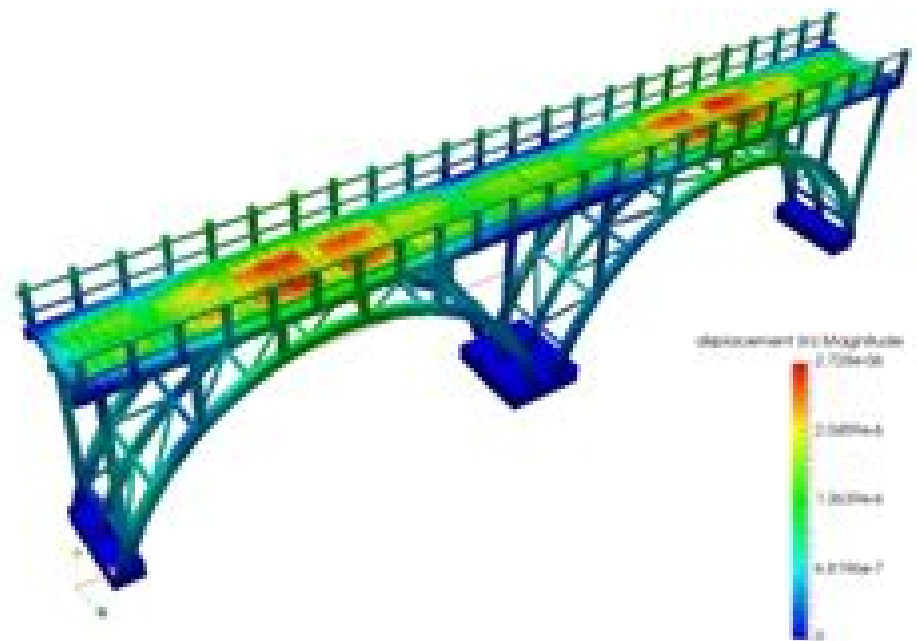




The diagram shows a frame structure with the following details:

- Dimensions:**
  - Horizontal segments: 3 m, 3 m, 3 m.
  - Vertical segments: 3 m, 3 m.
- Supports:**
  - Pin support at the bottom left corner.
  - Roller support at the bottom middle (3 m from left).
  - Fixed support at the top right corner.
- Applied Loads:**
  - Horizontal point load of 30 kN acting to the right at the top left corner.
  - Vertical point load of 30 kN acting downwards at the top middle (3 m from left).
  - Vertical point load of 30 kN acting downwards at the top right corner.
  - Uniformly distributed load (UDL) of 10 kN/m acting downwards along the entire top horizontal member.
- Internal Force Diagrams:**
  - Shear Force Diagram (V):**
    - Starts at 30 kN at the top left corner.
    - Decreases linearly to -30 kN at the top middle (3 m from left).
    - Jumps to 0 kN at the top middle.
    - Increases linearly to 30 kN at the top right corner.
    - Remains constant at 30 kN along the right vertical member.
  - Bending Moment Diagram (M):**
    - Starts at 0 kNm at the top left corner.
    - Increases parabolically to a maximum of 45 kNm at the top middle (3 m from left).
    - Decreases linearly to 0 kNm at the top right corner.
    - Remains constant at 0 kNm along the right vertical member.



# Numerical Methods For Engineering Applications

**Michael Hoelscher**



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