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## Research concept

*Imagine structures that could function like living systems changing their properties in response to changes in their environment...*

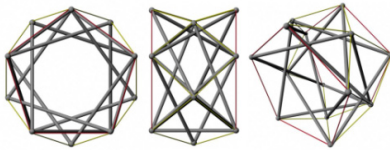
- Active structures adapt to changes in their environment by adjusting their properties.
- Deployable structures can modify their shape from compact to an expanded operational one.
- Tensegrity systems are made of struts and cables in a stable self-equilibrium and are particularly attractive for active and deployable structures due to low energy requirements.

## Research objective

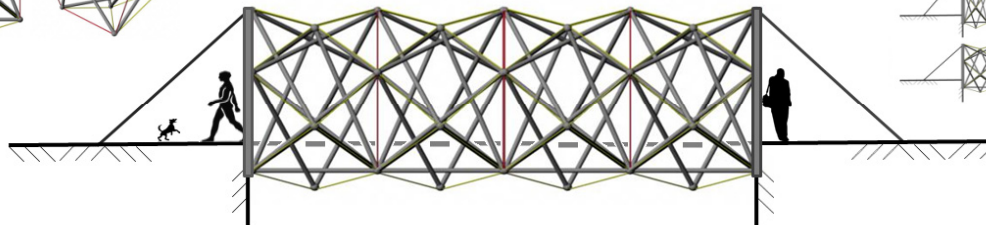
*Design a tensegrity pedestrian bridge that can change shape and properties using the same active control system...*

### STRUCTURAL DESIGN

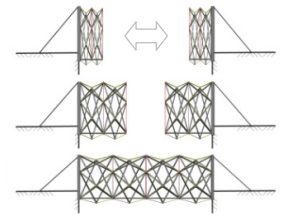
Search for an optimal form...



...design and analyze the bridge...

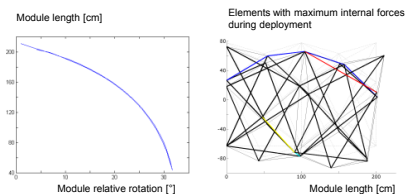


...and ensure deployment



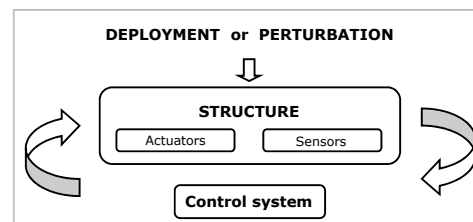
### ACTIVE CONTROL DESIGN

Develop an analysis algorithm...

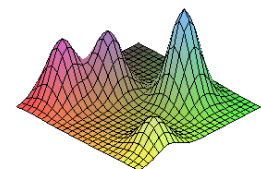


Deployment simulation using dynamic relaxation

...design the active control system...



...search for control commands



Complexity of the control-solution space: advanced computing required

### EXPERIMENTAL VALIDATION

From small scale and CAD models...



via similitude and modeling

...to a near full-scale bridge-model

