**Example Models for Discovery and Design**

Read about one real example of how a model is used to aid discovery, design, product development, or business competitiveness from the list provided below.

Use the answer template **simulationuse\_assignment** to fill in the answers to all the questions that are applicable to this project. If your example does not cover a particular subtopic, indicate that in your write-up as “Not Applicable”.  The template is in rich text format. Download a copy of the document, add your answers, save, and then submit them to your instructor.

1. Monitoring the US Economy – Starting on page 62 of the PITAC report.
2. Discovering Brown Dwarves via Data Mining – Starting on page 69 of the PITAC report
3. Modeling Real-Time Complex Systems in the Human Environment – Starting on page 72 of the PITAC report
4. Dynamic Modeling of the Spread of Infectious Disease – Starting on page 73 of the PITAC report
5. Predicting severe storms - <http://www.psc.edu/science/2004/droegemeier/retwistered_twister.php>
6. Discovering oil reserves - <http://access.ncsa.uiuc.edu/Stories/oil/>
7. Modeling Ozone levels in the atmosphere - <http://www.epa.gov/scram001/modelingapps_photo.htm> Read the slide set from the first link. This one contains a lot of lingo so you may need to refer to this site or ask for help to translate: <http://www.epa.gov/air/caa/peg/>
8. Toyota uses MATLAB for design

<http://www.mathworks.com/company/user_stories/MATLAB-and-Simulink-Help-Toyota-Design-for-the-Future.html>

1. Breakthroughs in Brain Research <http://www.compete.org/publications/detail/503/breakthroughs-in-brain-research-with-high-performance-computing/>
2. Auto crash safety <http://www.compete.org/publications/detail/390/grand-challenge-case-study-auto-crash-safety/>
3. Vehicle design <http://www.compete.org/publications/detail/388/grand-challenge-case-study-vehicle-design/>
4. P&G Bottle Design <http://phx.corporate-ir.net/phoenix.zhtml?c=104574&p=irol-newsArticle&ID=651774&highlight>= and <http://www.scienceinthebox.com/en_UK/sustainablehome/4_2_2.html>
5. Competition in refrigeration <http://www.ansys.com/staticassets/ANSYS/staticassets/resourcelibrary/confpaper/2002-Int-ANSYS-Conf-55.PDF>
6. Glass industry <http://www.ansys.com/staticassets/ANSYS/staticassets/resourcelibrary/article/AA-V2-I1-Submerged-Combustion-Melting.pdf>
7. U.S. Air Force training <http://www.afams.af.mil/shared/widgets/popup.asp?url=http://www.afams.af.mil/shared/xml/rssVideo.asp?mrsstype=2&id=207&cid=250&pos=0>
8. Auto racing <http://www.fluent.com/solutions/sports/tn272.pdf>
9. Modeling bone [http://www.ansys.com:80/staticassets/ANSYS/staticassets/resourcelibrary/article/AA-V5-I2-Cut-to-the-Bone.pdf](http://www.ansys.com/staticassets/ANSYS/staticassets/resourcelibrary/article/AA-V5-I2-Cut-to-the-Bone.pdf)
10. Inhalers [http://www.ansys.com:80/staticassets/ANSYS/staticassets/resourcelibrary/article/AA-V2-I1-Ins-and-Outs-of-Inhalers.pdf](http://www.ansys.com/staticassets/ANSYS/staticassets/resourcelibrary/article/AA-V2-I1-Ins-and-Outs-of-Inhalers.pdf)