

Numerical Analysis and Computing

- **Instructor:** Prof.A
- **Office:** CBIM #18
- **Office Hours:** Friday (2:20PM - 3:20PM)

No required text. Materials will be provided on Canvas.

Grading

Grades will be awarded based on:

- Homeworks
- Midterms (mandatory)
- Final
- Prof. A reserves the right to award **negative points** to students with bad conduct.

Homework

- Comprises **50%** of overall grade.
- We will have 5 or 6 assignments (depending on time).
- There will be a 5% late penalty for every late day after the due date.
- All homeworks must be done individually.

Midterms

- Two midterms. Each comprises **25%** of overall grade.
- They are mandatory and will be held in-class.
- Dates will be announced next week (or this Friday).
- There will be no make-up exams.

Final

- It is **not** mandatory.
- Can be used to re-write your scores for Midterm #1 and/or Midterm #2.
- Consists of the following two components:
 - Final #1 will resemble the content/format of Midterm #1.
 - Final #2 will resemble the content/format of Midterm #2.
- We will provide practice exams for preparation.

Why care about numerical computing?

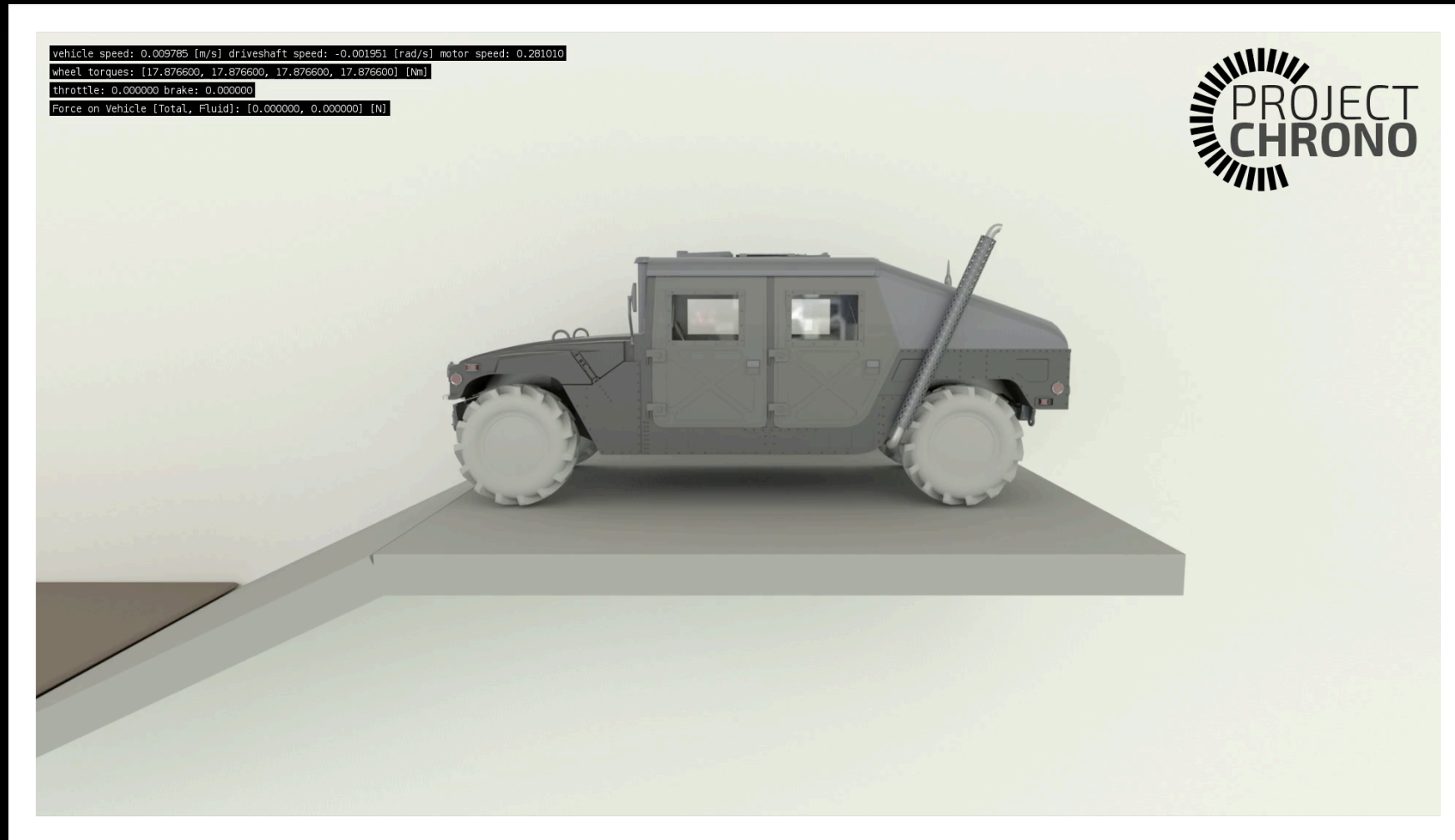
Space Explorations



Space Explorations



Autonomous Vehicles

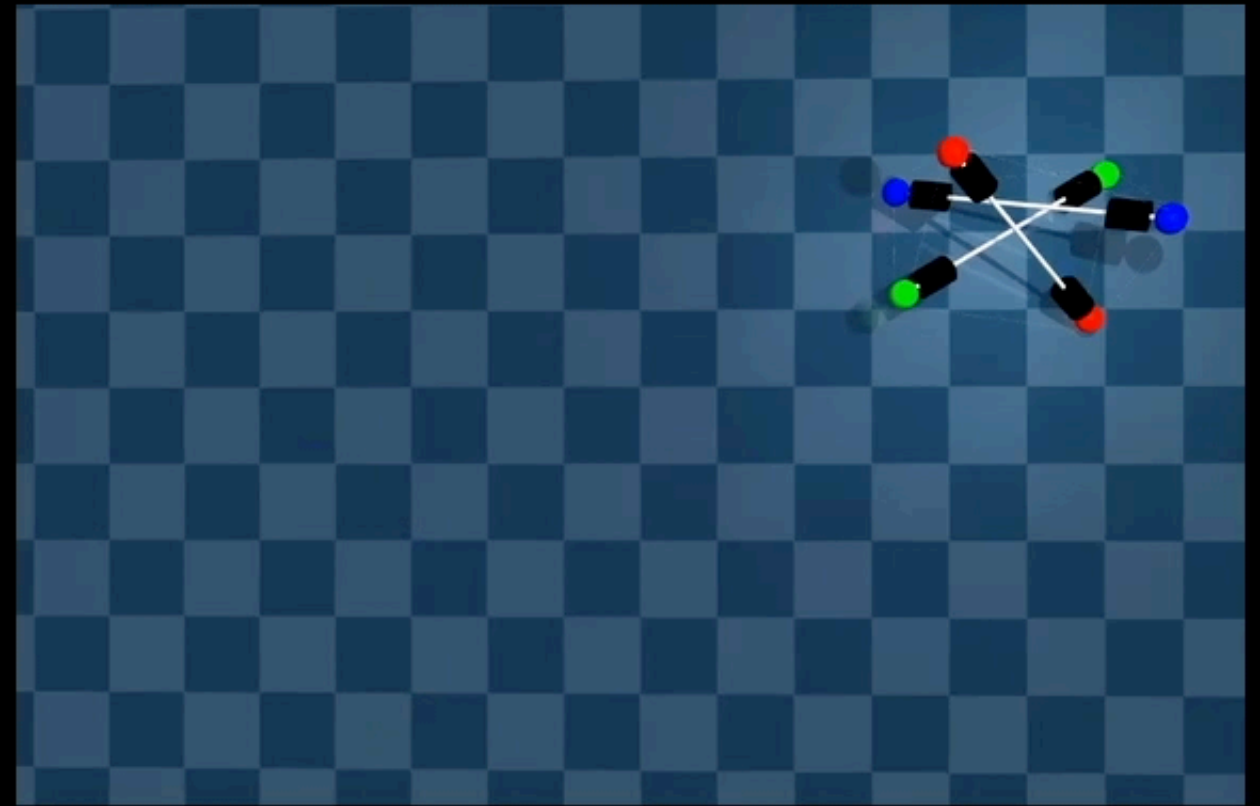


Physics-based Control

Clockwise Turning



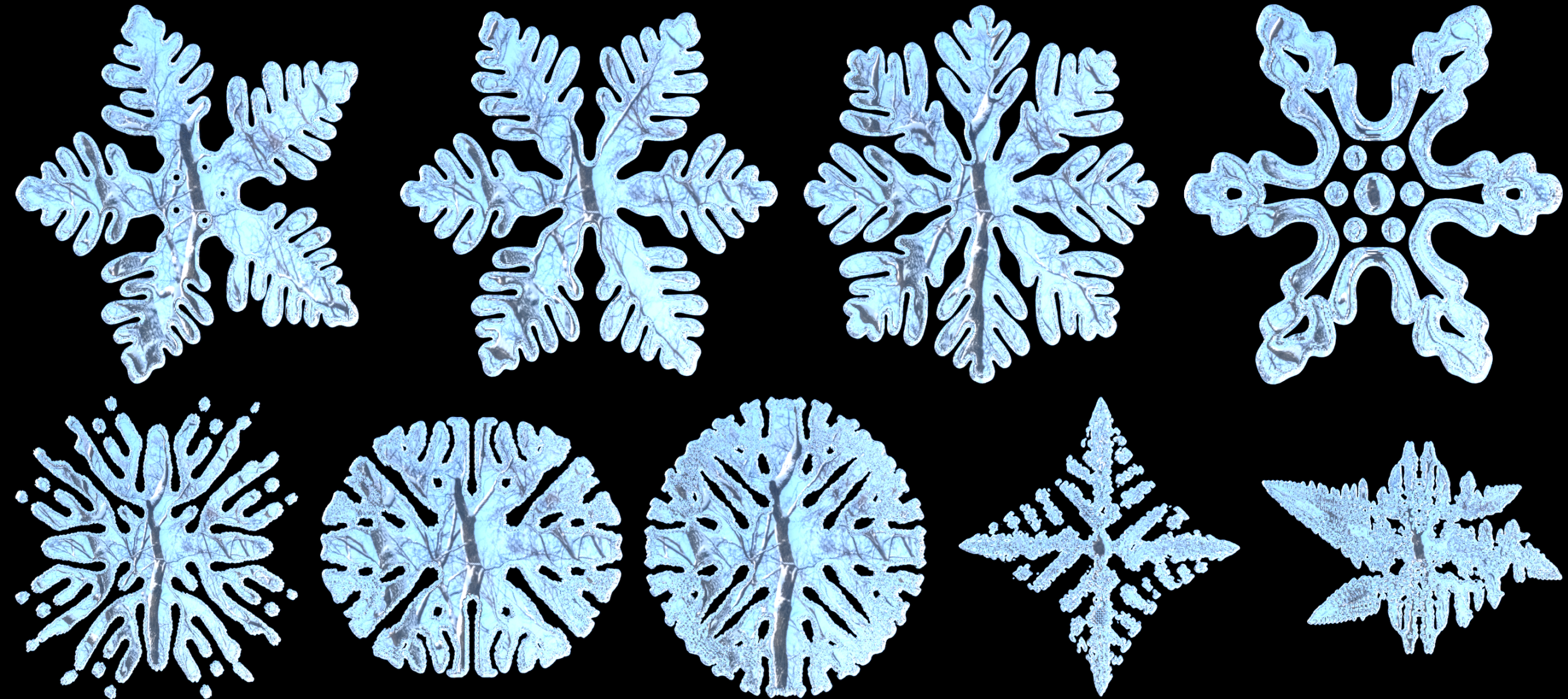
Execution on Real Robot



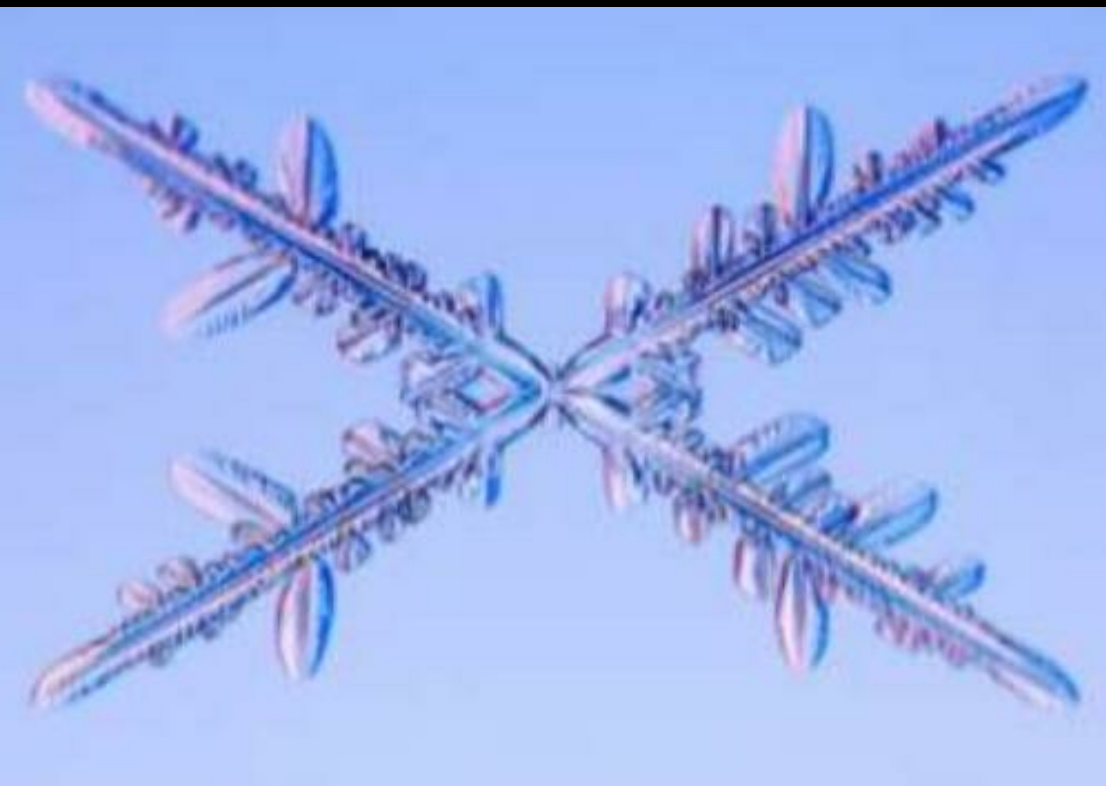
Refined Simulation(1.8x)

Contracture & Surgery Simulation

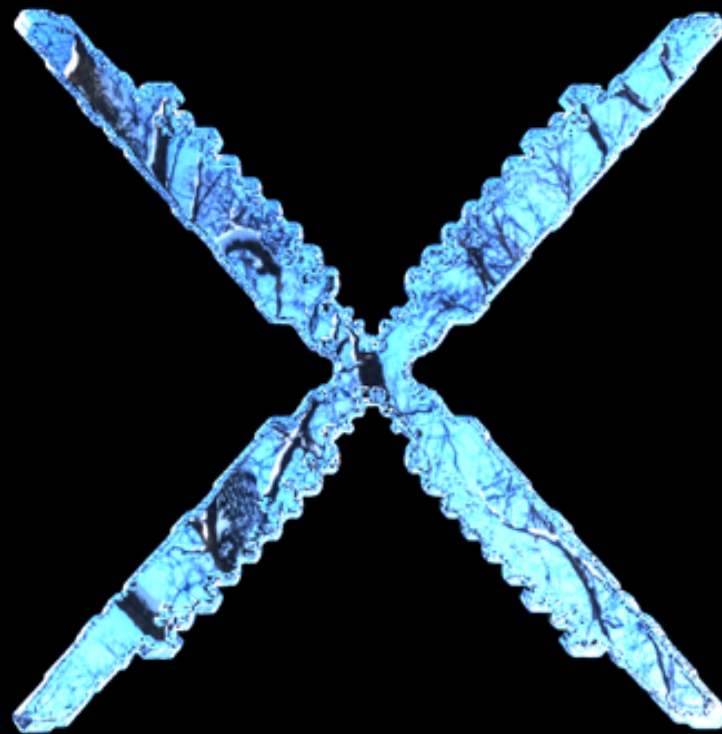
Snow Crystals



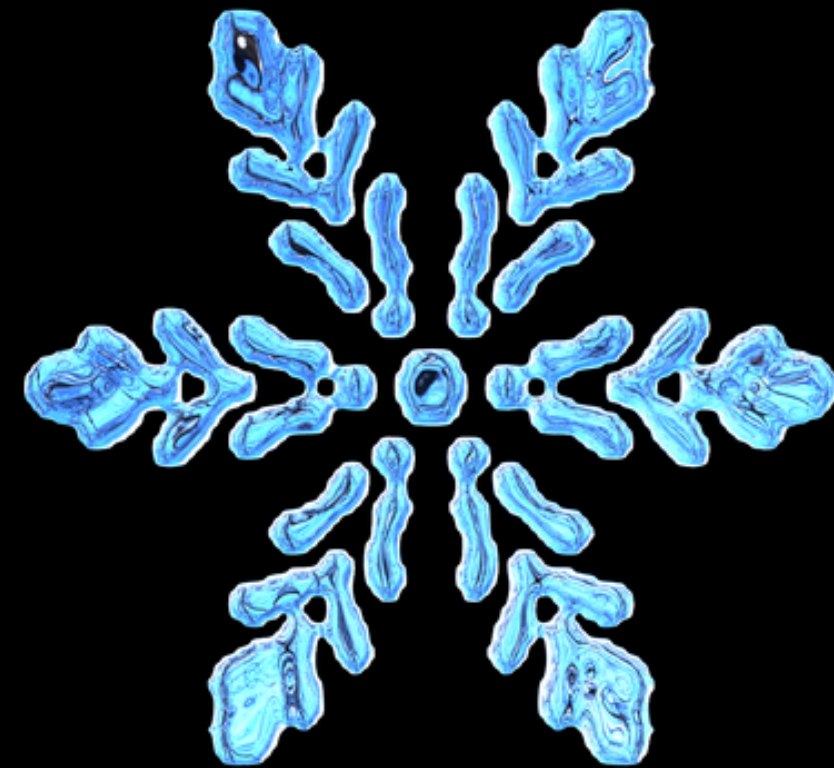
Snow Crystals



Real world photo



Our model



Existing model