3D Design in the Wolfram Ecosystem

Christopher R. H. Hanusa

Queens College, CUNY

Slides & More at bit.ly/MMA3DP

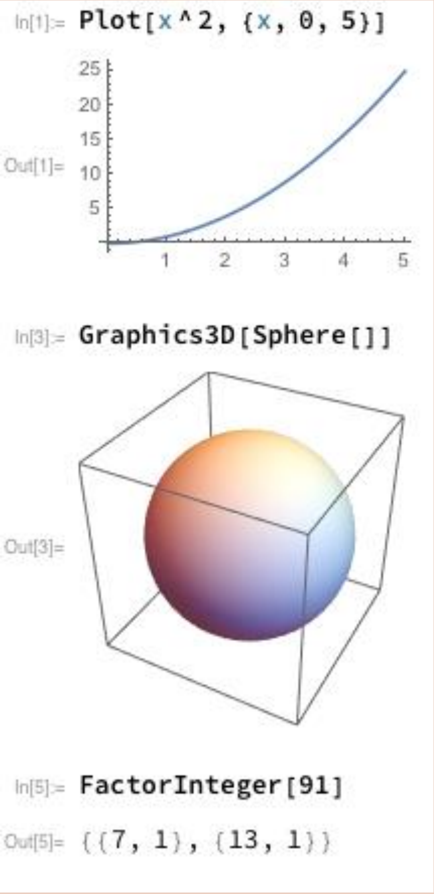
qc.edu/~chanusa @mathzorro @hanusadesign

Today's Plan

- My Journey in *Mathematica*
- Quick Start to 3D Printing
- Using Curated Data from Wolfram
  - Biology, Chemistry, Astronomy, Geography, Knots, Polyhedra
- The *Math* in *Mathematica*
  - 3D Coordinates
  - Transformations, Geometric Computation
  - Parametric Equations
  - Incorporating Randomness

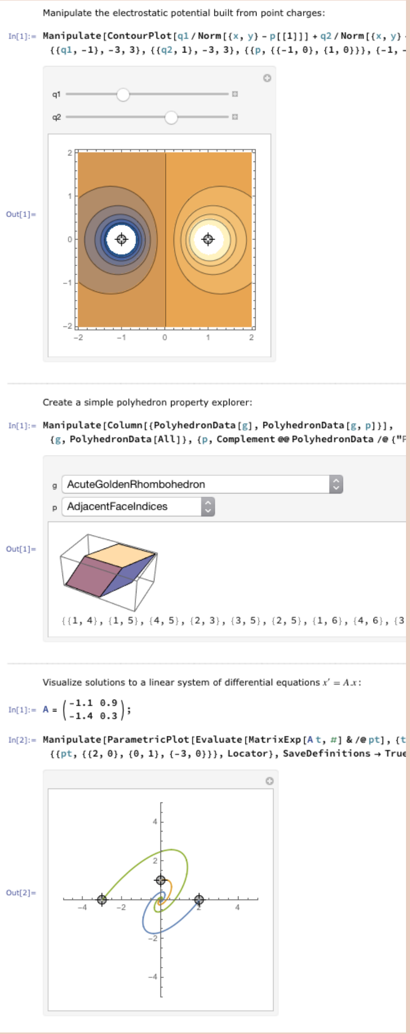
Why *Mathematica*?

- Symbolic computational software
  - Friendly syntax
  - Notebook interface: No point and click!



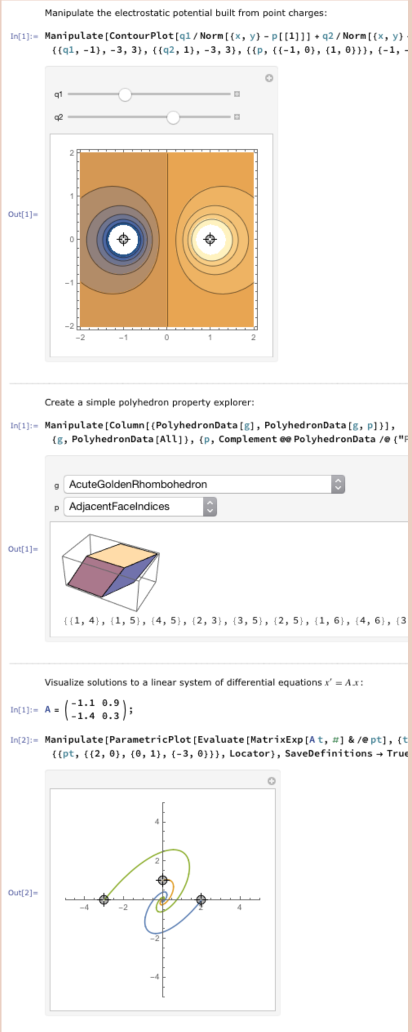
Why *Mathematica*?

- Symbolic computational software
  - Friendly syntax
  - Notebook interface: No point and click!
  - Extensive documentation



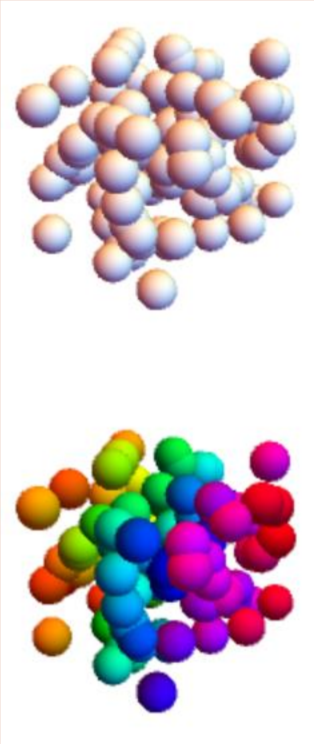
Why *Mathematica*?

- Symbolic computational software
  - Friendly syntax
  - Notebook interface: No point and click!
  - Extensive documentation
- One unified vision
  - Seamlessness / interoperability
  - Actively maintained



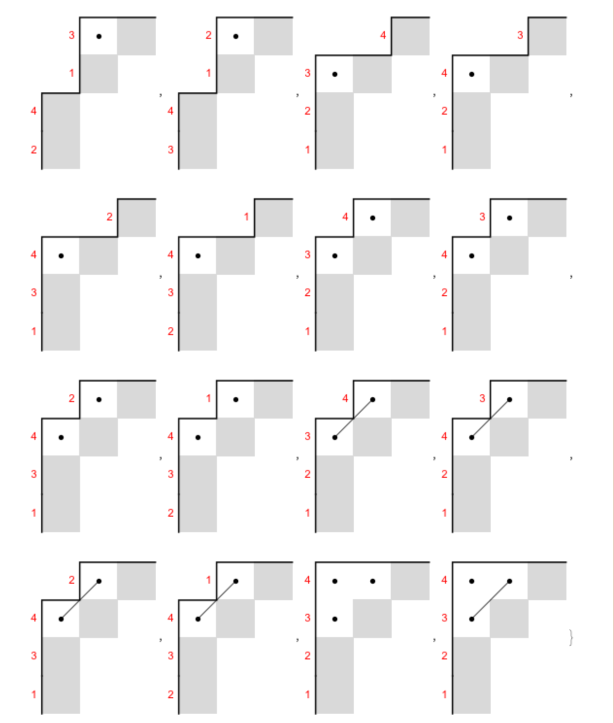
Why *Mathematica*?

- Symbolic computational software
  - Friendly syntax
  - Notebook interface: No point and click!
  - Extensive documentation
- One unified vision
  - Seamlessness / interoperability
  - Actively maintained
- Functional programming
  - Table and Map to apply systematically
  - Easy to add randomness and color



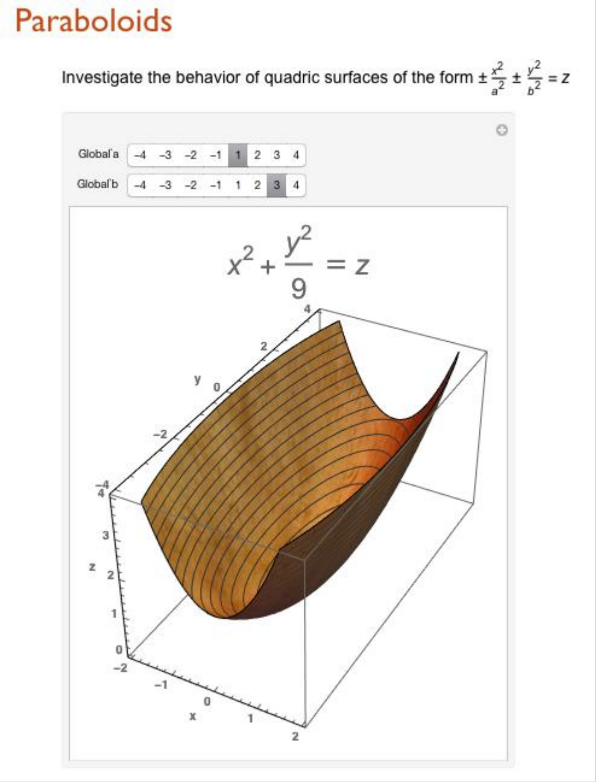
My *Mathematica* Journey

- Started in 2008
  - 3D printing since Spring ’15
- Research Exploration
  - Experimental Math

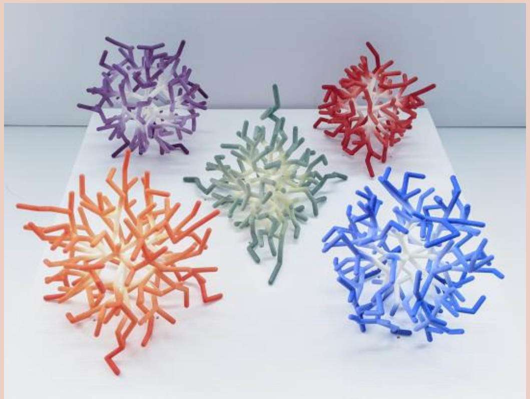


My *Mathematica* Journey

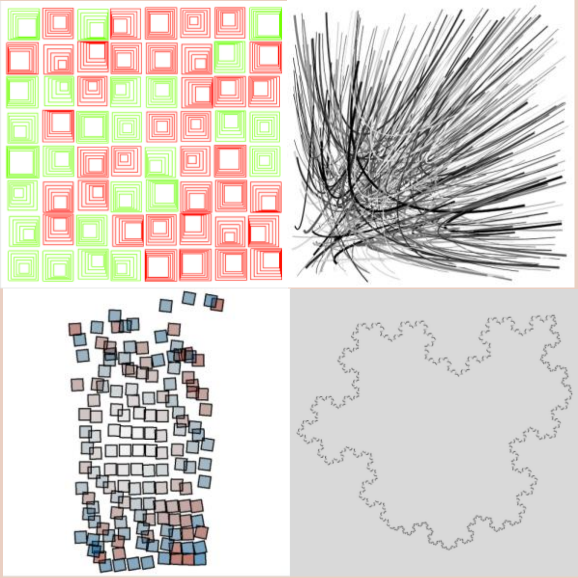
- Started in 2008
  - 3D printing since Spring ’15
- Research Exploration
  - Experimental Math
- Teaching
  - Mathematical Computing, Multivar. Calc



My *Mathematica* Journey

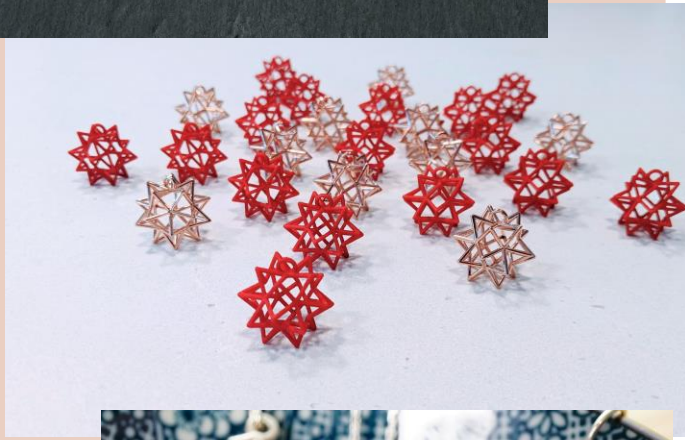


- Started in 2008
  - 3D printing since Spring ’15
- Research Exploration
  - Experimental Math
- Teaching
  - Mathematical Computing, Multivar. Calculus
- Mathematical Art
  - christopherhanusa.com / artvote.net



My *Mathematica* Journey

- Started in 2008
  - 3D printing since Spring ’15
- Research Exploration
  - Experimental Math
- Teaching
  - Mathematical Computing, Multivar. Calculus
- Mathematical Art
  - christopherhanusa.com / artvote.net
- Mathematical Jewelry
  - hanusadesign.com



Let’s head over to

Mathematica!