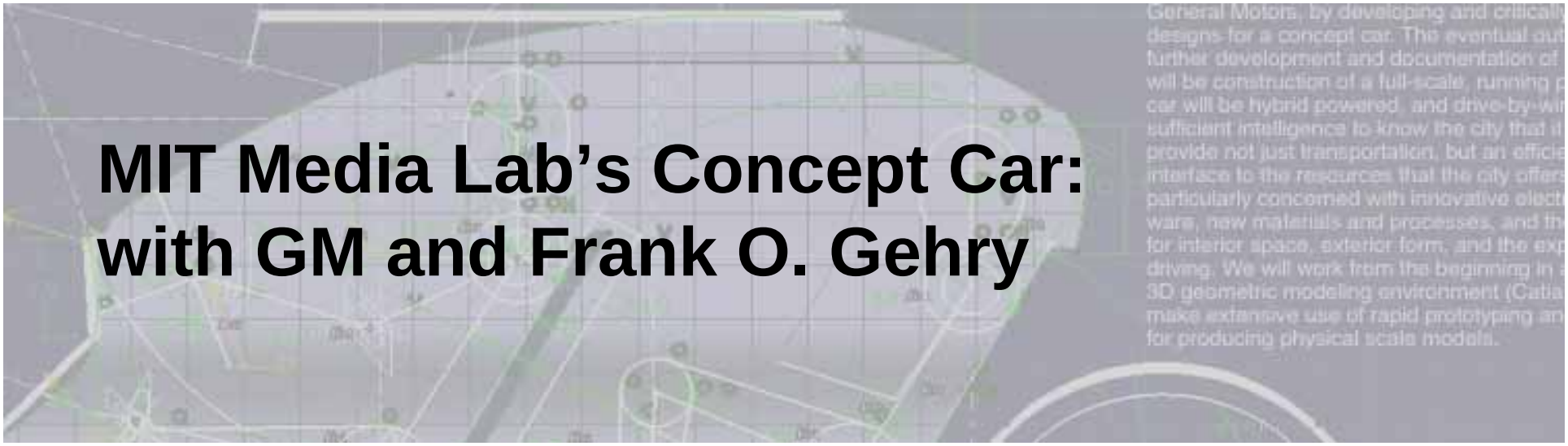

MIT Media Lab's Concept Car: with GM and Frank O. Gehry

Smart Cities Group

Professor William J. Mitchell
Head, Media Arts and Sciences Program

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Will Lark, MS Candidate
Phil Liang, MS Candidate
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MIT Media Lab

Oct 22, 2004

Collaborators:
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David Gerber, Safdie Fellow
Mitchell Joachim, PhD Candidate
Axel Kilian, PhD Candidate
Franco Vairani, Research Scientist

Concept Car with GM and Frank O. Gehry

1. Motor-Wheel

Electrically powered, independently controllable **wheels** with motor, suspension, brakes, and steering contained within each wheel assembly. Placing the suspension within the wheel itself is a significant innovation, and promises some important advantages. Each wheel has only two inputs: electrical power and digital data.

Goal: Create self-contained mobile units

Concept Car with GM and Frank O. Gehry

2. Exoskeleton

An **exoskeleton** that connects the wheels and supports the passenger cabin, storage units, and power source. This element can be optimized for structural efficiency, and (like the frame of a sophisticated bicycle) can become a major design feature.

Goal: High level of customization

Concept Car with GM and Frank O. Gehry

3. Drive-by-Wire

In place of traditional steering column and dashboard arrangements. This allows radical reconfiguration of the cockpit, treatment of the passenger compartment as a module that can readily be separated from the rest of the car, and creation of a multimedia driving experience that intelligently integrates data streams from a wide variety of sources and presents them to the driver and passengers in a customized, context-sensitive way.

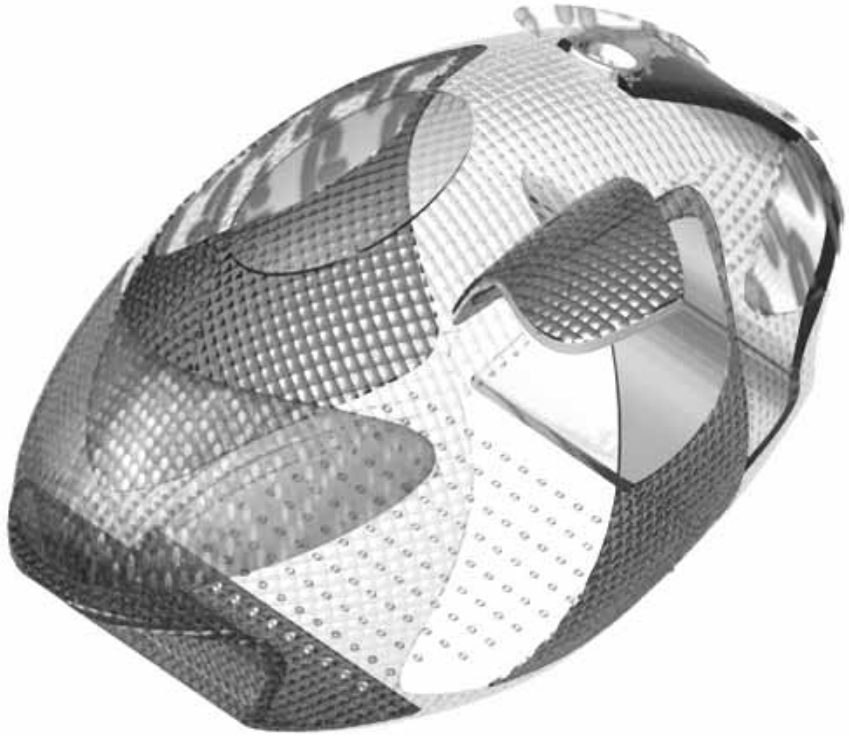
Goal: Interior Design Freedom

Concept Car with GM and Frank O. Gehry

General Motors, by developing and critically
designs for a concept car. The eventual out
further development and documentation of
will be construction of a full-scale, running p
car will be hybrid powered, and drive-by-wir
sufficient intelligence to know the city that it
provide not just transportation, but an efficie
interface to the resources that the city offers
particularly concerned with innovative electr
ware, new materials and processes, and th
for interior space, exterior form, and the exp
driving. We will work from the beginning in a
3D geometric modeling environment (Catia
make extensive use of rapid prototyping an
for producing physical scale models.

4. No Crumple

A lightweight, technologically advanced **passenger compartment** suspended safely within the exoskeleton, like an egg protected within an egg carton. This compartment need not be fabricated from sheetmetal and glass. It can exploit the possibilities of advanced materials and embedded electronics to provide high levels of visibility, safety, climate control, lighting, sensing capability, and interior displays. And it provides an opportunity to break away from the familiar automobile aesthetic of painted sheetmetal

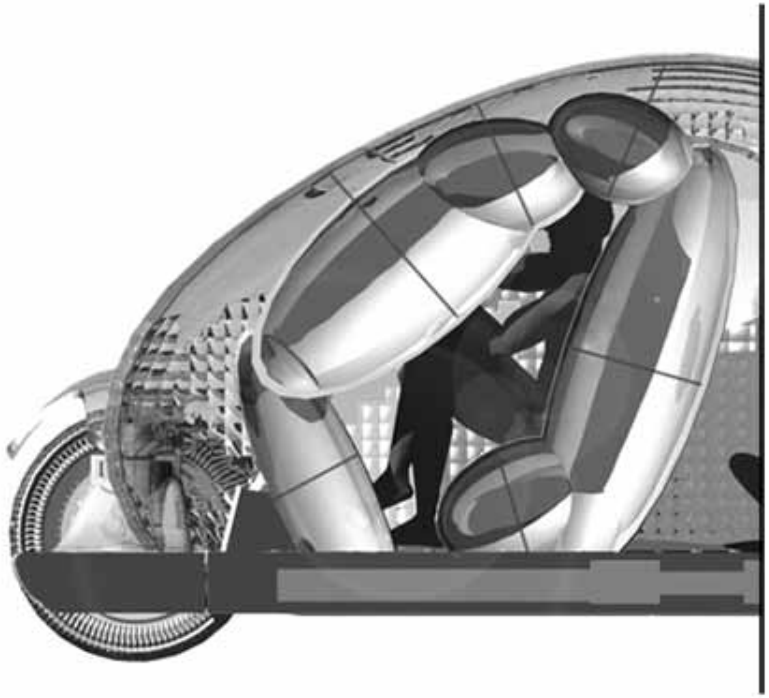


Concept Car with GM and Frank O. Gehry

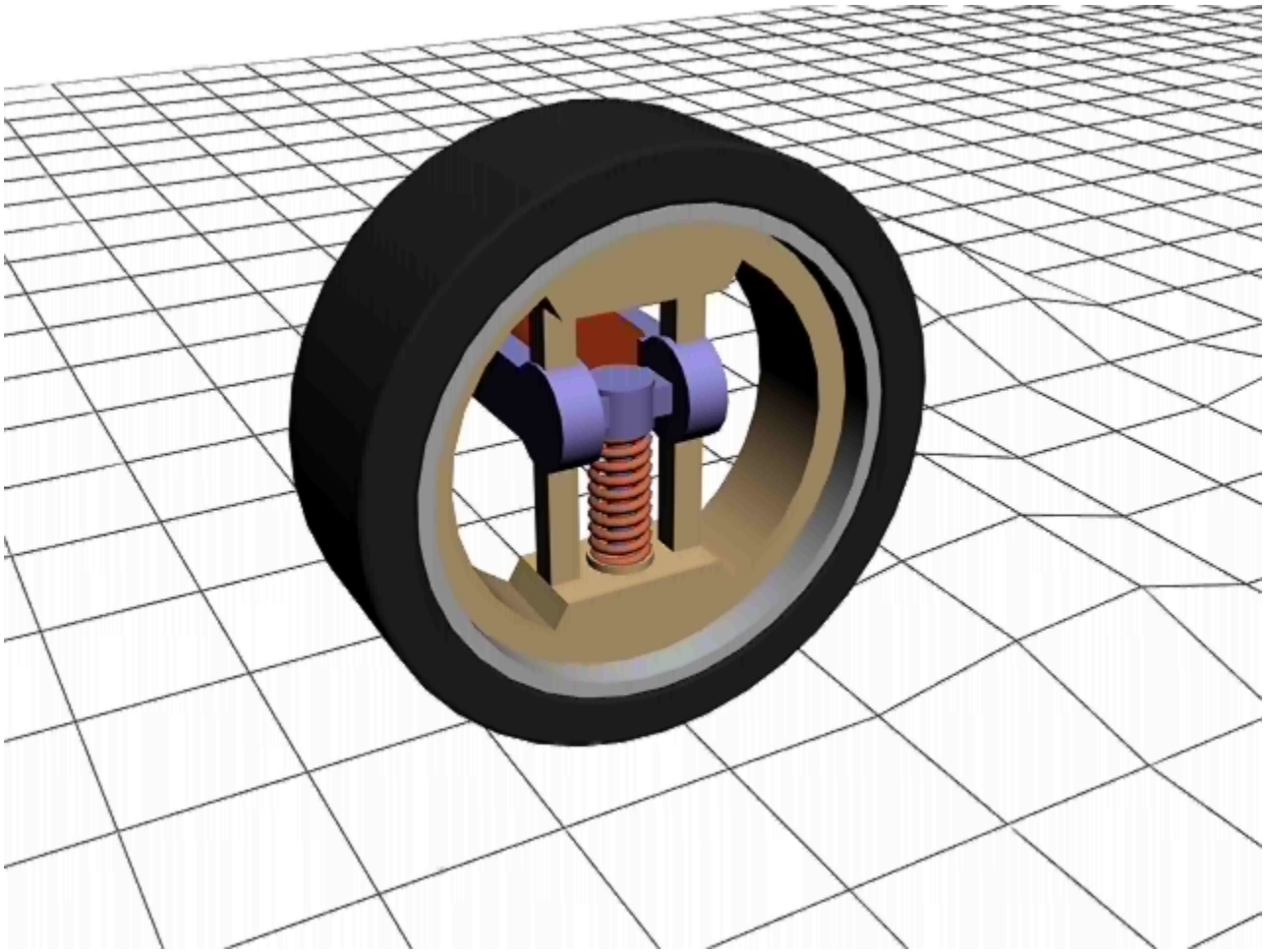
5. Hold Safely

Go beyond seatbelts and airbags. Think of the passenger seat, from the beginning, as a gentle robot that knows how to hold you safely and comfortably under any conditions that may be encountered.

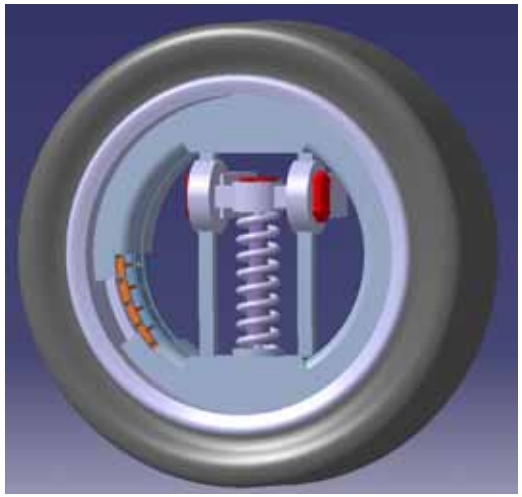
Goal: zero passenger deaths.

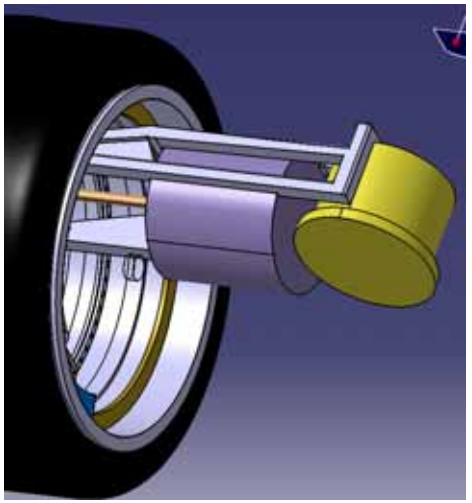


quick review in- wheel suspension

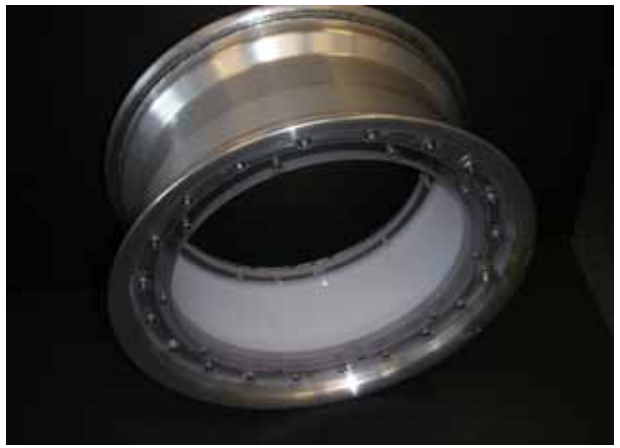


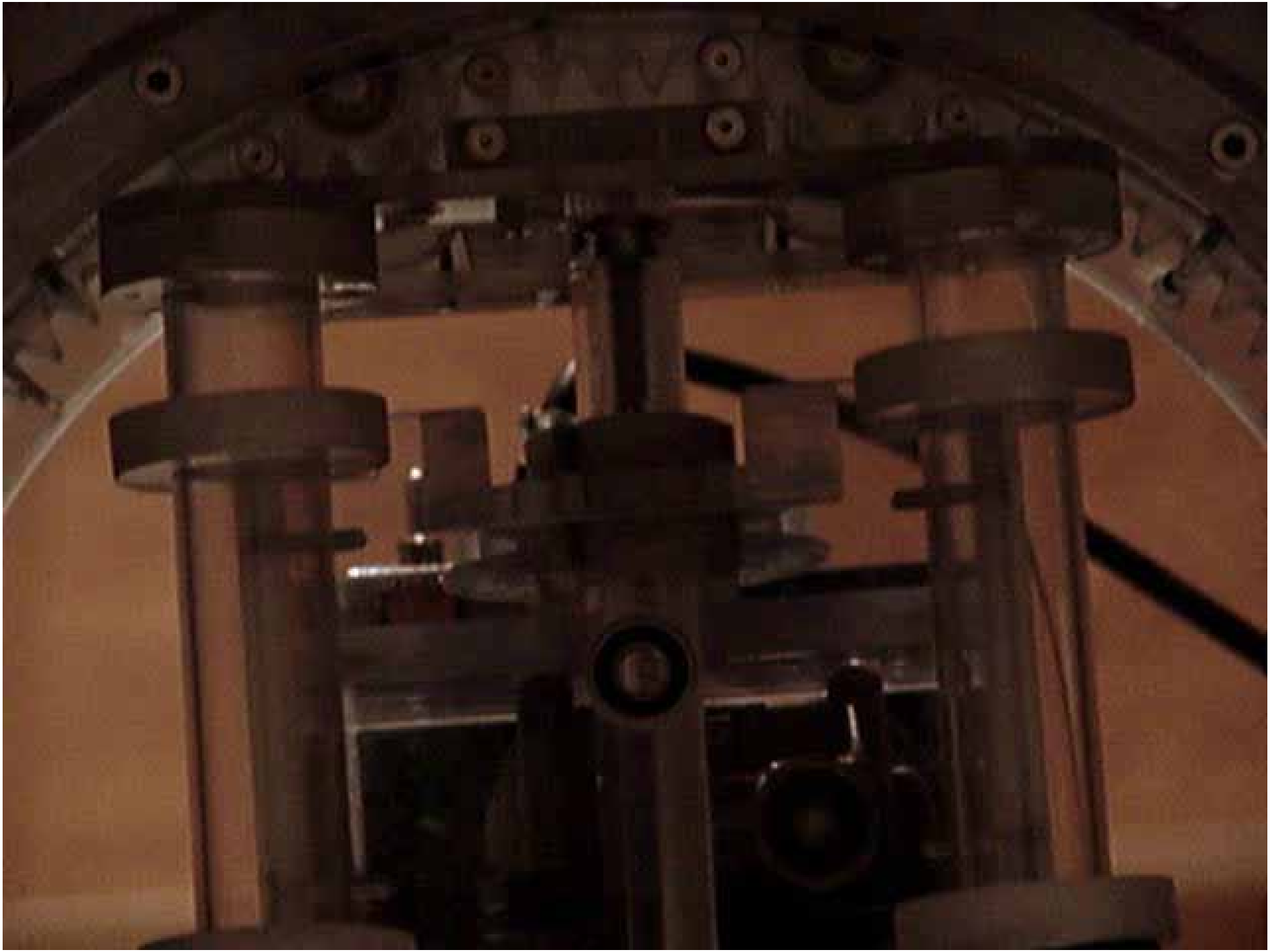
quick review in- wheel suspension

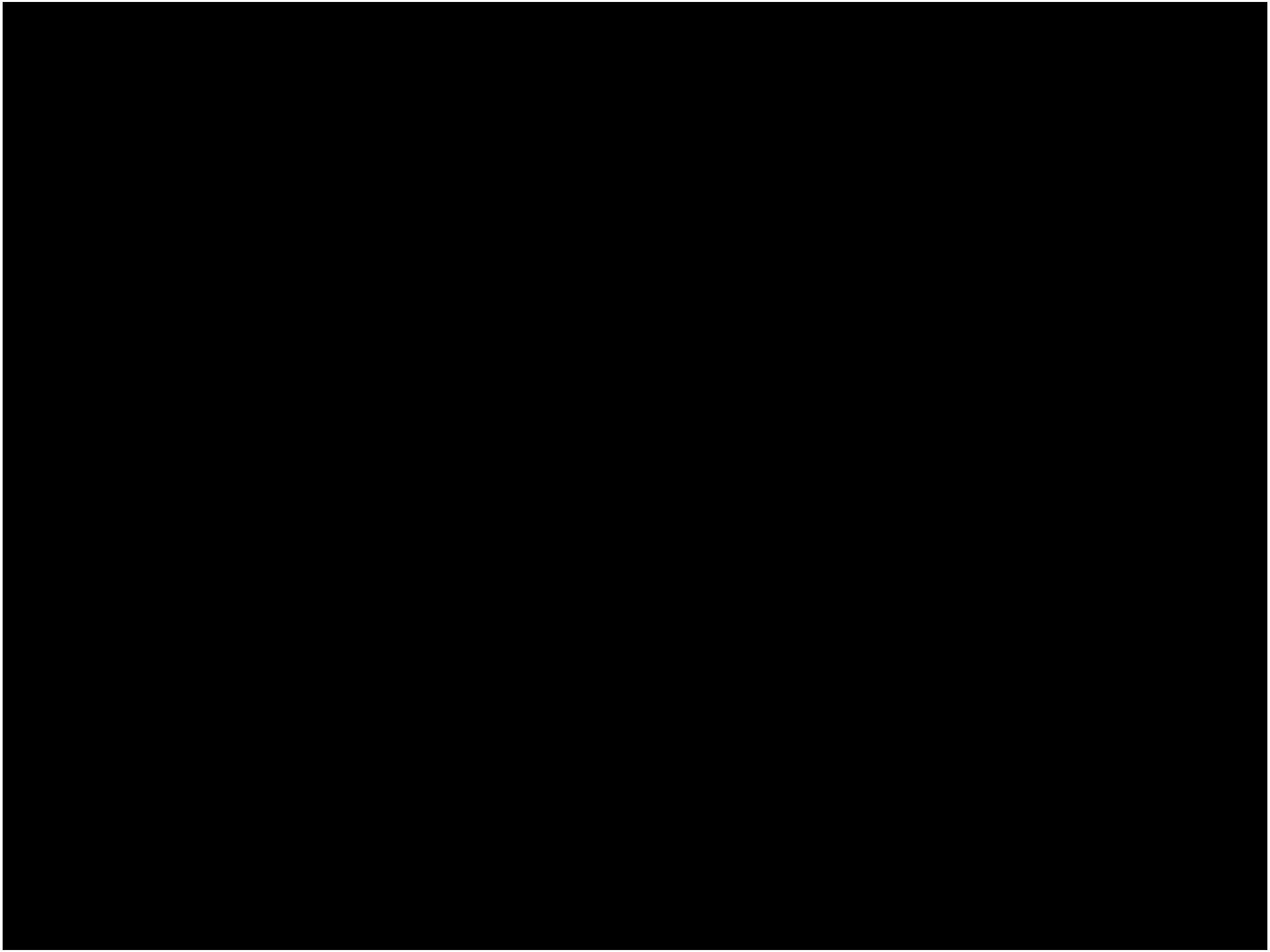


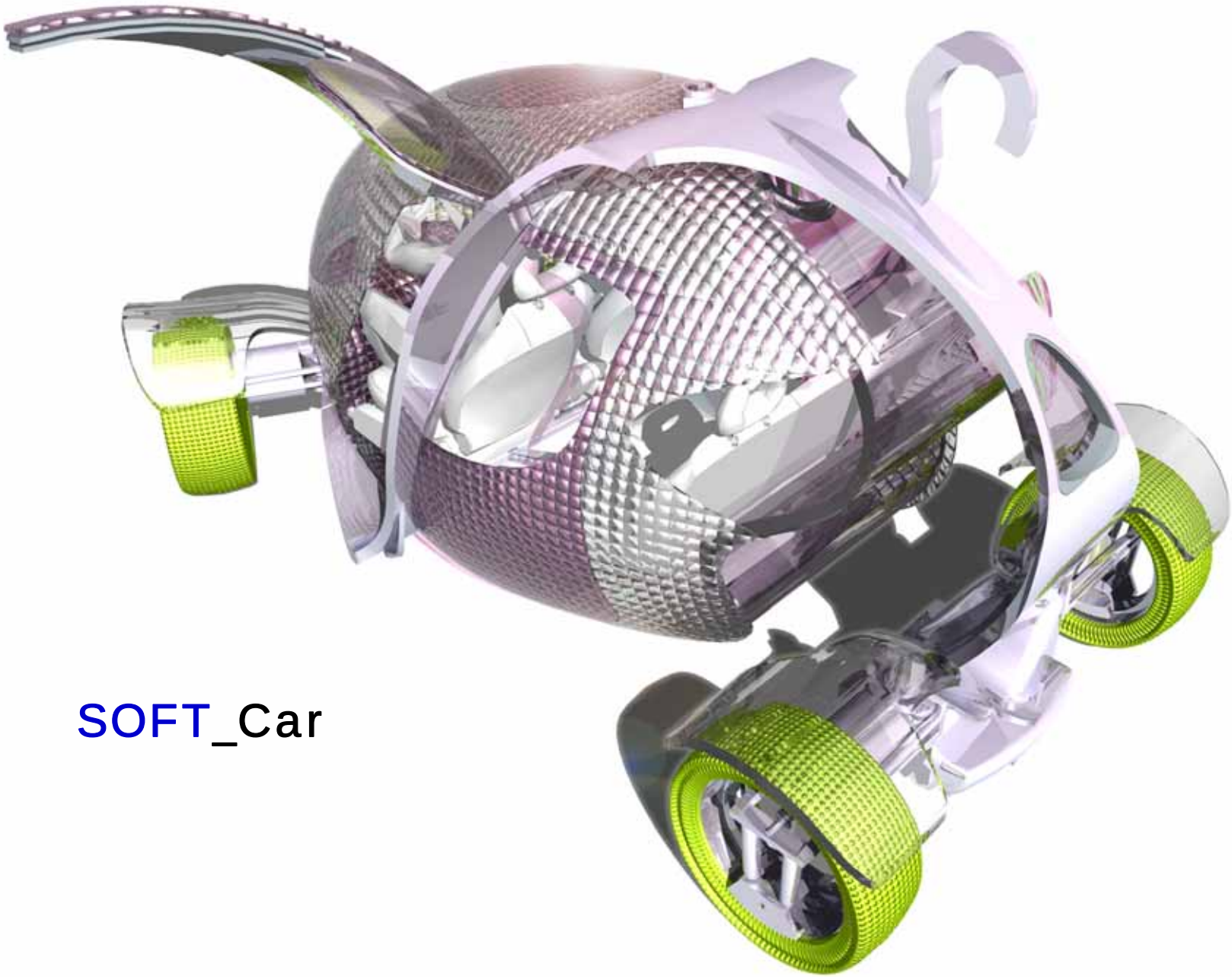


running prototype #1- a summer's work



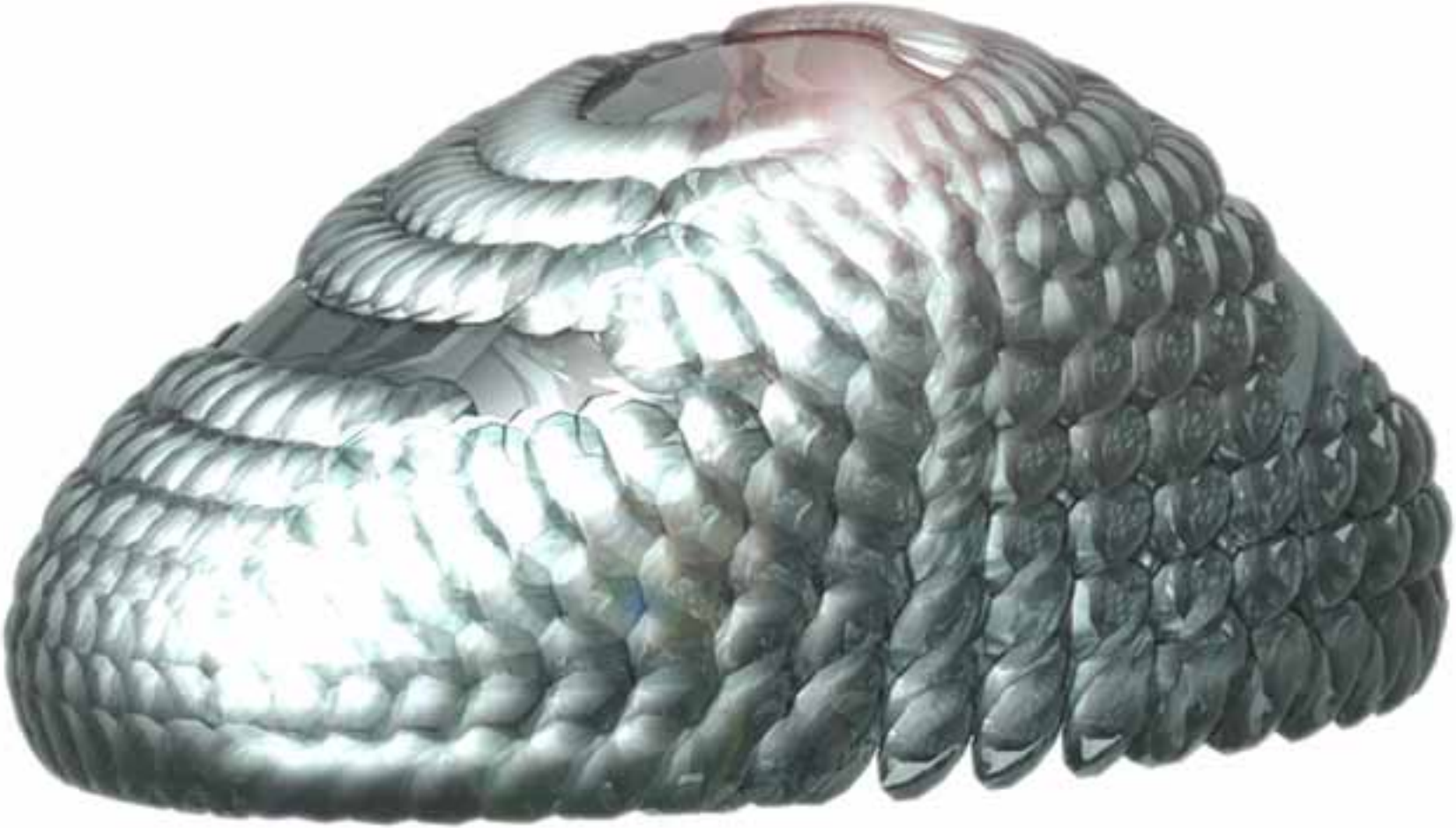




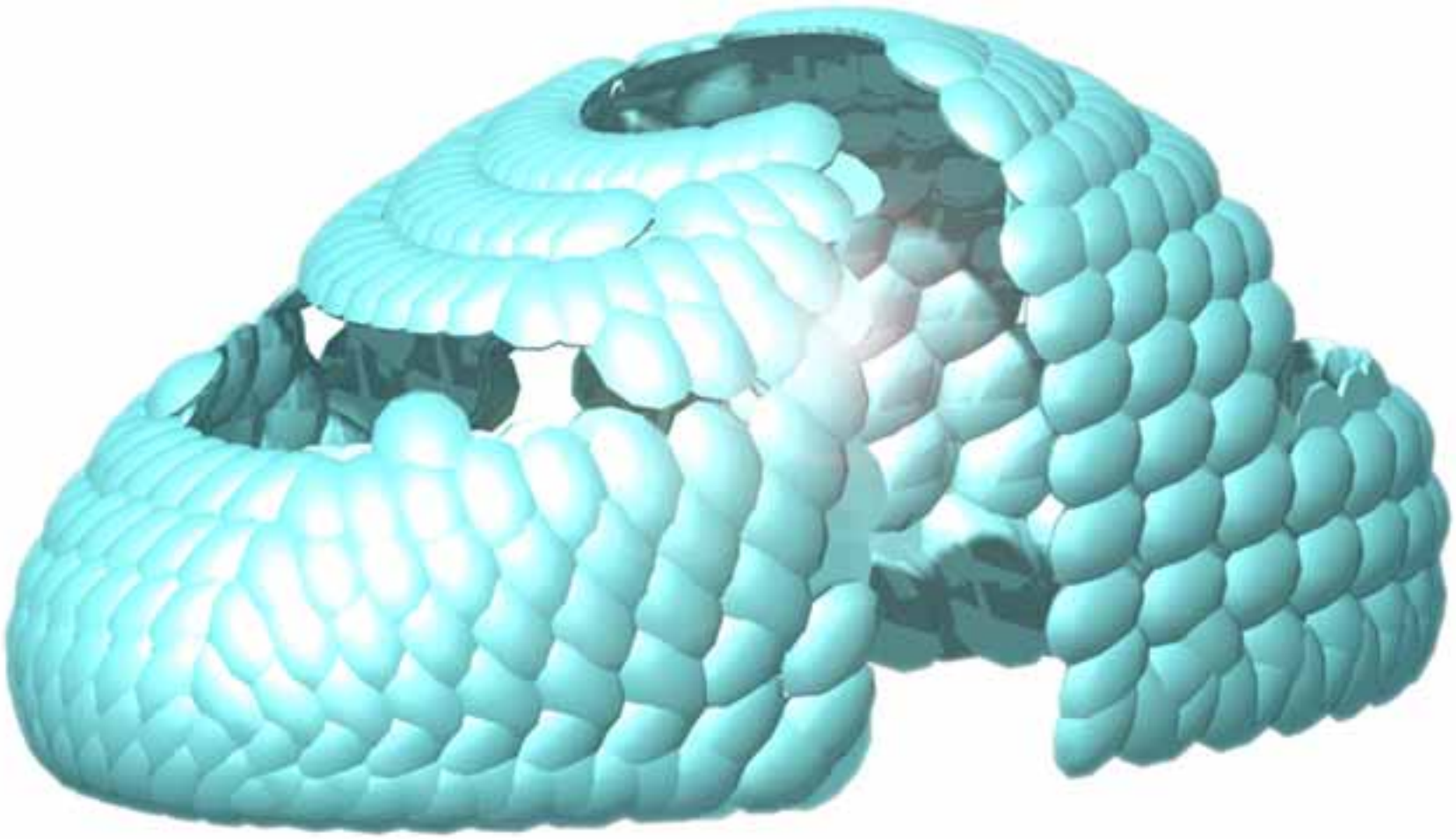


SOFT_Car

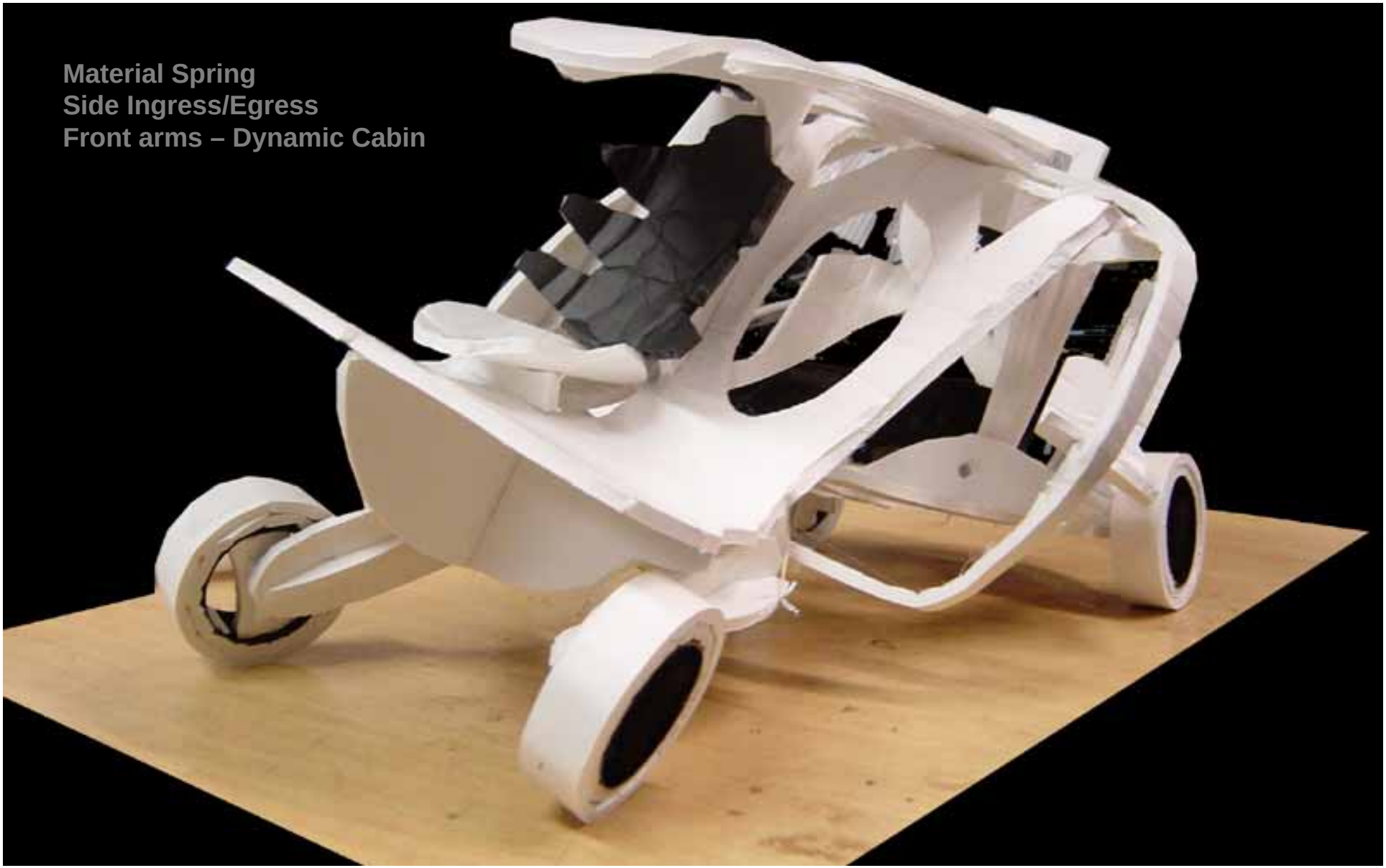
CAR_SOFT

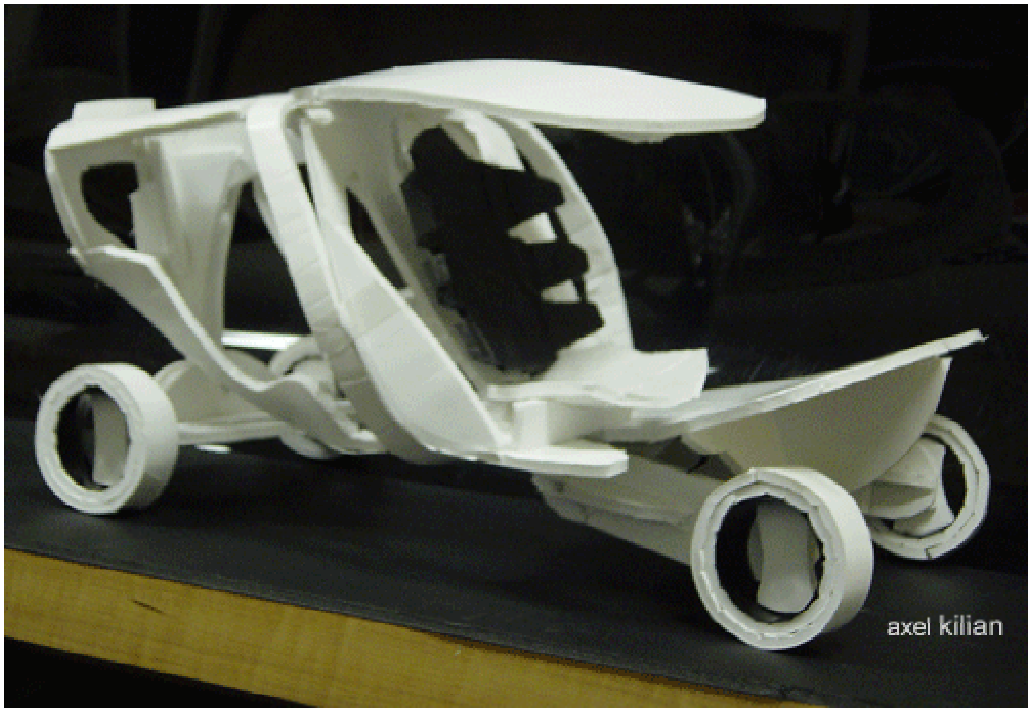


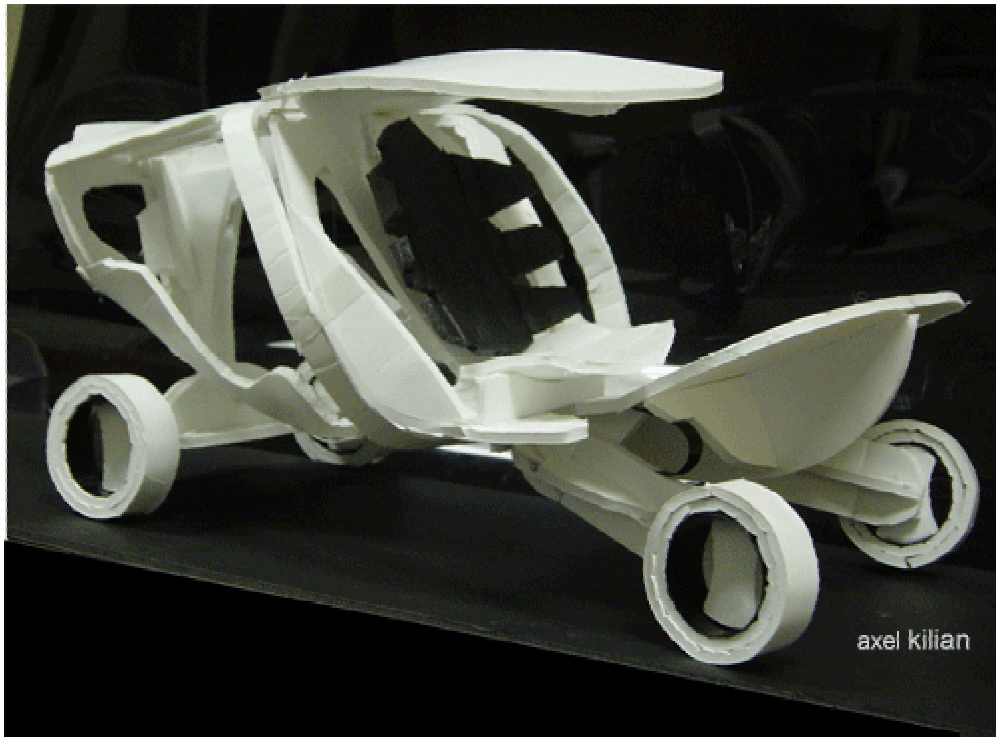
CAR_SOFT



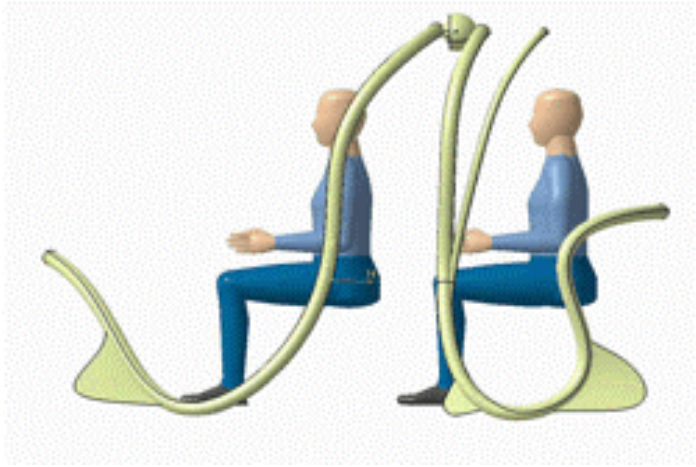
The Blahnik **/ Axel Kilian**

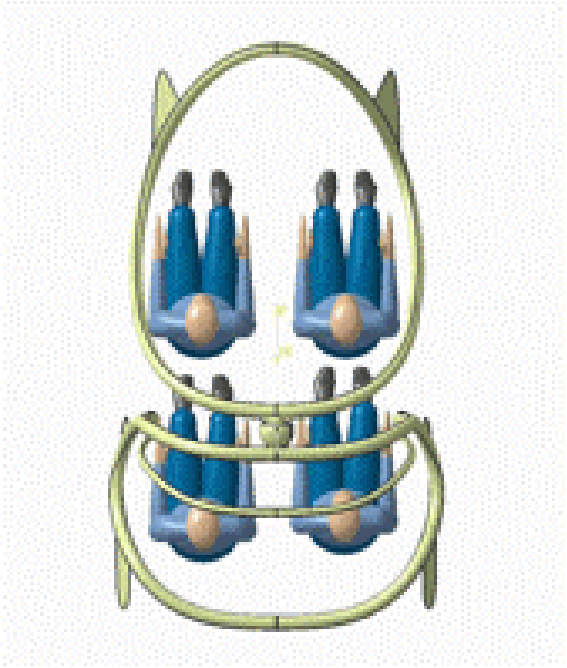


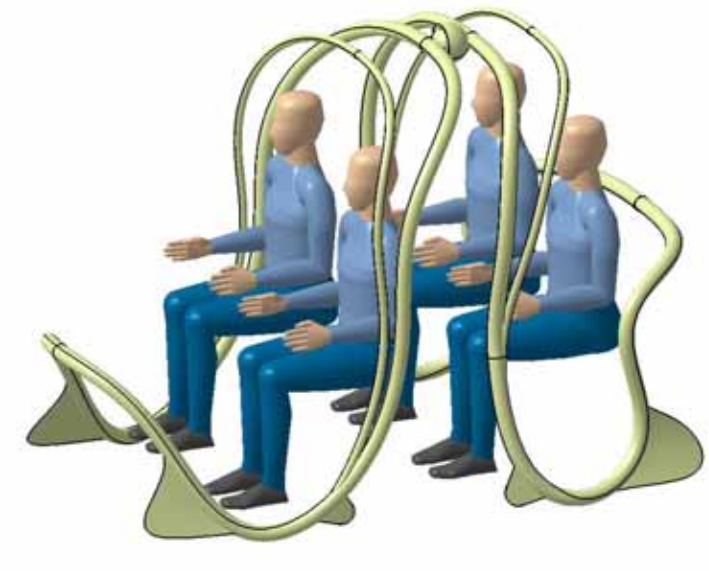

axel kilian


axel kilian

The Basket case / Will Lark



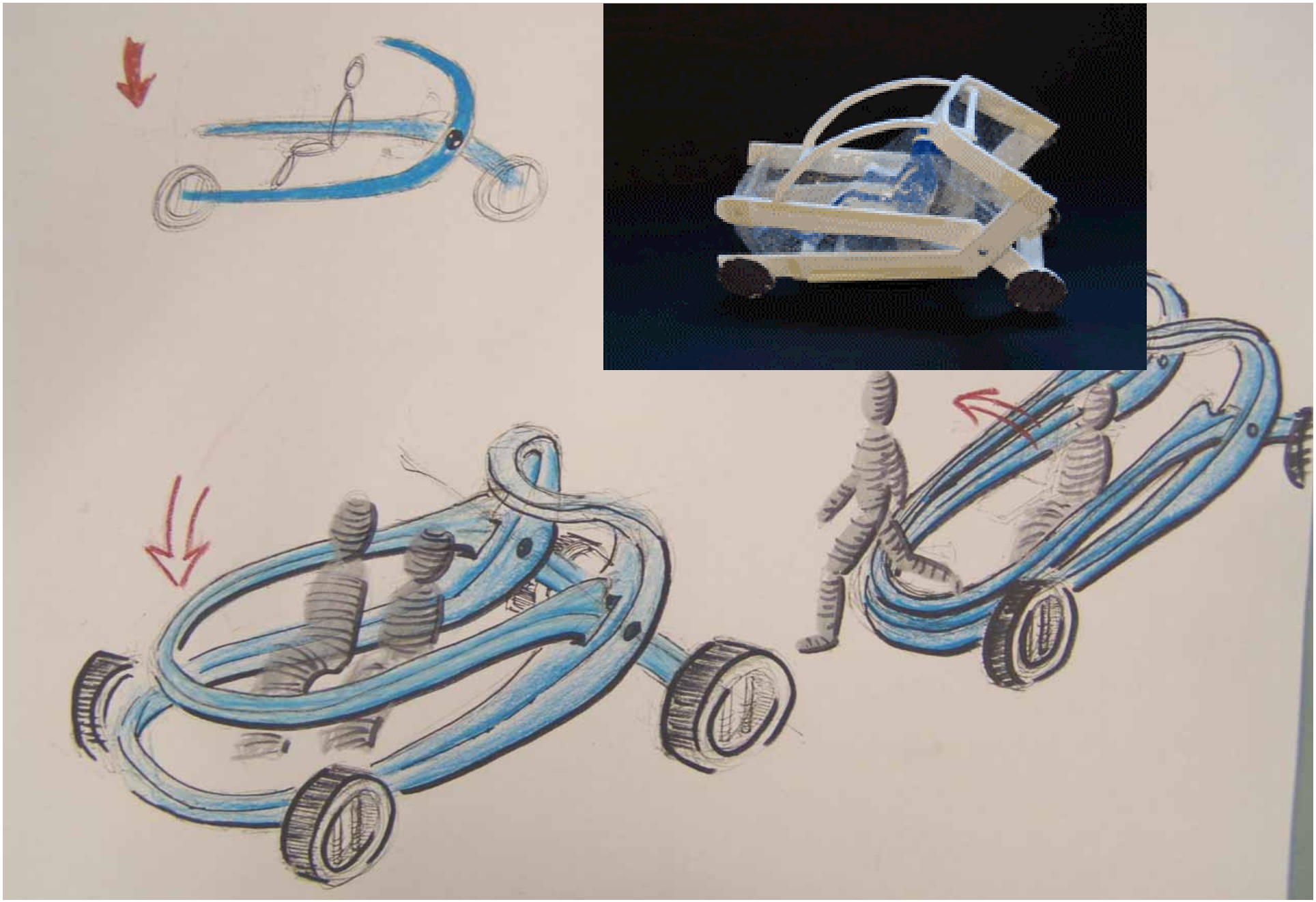




Dampening material placed between frame
Side & front Ingress/Egress
Twisting & Rocking frame – Dynamic Cabin

The Basket case / Will Lark

The Gator **/ Will Lark**



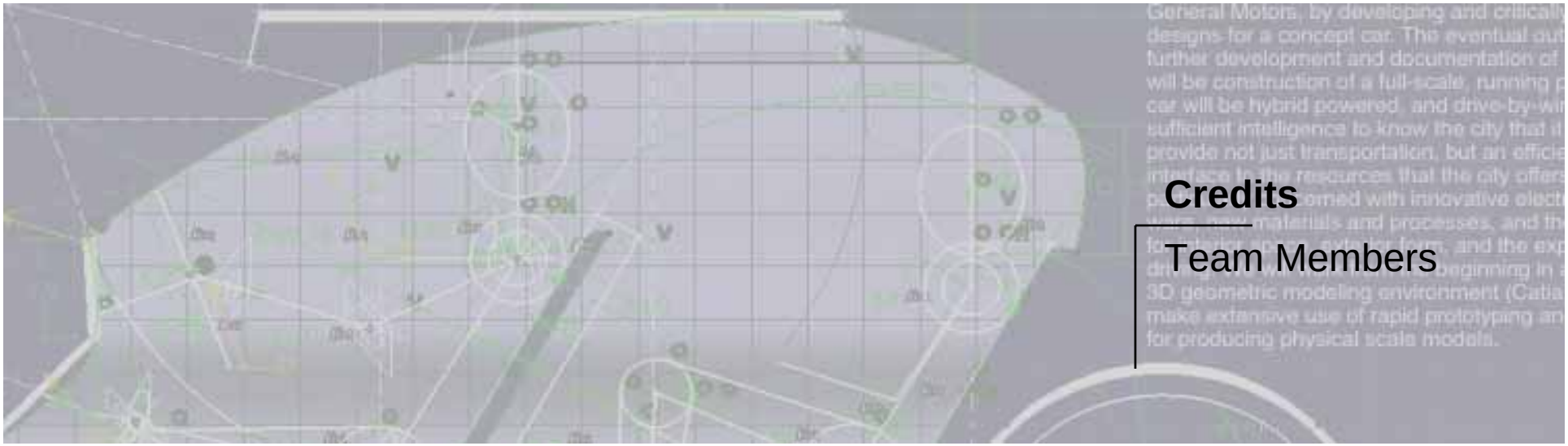
Design Space

Collaboration
Collaborative Research
Embot Design

D 762
23°
381
D 114.3

Car in the City

Wheels



Credits

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Frank O. Gehry

Studio Coordinator

Ryan Chin

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Betty Lou McClanahan

Course Collaborators

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Brian Chan

Chad Dyner

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Mitchell Joachim

Sotirios Kotsopoulos

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Ashwani Kumar

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Philip Liang

Yanni Loukissas

Anmol Madan

Raul-David Poblano

Olumuyiwa Oni

Christianna Raber

Andres Sevtsuk

Peter Schmitt

David Spectre

Maya Turre

Conor Walsh

Tiffany Yang

Giampaolo Zen