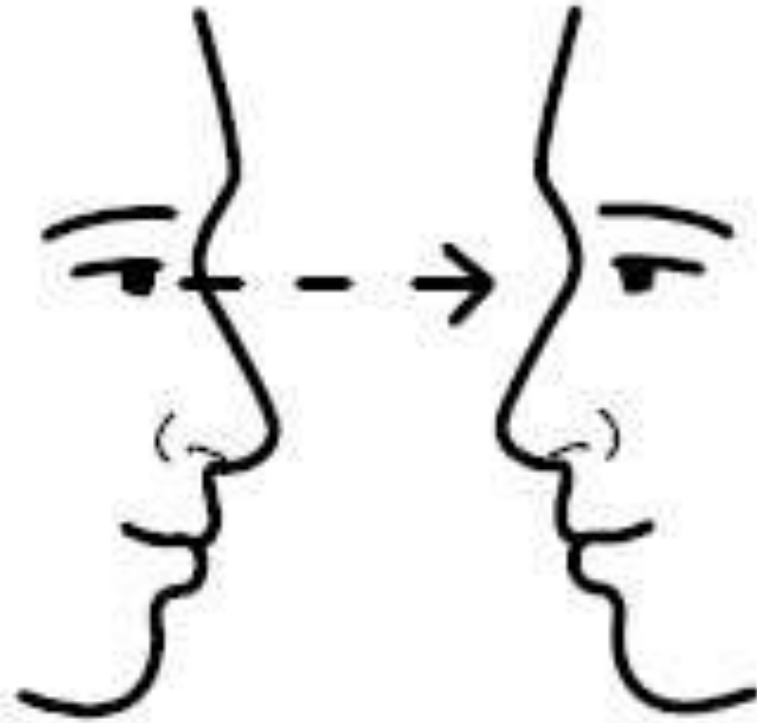
4. Use slides for visuals, not text

1

5. One point per slide



6. Use dynamic voice and gestures



7. Make eye contact



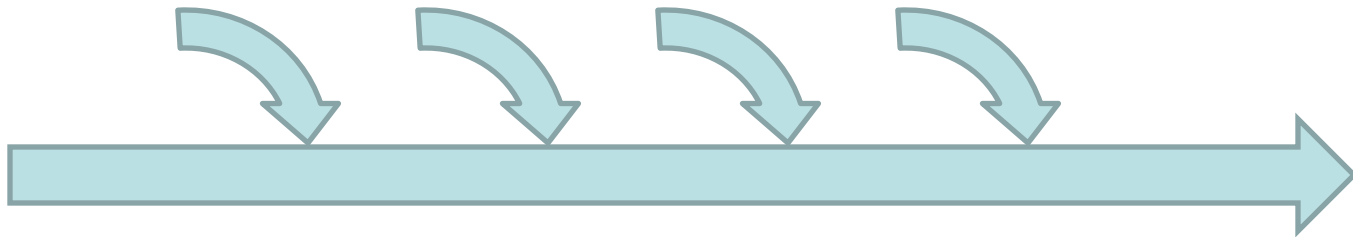
8. Use props



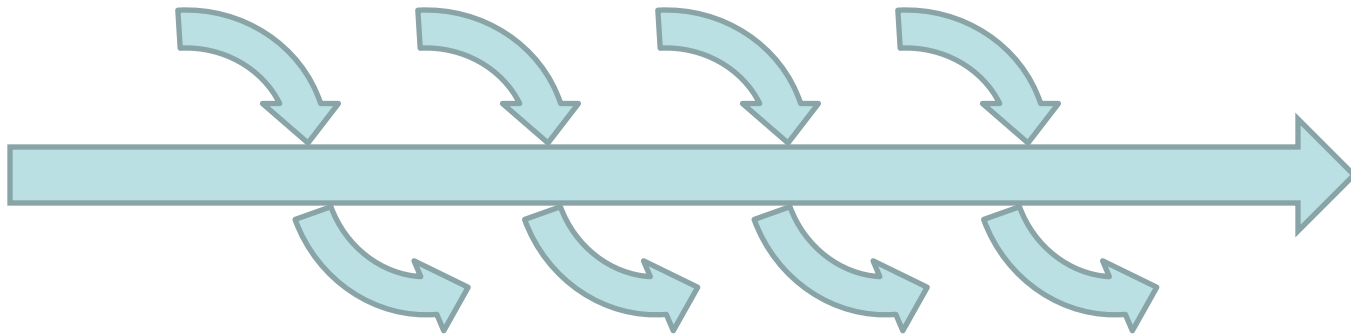
9. Engage the audience



10. How to dress? Avoid distractions



11. Have multiple Entry points



11. Have multiple Entry/Exit points



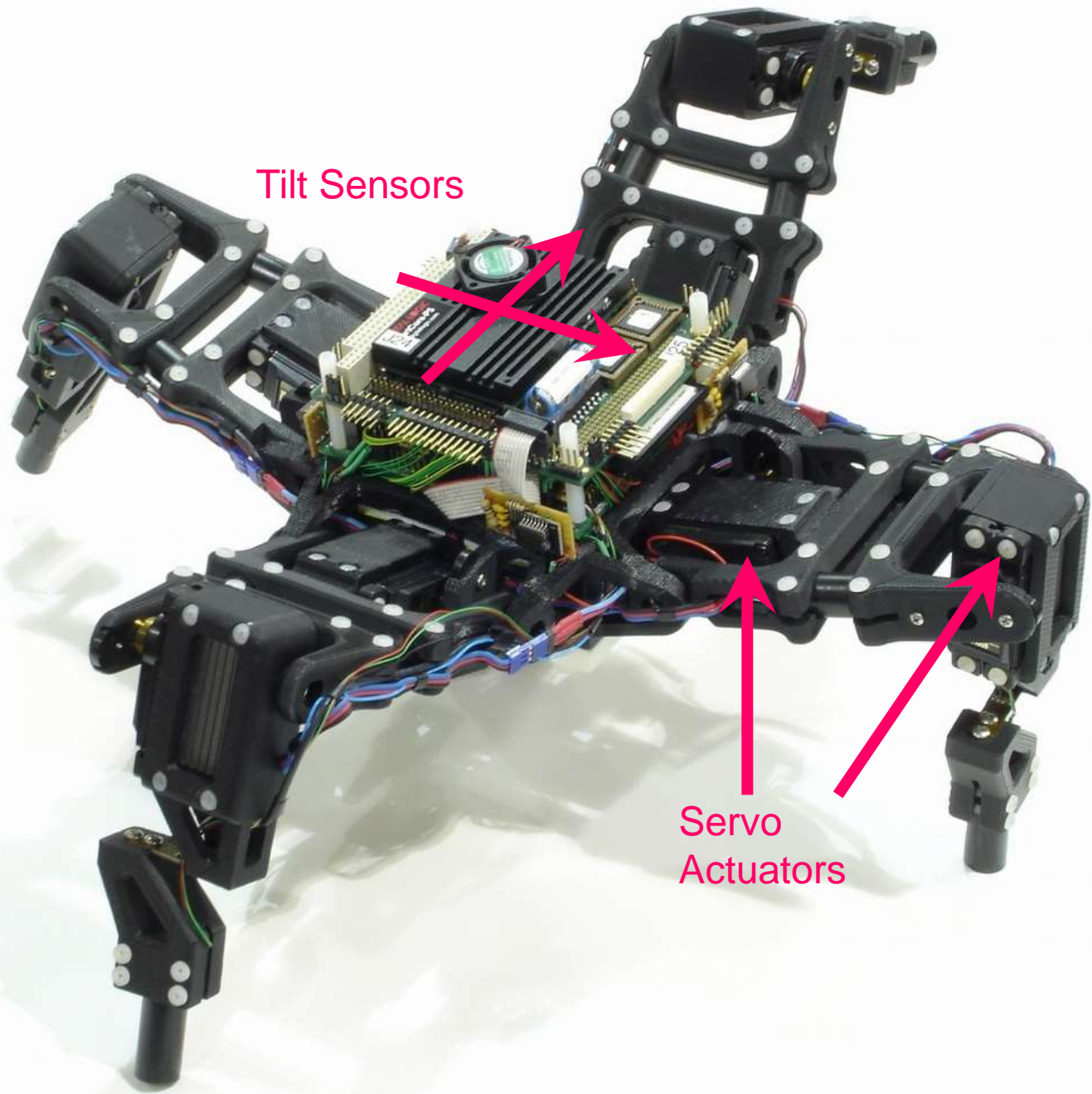
13. Never Apologize



14. Walk into the audience



15. Use a Clicker



Tilt Sensors

Servo
Actuators

Print Anything



16. Simple concluding message



17. Practice

How to remake your slide

The image shows a Beamer presentation slide titled "The Design Space". The slide is displayed in a window titled "www.pdf.com/...". The slide content includes:

- Title:** The Design Space
- Section:** Genetic operators: small mutations:
- List of mutations:**
 - Connect/remove small bar or unconnected neuron
 - Change bar length or neuron synapse
 - Split bar/vertex
 - Connect/disconnect neuron to bar (actuator)
- Diagram:** A 3D diagram showing a "Morphology (Body)" on a purple plane. It features a "Linear Actuator" (a bar), a "Ball joint", and a "Neuron" connected to a "Control (Brain)". A "Synapse" is also shown.
- Sequence of diagrams:** A sequence of six diagrams illustrating the evolution of a bar from a simple cylinder to a complex, branched structure.

The slide is part of a presentation with a sidebar on the left containing other slides:

- A basic evolutionary process
- Design Synthesis
- The Design Space
- The Design Space
- Quasi-Static Simulation
- Evolution for Localization

The status bar at the bottom indicates "Slide 7 of 36" and "10:00".

A basic evolutionary process

- Simulate a population of individuals
- Fitness
- Selection (e.g. fitness)
- Reproduction
- Mutation (e.g. replacement)
- Survival (e.g. selection)
- Crossover (e.g. recombination)

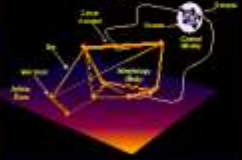
Design Synthesis

- Compose a set of genetic building blocks to meet a given design goal
- Example: Leg robot
 - Random sequences of blocks
 - Random sequences
 - Random physics
 - Allow to give fitness (regularly to achieve high level fitness)
 - Optimal results (regularly to achieve high level fitness)

The Design Space



The Design Space

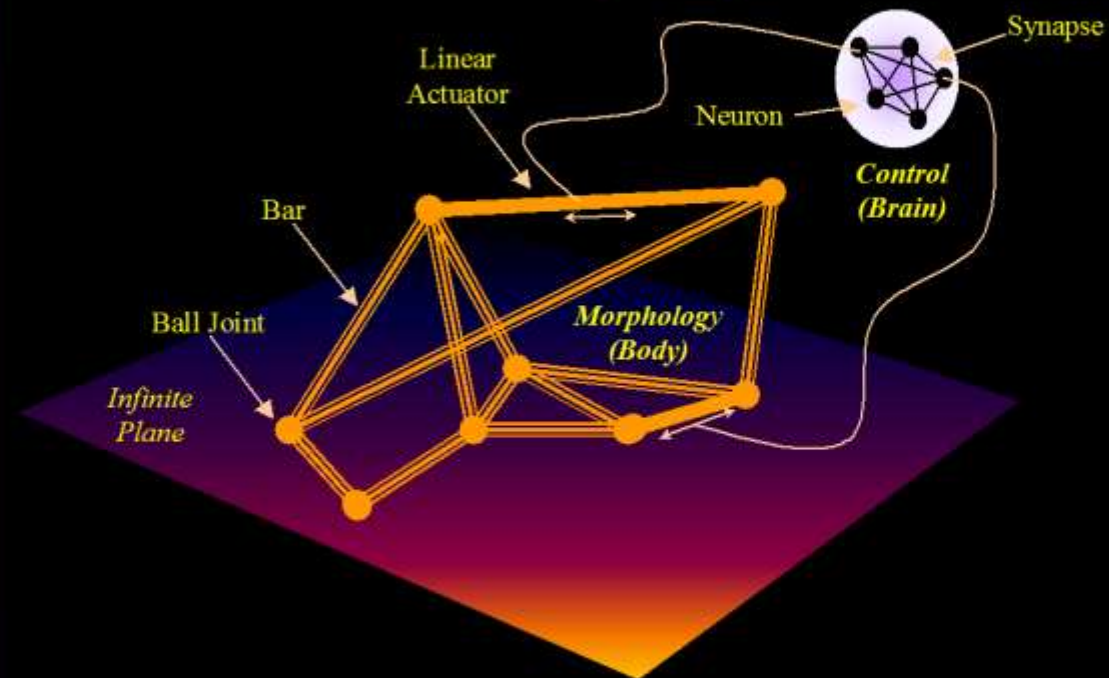


Quasi Static Simulator

- Each time a new robot is created
- Apply a set of genetic building blocks to meet a given design goal
- Example: Leg robot
- Random sequences of blocks
- Random sequences
- Random physics
- Allow to give fitness (regularly to achieve high level fitness)
- Optimal results (regularly to achieve high level fitness)

Evolving for Locomotion

The Design Space



Genetic operators: small mutations:

- Connect/remove small bar or unconnected neuron
- Change bar length or neuron synapse
- Split bar/vertex
- Connect/disconnect neuron to bar (actuator)

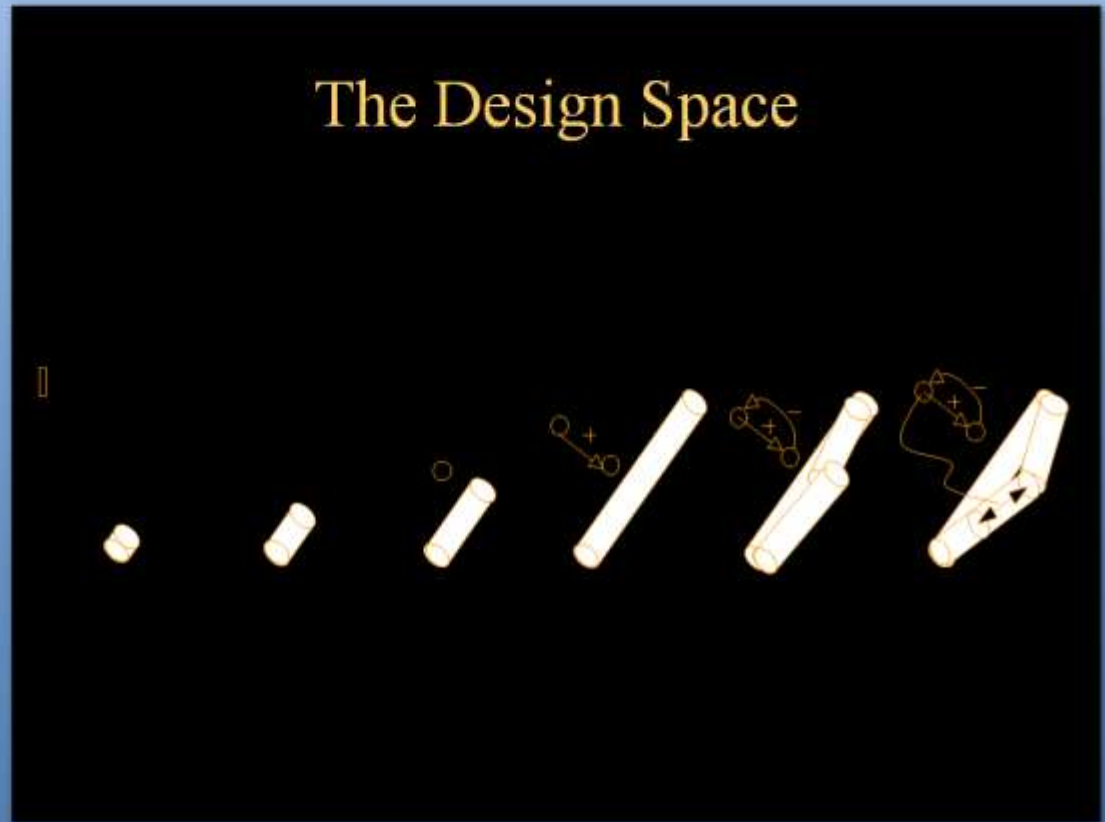
Home Insert Design Animations Slide Show Review View Acrobat

Clipboard Slides Font Paragraph Drawing

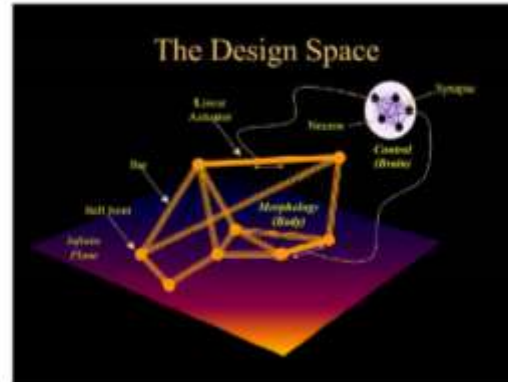
Slides Outline

- A basic evolutionary process
 - Simulate a population of individuals
 - Evolve
 - Selection: fitness
 - Reproduction & migration
 - Parameters: population size, mutation rate
 - Visualize evolutionary process, fitness
- Design Synthesis
 - Compose a set of given building blocks to meet a given design goal
 - Designing Lego set
 - Random exploration of blocks
 - Evolutionary algorithm
 - Design process
 - How to give fitness gradient to customer high level functionality?
 - Open-ended experimental evolution
- The Design Space
 - Design space
 - Evolutionary algorithm
 - Design process
 - How to give fitness gradient to customer high level functionality?
 - Open-ended experimental evolution
- The Design Space
 - Design space
 - Evolutionary algorithm
 - Design process
 - How to give fitness gradient to customer high level functionality?
 - Open-ended experimental evolution
- Quasi Static Simulator
 - Each beam is modeled as a beam
 - Compute the static deflection of the beam
 - Model the process of beam synthesis in a simulation
 - Beam synthesis
 - Beam synthesis
 - Beam synthesis
 - Beam synthesis
 - Beam synthesis
 - Beam synthesis
 - Beam synthesis
- Evolving for Locomotion

The Design Space



- Genetic operators:** small mutations:
- Connect/remove small bar or unconnected neuron
 - Change bar length or neuron synapse
 - Split bar/vertex
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Genetic operators: small mutations:

- Connect/remove small bar or unconnected neuron
- Change bar length or neuron synapse
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People Judge you on your Performance

Terri Sjodin



“OK” is not OK

Terri Sjodin



Willsboro
Community
Center
THIRD FLOOR

Make your points

Terri Sjodin



Don't rely on your Slides

Terri Sjodin



Gesture: Use body language

Terri Sjodin



Eliminate Distractions

Robert Gedaliah

Cut The Words Out

T J Walker

Don't read from your slides

T J Walker

Don't turn your back

T J Walker



Focus on Message
Don't worry about the questions

T J Walker

A man with short dark hair, wearing a dark suit jacket, a light blue dress shirt, and a maroon tie, is shown from the chest up. He is looking directly at the camera with a neutral expression. A small black microphone is clipped to his tie. The background is a warm, brownish-gold color with a soft, glowing light source on the right side, creating a subtle lens flare effect. At the bottom of the frame, the word "SpeakCast" is written in a bold, yellow, sans-serif font.

SpeakCast

Making Mistakes

T J Walker

One Thing At A Time

T J Walker

Too Many Numbers

T J Walker



"Speaking"
with
TJ Walker

What to Do With Your Hands

T J Walker

1
W ka e

11

Without Your Slides

T J Walker

