KTH Mekanik

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5C1106 Tillämpad fysik, mekanik, 4 poäng (6 ECTS)

Projekt: Fallande katt

Why does a cat have nine lives? Perhaps, the main reason is that she nearly always manages to land on her feet. When dropped toward the floor from an upside-down position, the cat turns her body by means of very quick swinging motions of her hind legs and tail. This act seems to violate conservation of angular momentum. Does it?

1. Make a model of the cat which describes how the turning takes place and which turning angles will appear in the turning model.

2. Include in the analysis also if you find a minimum falling distance below which it might be more dangerous for the cat to fall than from higher altitudes.

3. What triggers the cat to start to turn and why may she fall from high altitudes only being slightly injured?

4. You may want to supplement your turning model with a computer animation. I can lend you software that can minimize the programming work.