The webcast will start in a few minutes….

Automate AnyBody

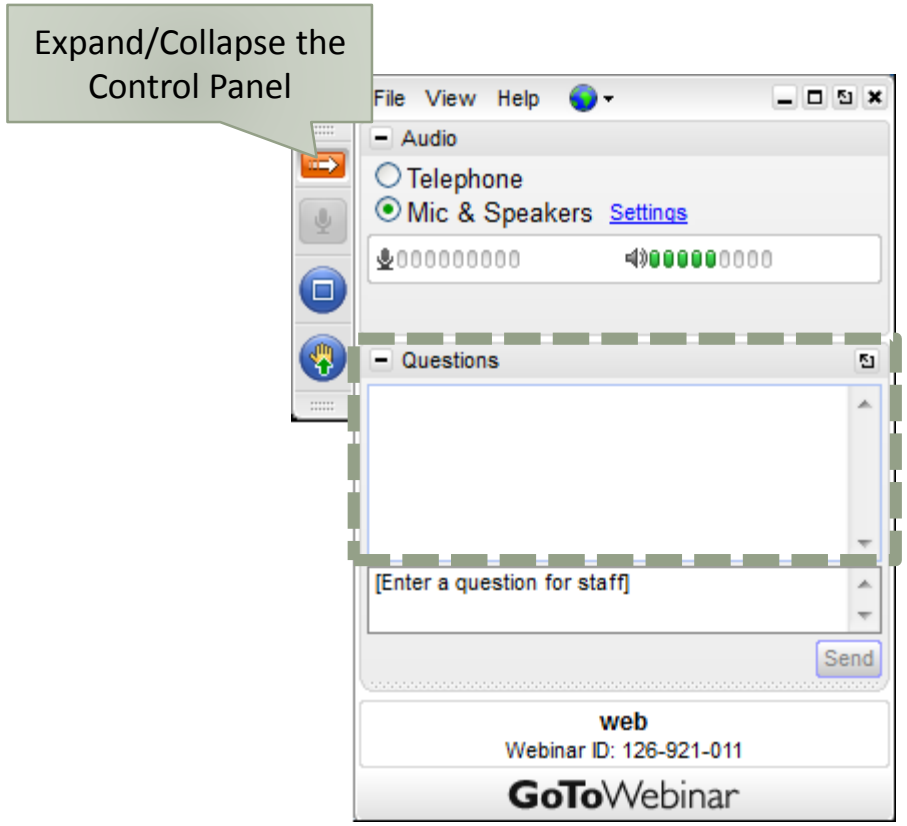
OR USING ANYBODY FROM PYTHON

Control Panel

The Control Panel appears on the right side of your screen.

Submit questions and comments via the Questions panel.

Questions will be addressed at the end of the presentation. If your question is not addressed we will do so by email.



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ANYBODY TECHNOLOGY

Automate AnyBody

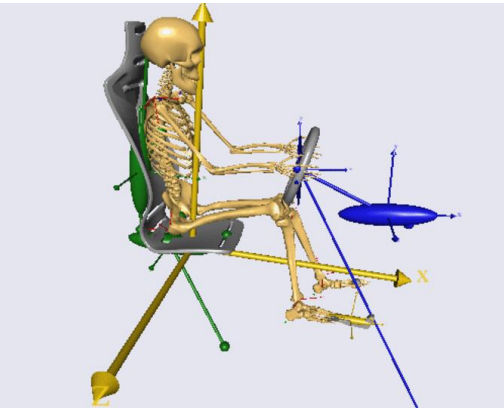
OR USING ANYBODY FROM PYTHON

Morten Enemark Lund
Application Engineer
AnyBody Technology

Why automate your simulations?

- Reproduce a work flow
- Batch process many models
- Explore the effect of different inputs

Last weeks webcast:
16000 simulations



Simulation of Automotive Ergonomics based on Populationspecific Anthropometrics.
Kasper Pihl Rasmussen
Aalborg University

Why automate your simulations?

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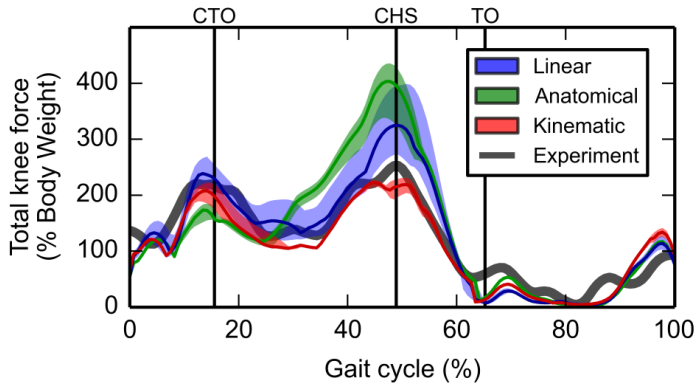


Shared area are ranges from a Monte Carlo study with 1000 model simulations. Uniform random offset to markers (+/− one marker diameter, 10 mm)

International Biomechanics, 2015
Vol. 2, No. 1, 1–11, http://dx.doi.org/10.1080/23335432.2014.993706

Taylor & Francis
Taylor & Francis Group

Scaling of musculoskeletal models from static and dynamic trials

Morten Enemark Lund[a]*, Michael Skipper Andersen[a], Mark de Zee[b] and John Rasmussen[a]

[a]*Department of Mechanical and Manufacturing Engineering, Aalborg University, Fibigerstræde 16, DK-9220 Aalborg, Denmark;*
[b]*Department of Health Science and Technology, Aalborg University, Frederik Bajers Vej 7D2, DK-9220 Aalborg, Denmark*

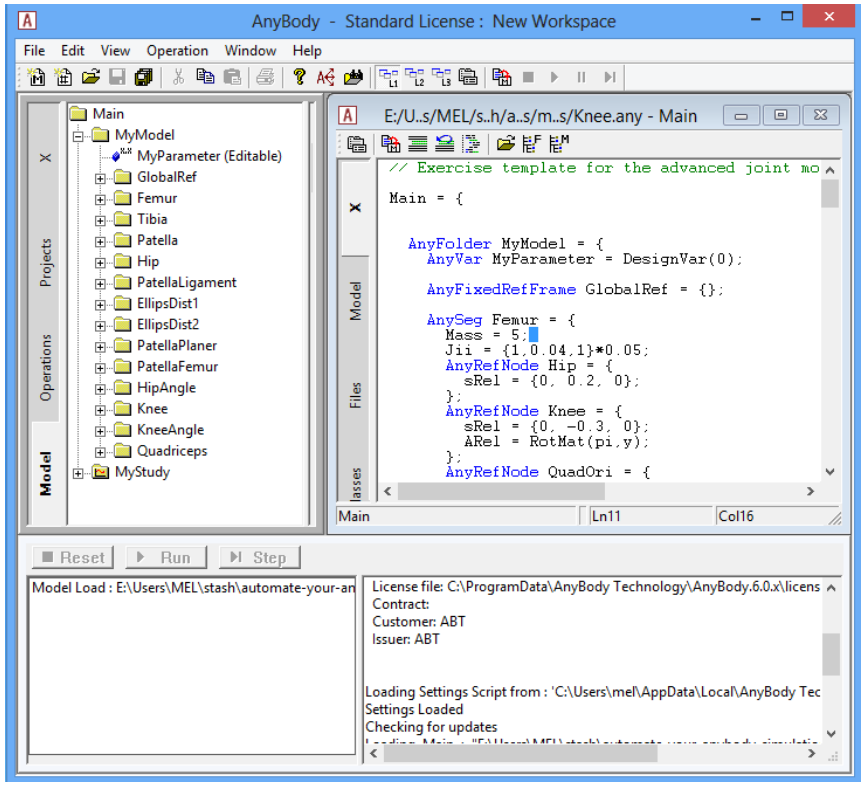
(*Received 30 June 2014; accepted 27 November 2014*)

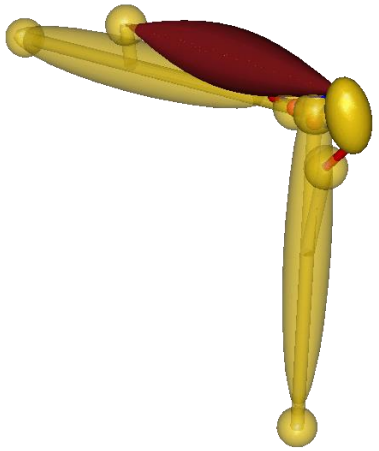
Subject-specific scaling of cadaver-based musculoskeletal models is important for accurate musculoskeletal analysis within multiple areas such as ergonomics, orthopaedics and occupational health. We present two procedures to scale 'generic' musculoskeletal models to match segment lengths and joint parameters to a specific subject and compare the results to a simpler approach based on linear, segment-wise scaling. By incorporating data from functional and standing reference trials, the new scaling approaches reduce the model sensitivity to assumed model marker positions. For valida-

Model example for this tutorial

Single main file ”Knee.any”

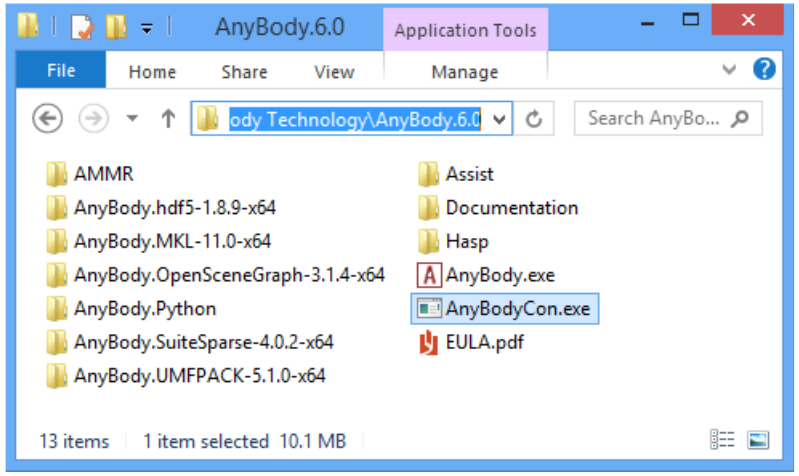
Simple model that runs fast





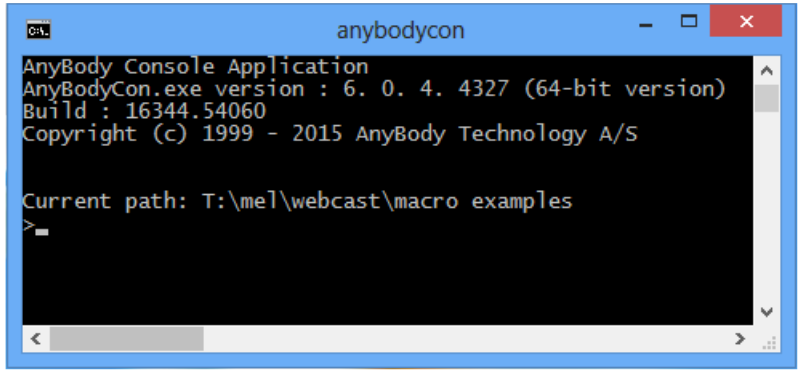
The console application

The AnyBody Modeling System without the graphical user interface (GUI)



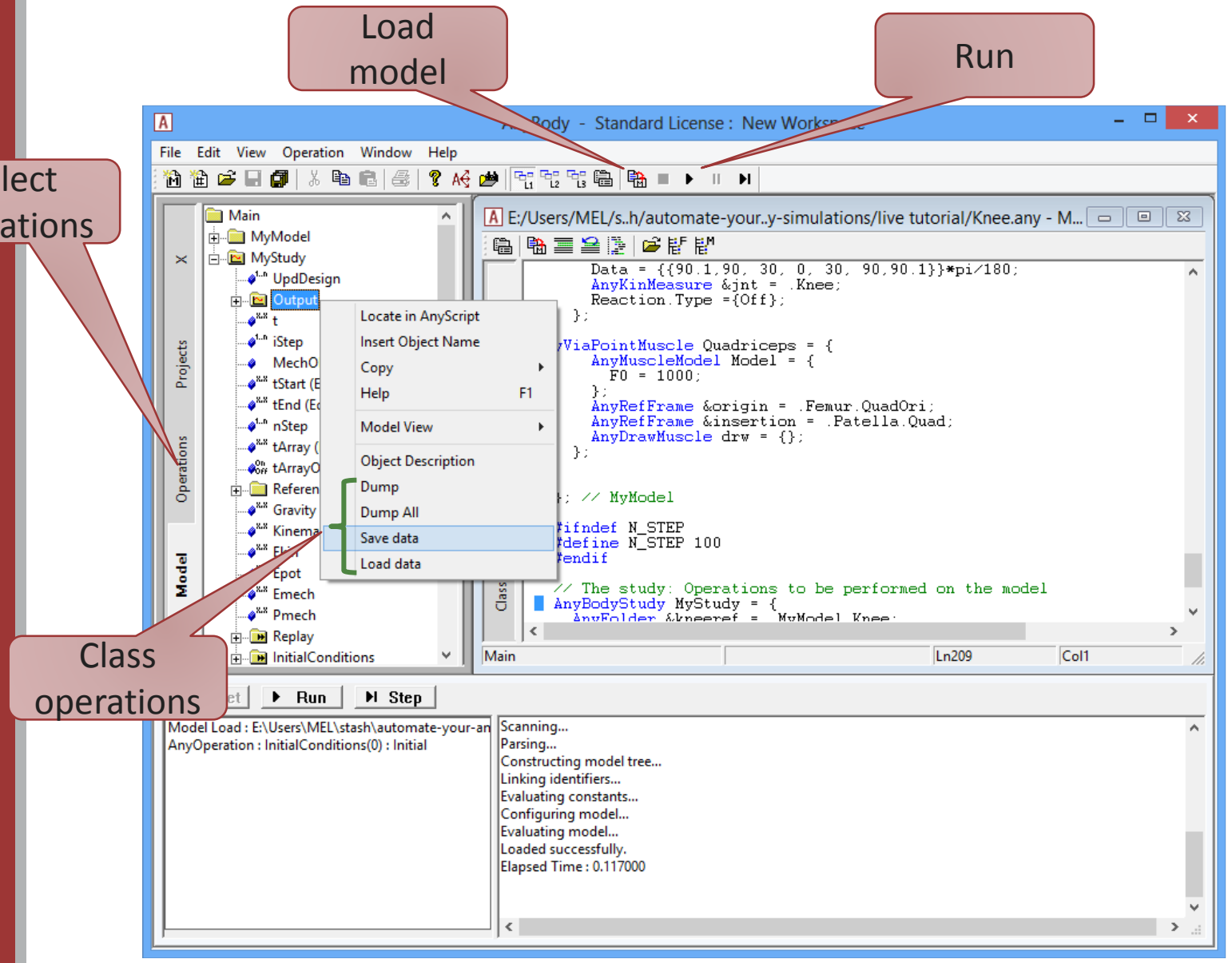
Accepts macro commands:

```
load "filename.any"  [arguments]
   Arguments:
    -def <identifier>=<value>
    -p <path-identifier>=<dir-path>
```

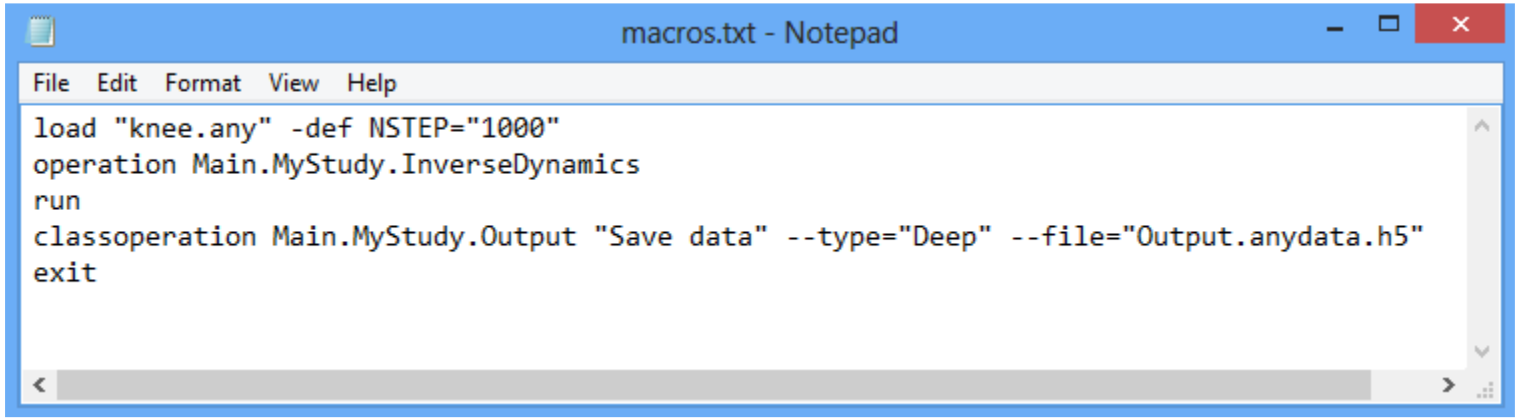


AnyScript Macros

- `load <"file name"> [arg]`
- `operation <opr_name>`
- `run`
- `classoperation <obj> <cmd> [arg]`
- `exit`



Creating a macro file

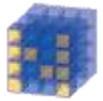


Launch the AnyBodyCon.exe with the file

Running Anybody from Python

python™ Modern object oriented language
Quick and easy to learn

Large ecosystem of libraries for math, science and engineering


NumPy
N-dimensional arrays


SciPy
Library of scientific functions


Matplotlib
Plotting library

IP[y] IPython
Iteractive computing

Many more…

Next: Live Examples