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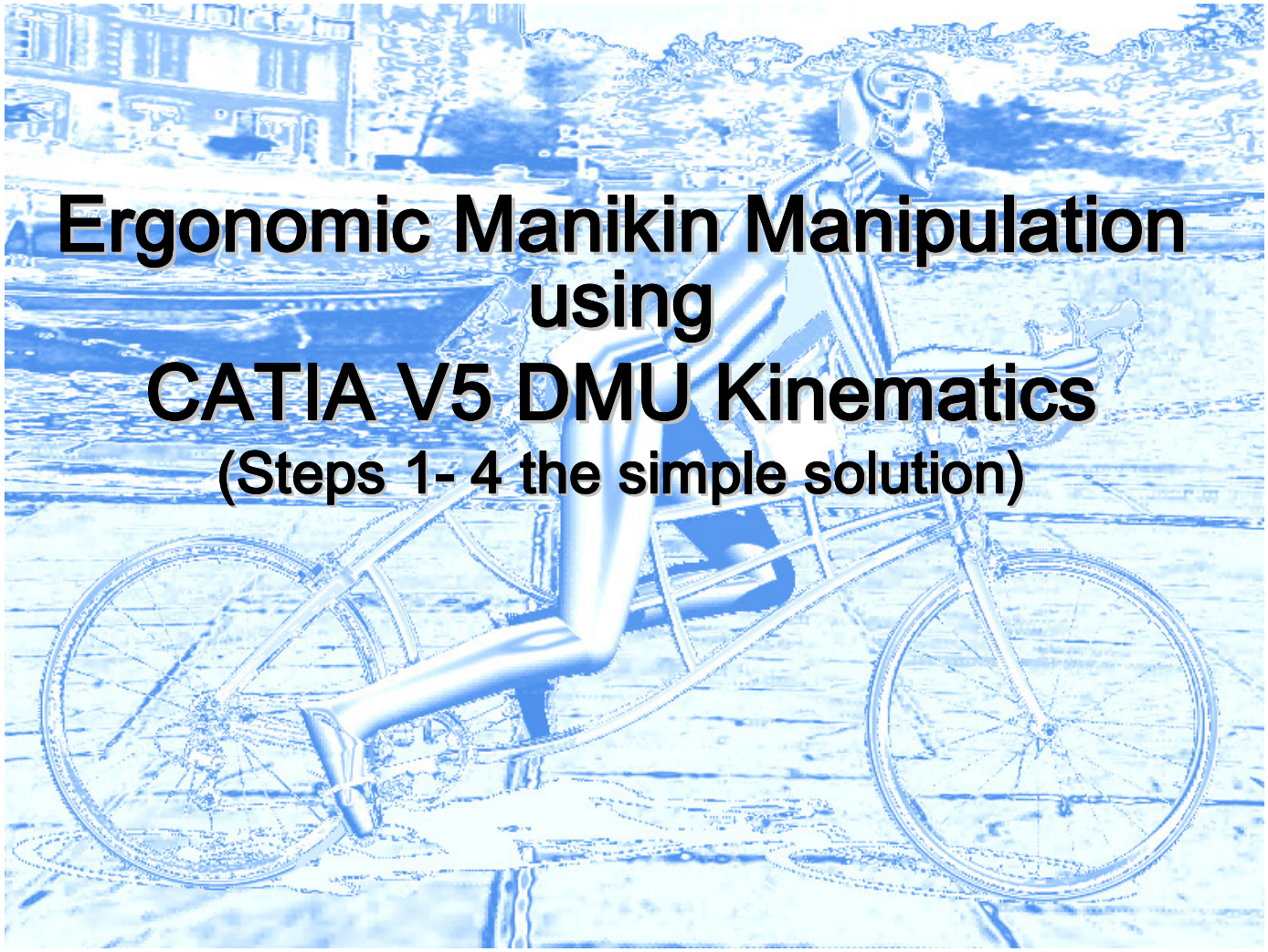

Prepared by: Bill Harbin –Technical Director 20-May-09

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- The following licenses are required to manipulate 3D Ergonomic Manikins with CATIA V5 DMU Kinematics:
  - Digital Mockup
  - Ergonomics Design & Analysis

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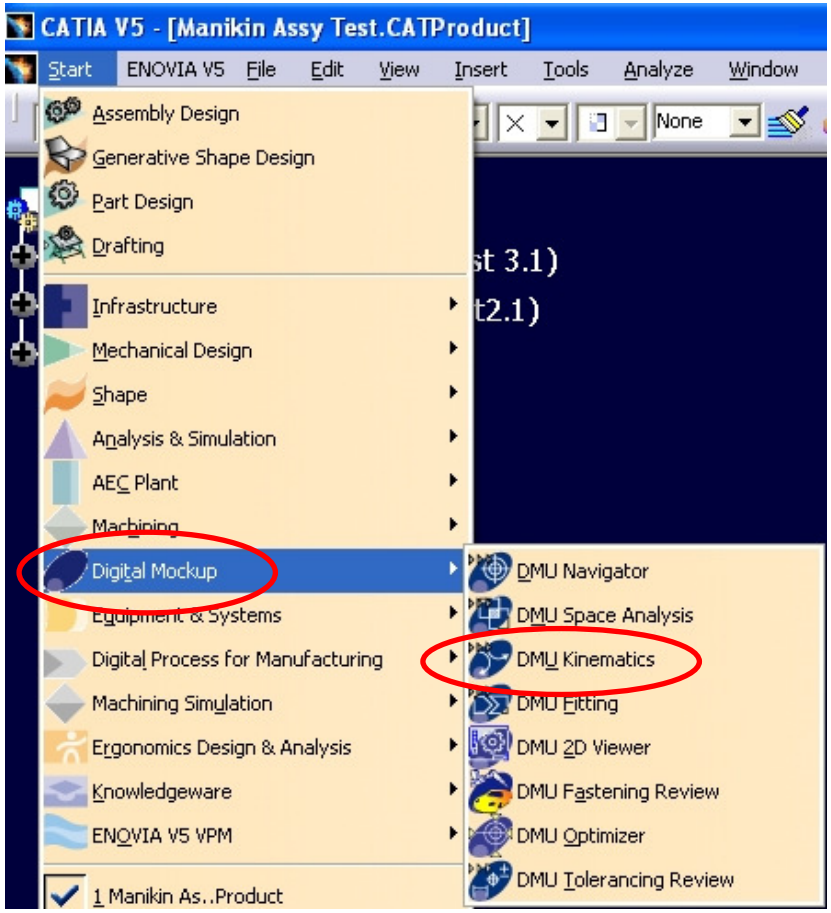
- Digital Mockup



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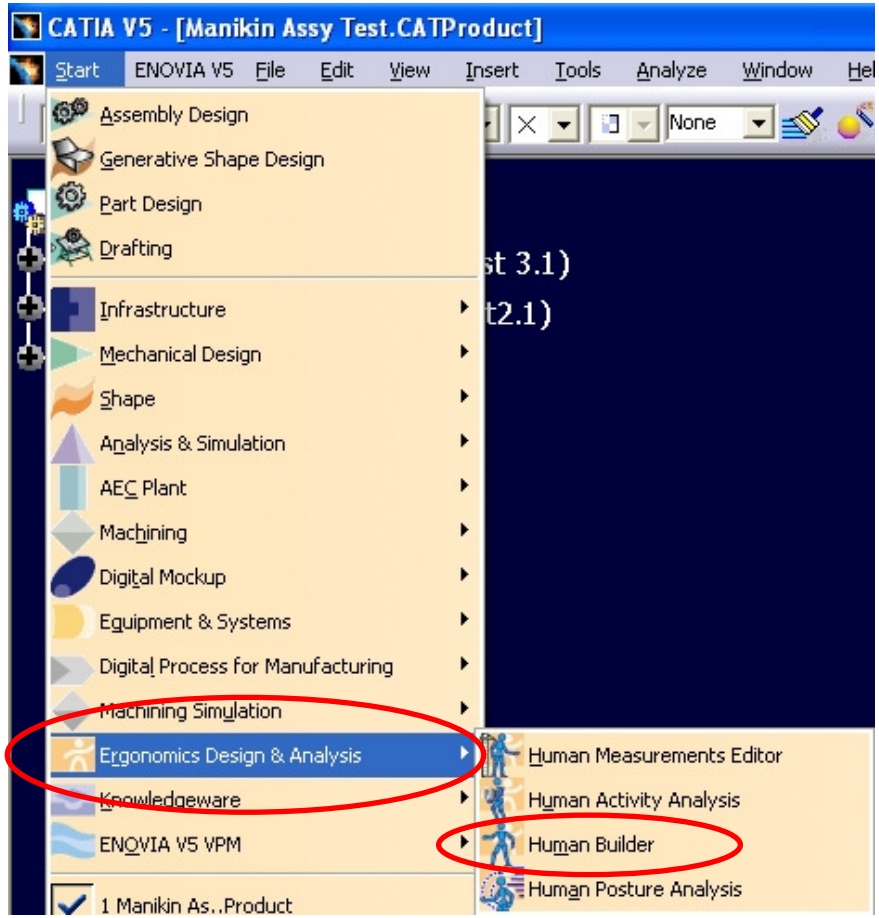
- Ergonomics Design & Analysis



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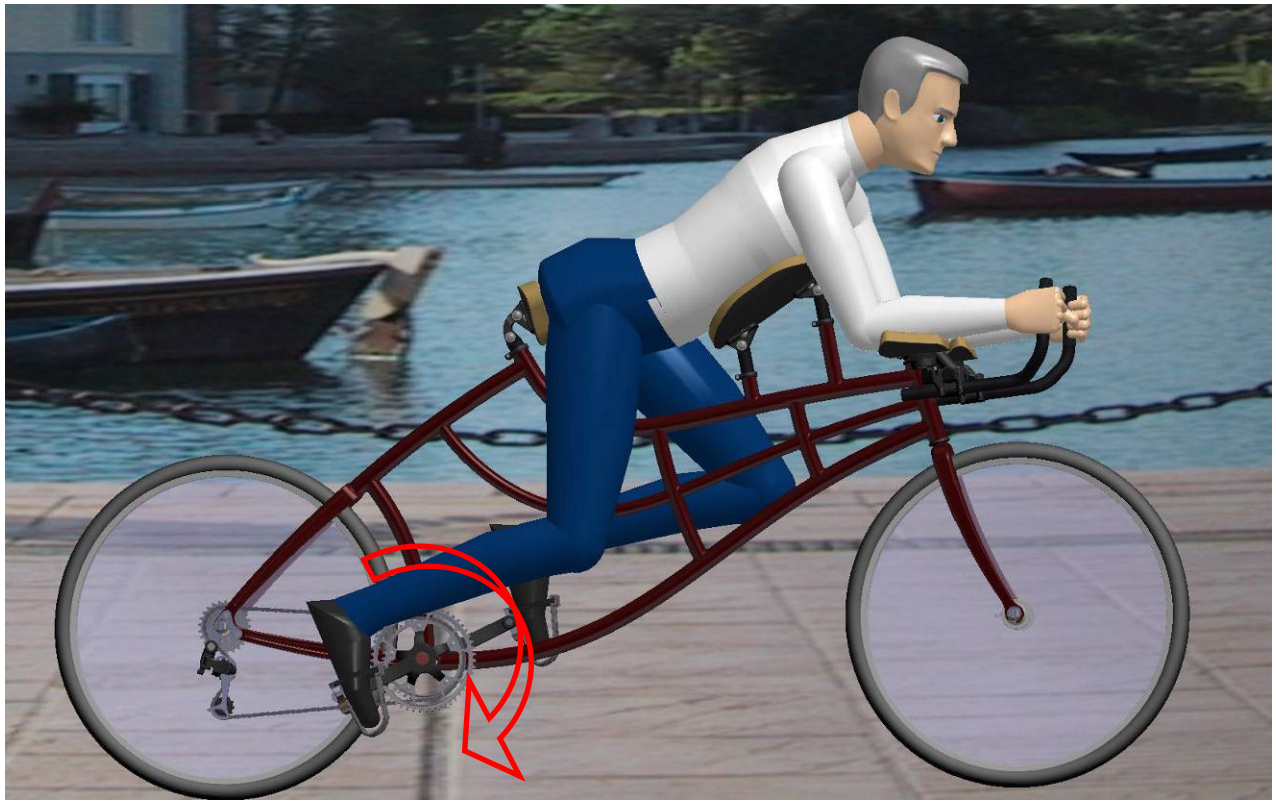
- The end result we are trying to achieve is to show a bicycle rider pedaling a bike.



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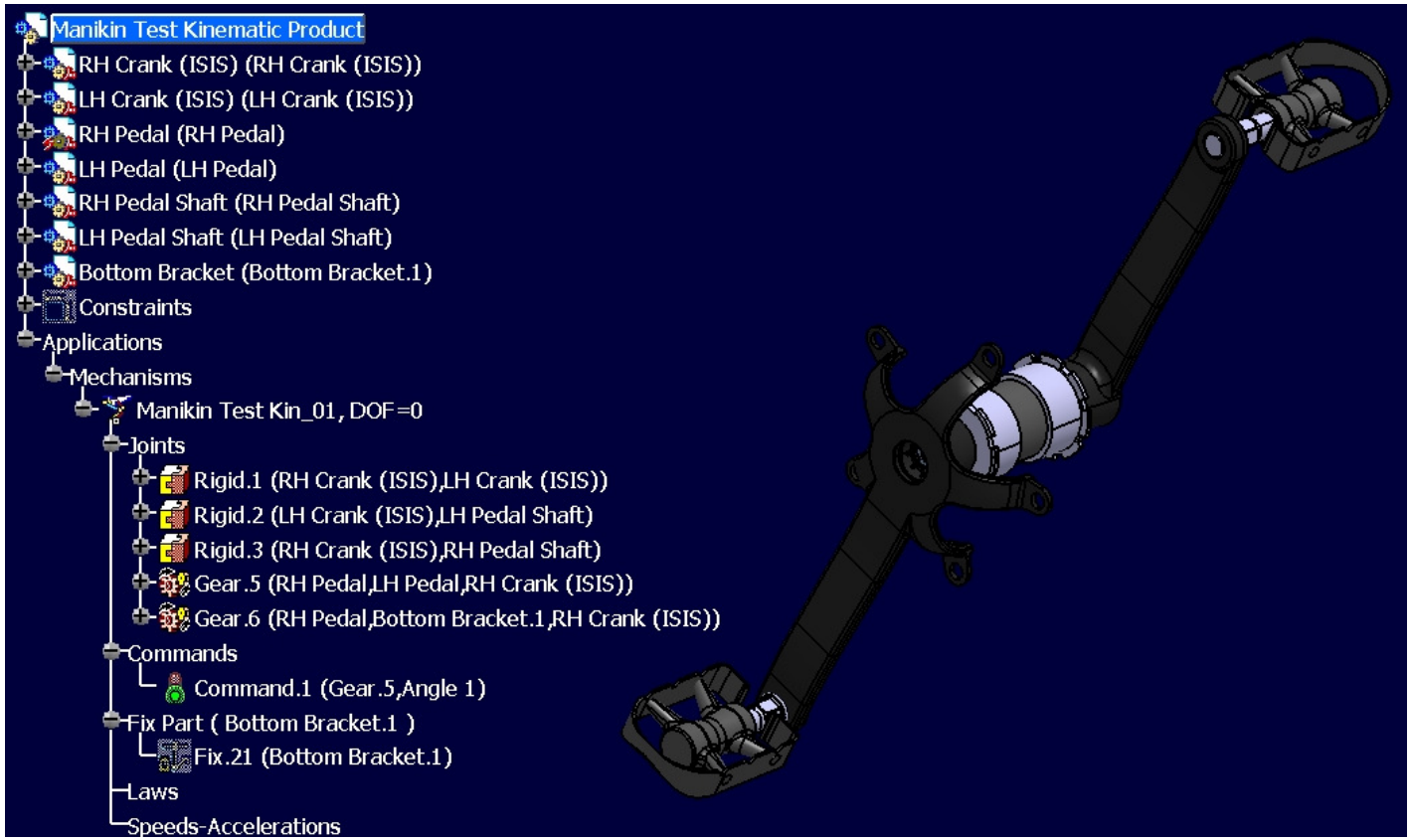
- Step1: Create a Product for the Kinematic movement of the crank and pedals.



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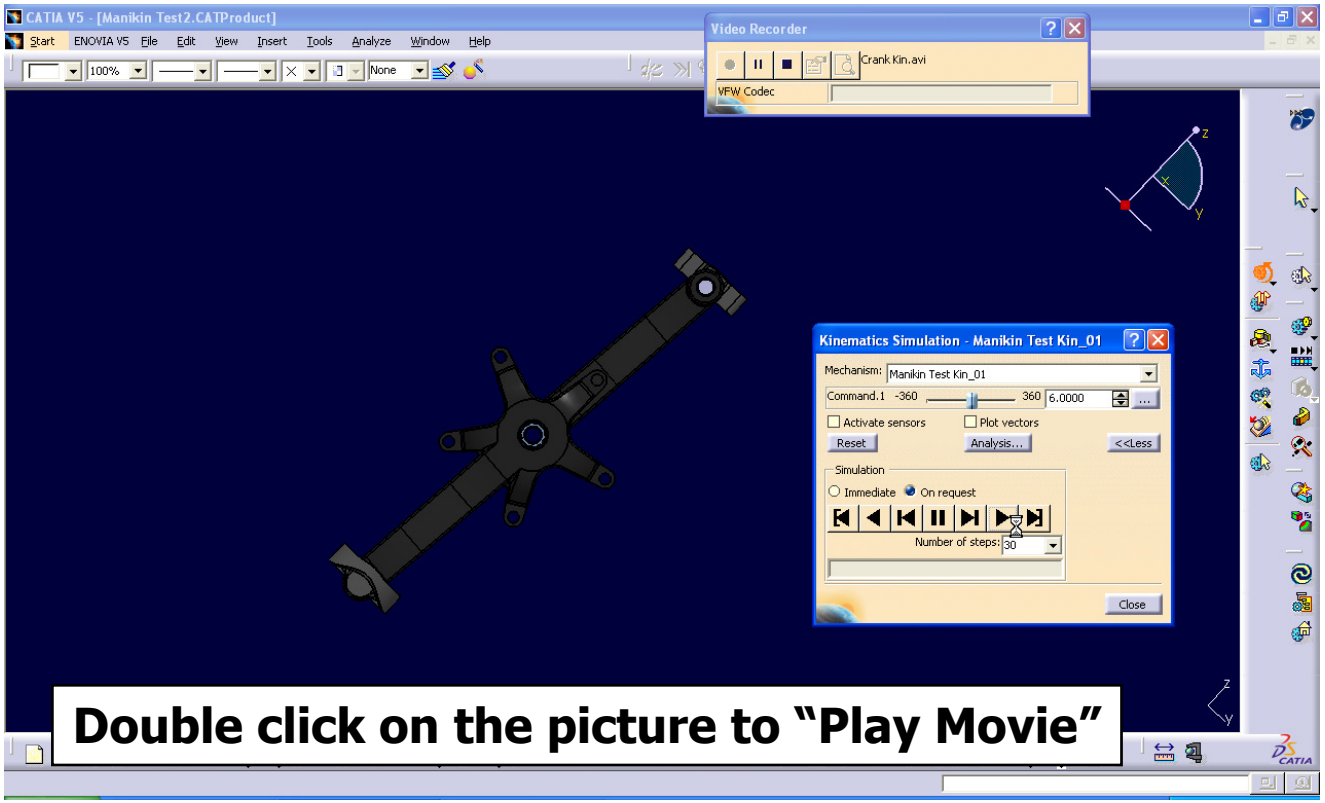
- This Kinematic Product runs the pedals in opposite rotation to the crank.



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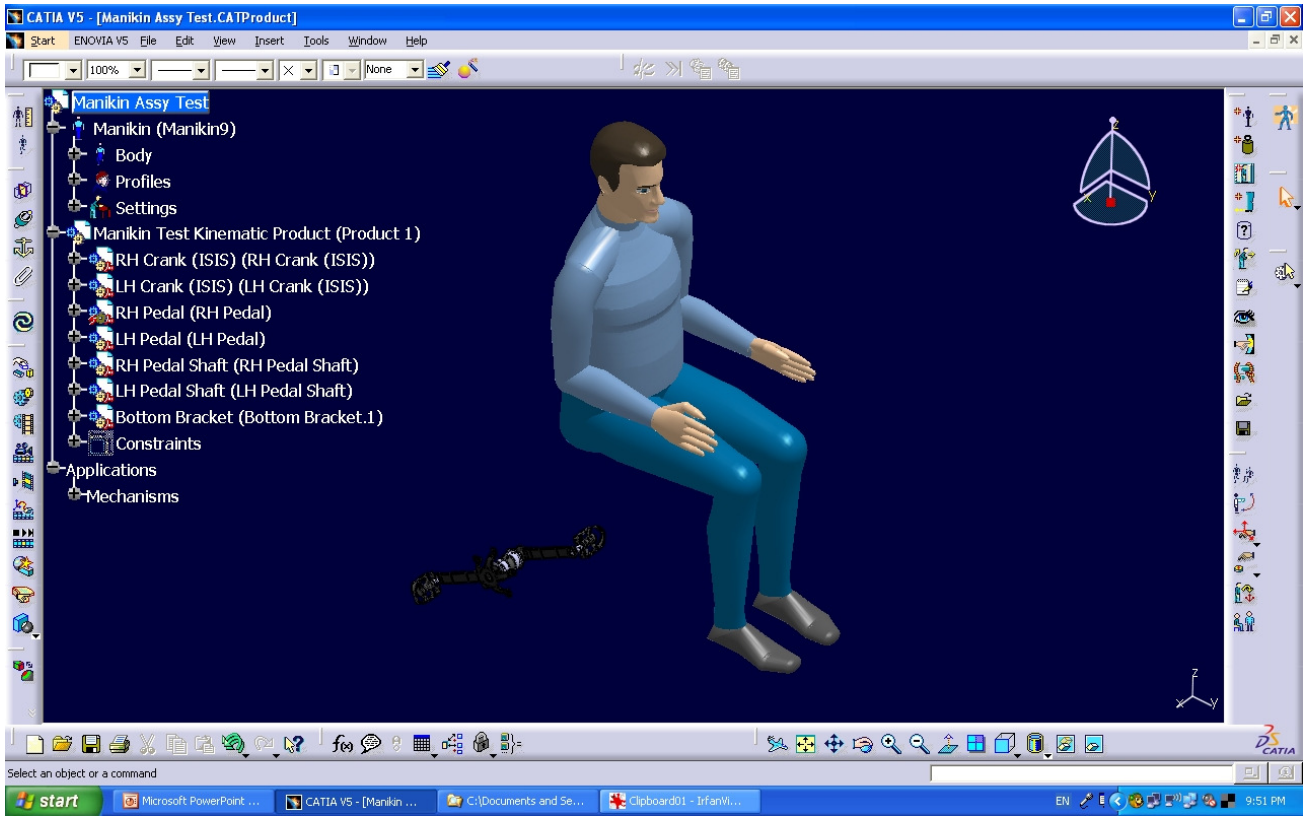
- Step 2: Create a Product with a Manikin Part and include the Kinematic Product.



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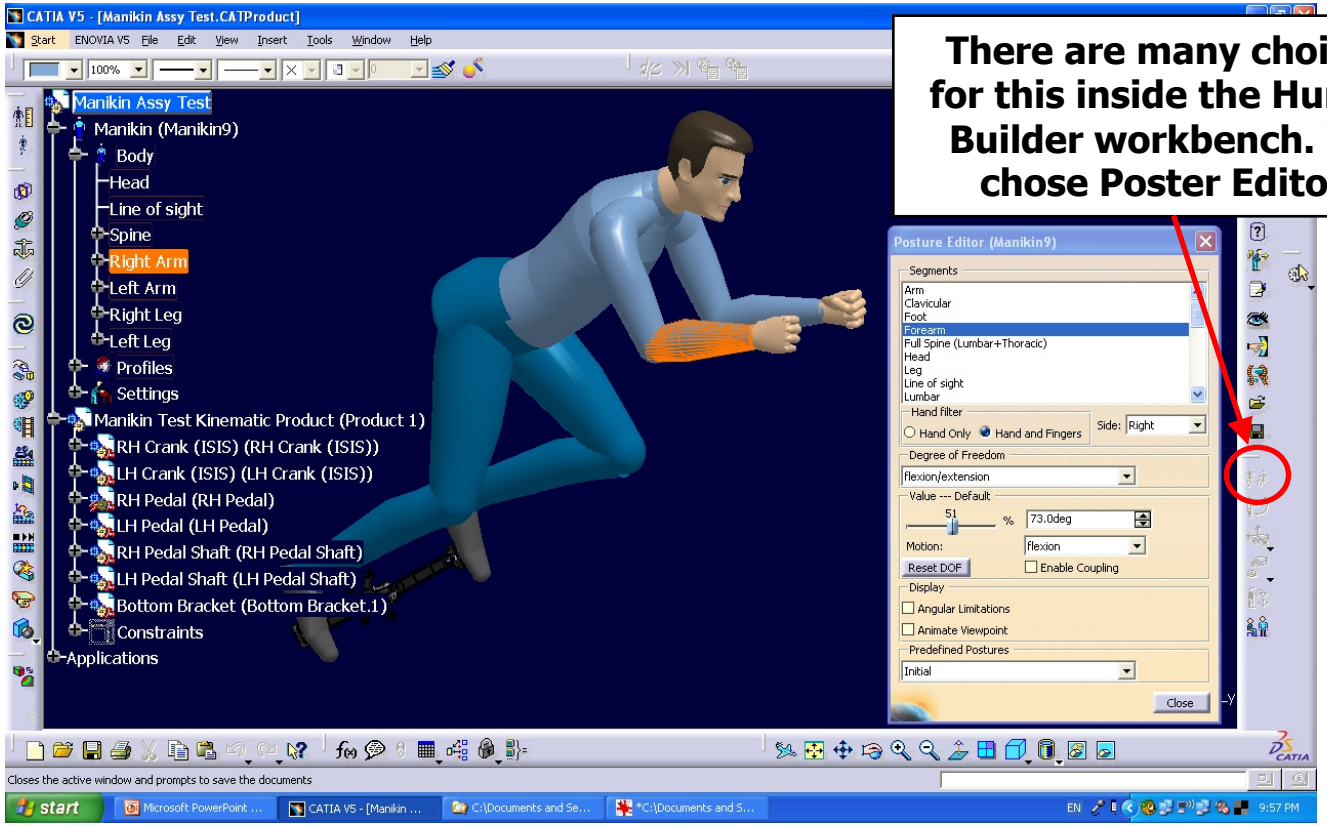
- You may have to manually manipulate the Manikin to get it to a “start” position.



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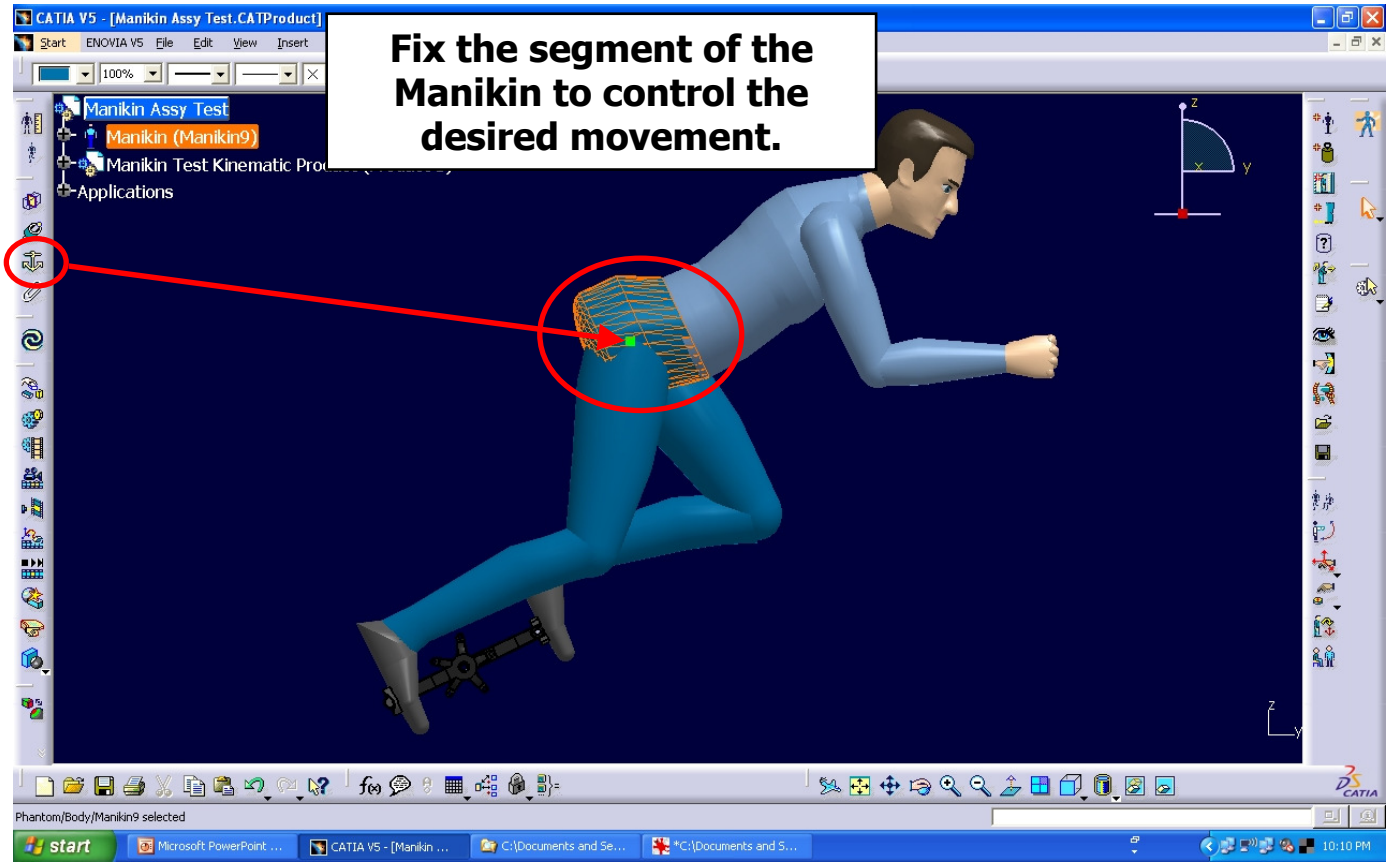
- Step 3: Constrain the Manikin for the simulation.



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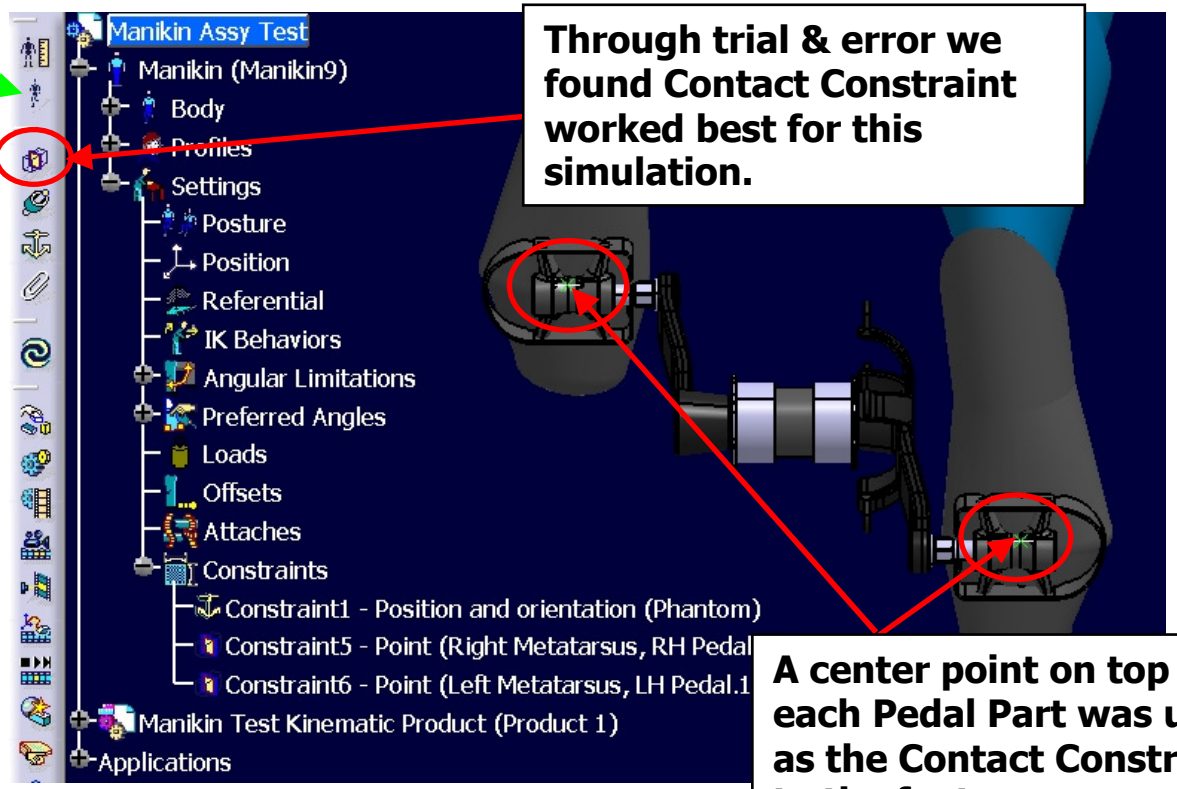
- Constrain the Manikin to the Parts within the Kinematic Product.

Human Posture Analysis



Through trial & error we found Contact Constraint worked best for this simulation.

A center point on top of each Pedal Part was used as the Contact Constraint to the foot.

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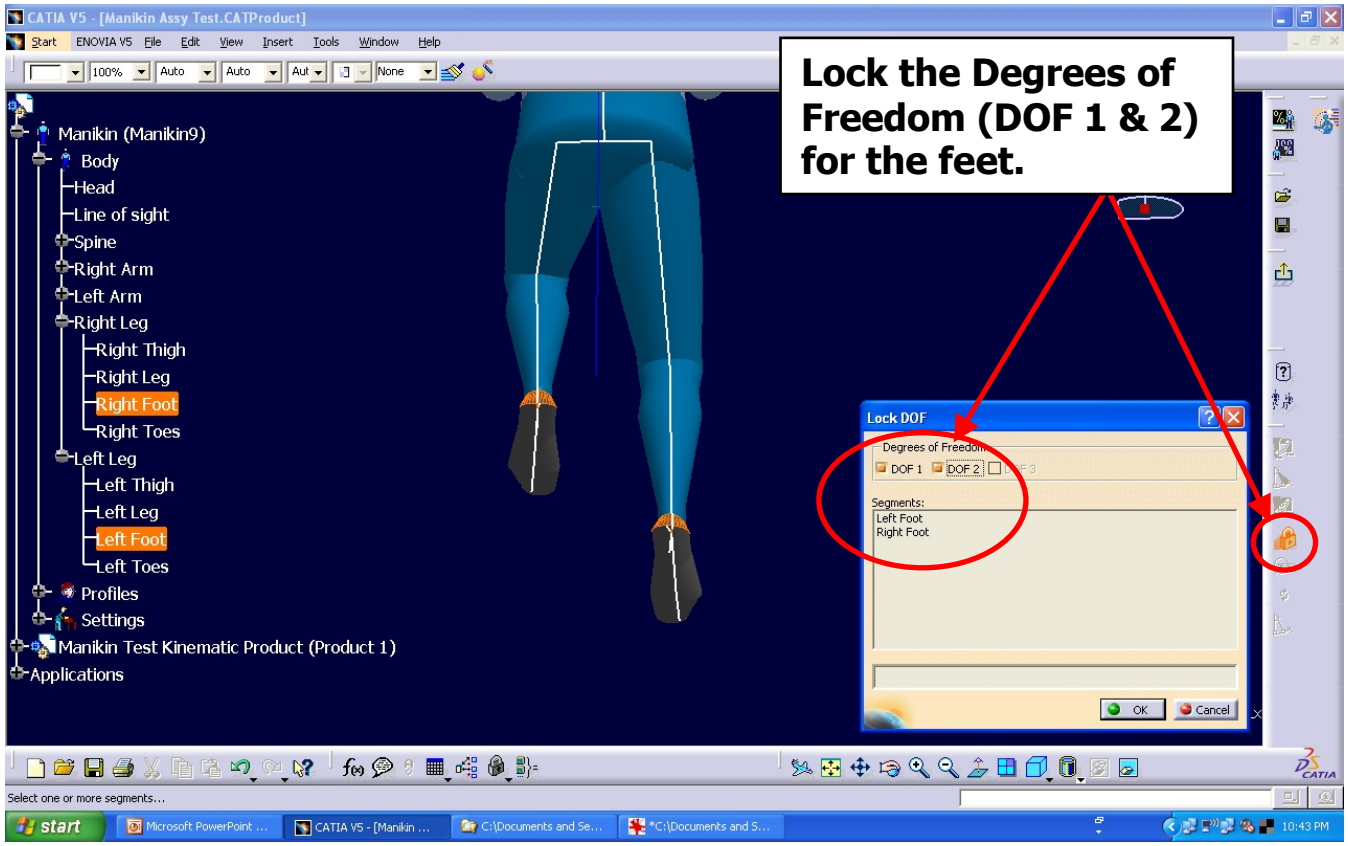
- Open the Human Posture Analysis Workbench.



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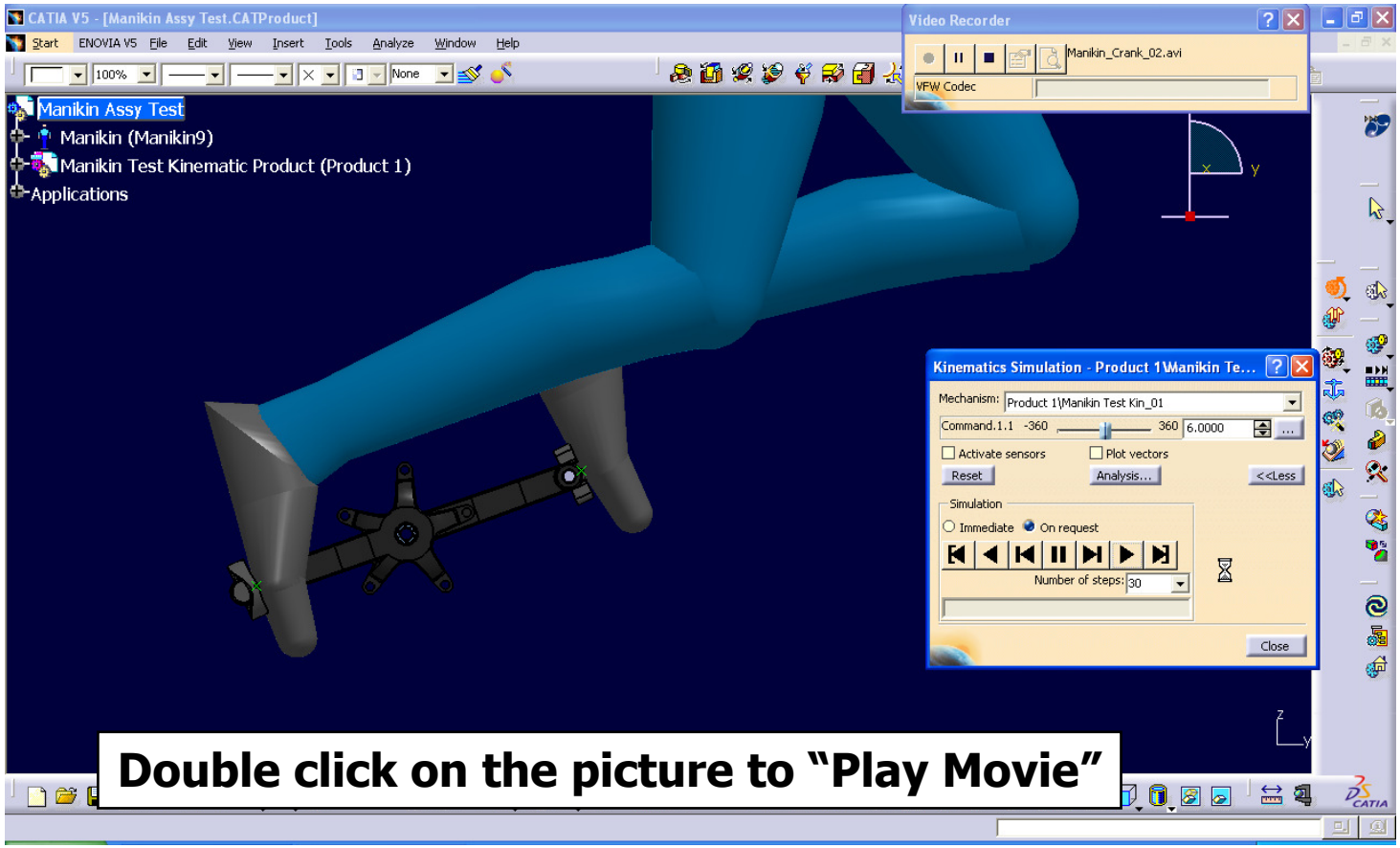
- Step 4: Run the Kinematic Simulation.



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- Conclusion:

  This example is simply to show how to connect an Ergonomic Manikin to a Kinematic Simulation using CATIA V5.

  We will optimize the contact angle of the feet to the pedals in the next presentation.