

Minecraft Gaming Elasticity Solver Modification

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Background

Problem:

- What are other ways to teach or teach statics and other engineering concepts

What is Minecraft?

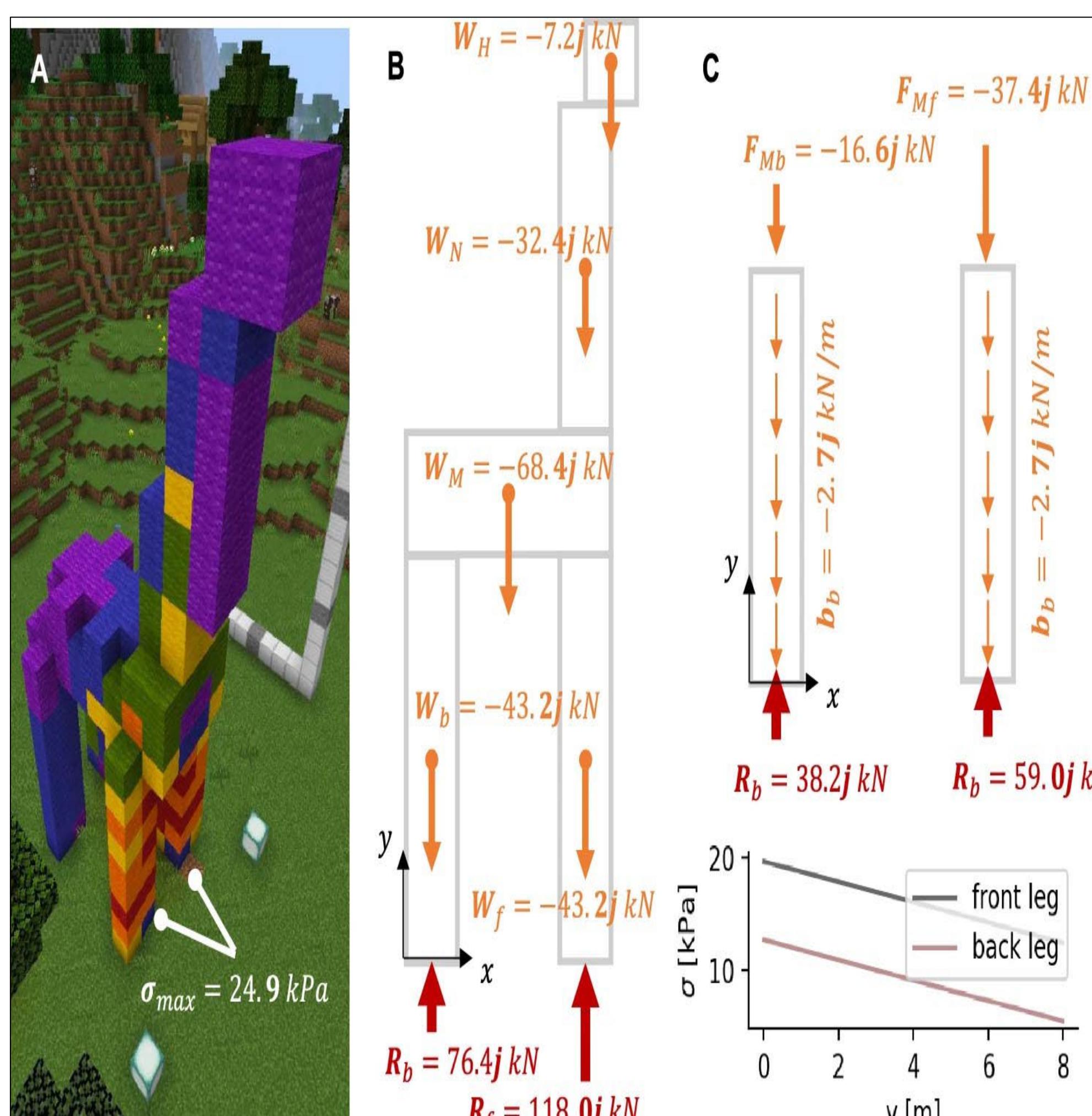
- One of the most popular games of all time
- Sandbox game
- Allows modding

Minecraft with Statics

What is Statics?

- Imagine a game of balance
- Helps us build structures and objects
- Statics = forces

Analysis of Static Forces in Minecraft



Methods

Why use Minecraft for Statics?

- Facilitates problem-solving skills
- Visual and hands-on learning
- Real-world applications

My Role

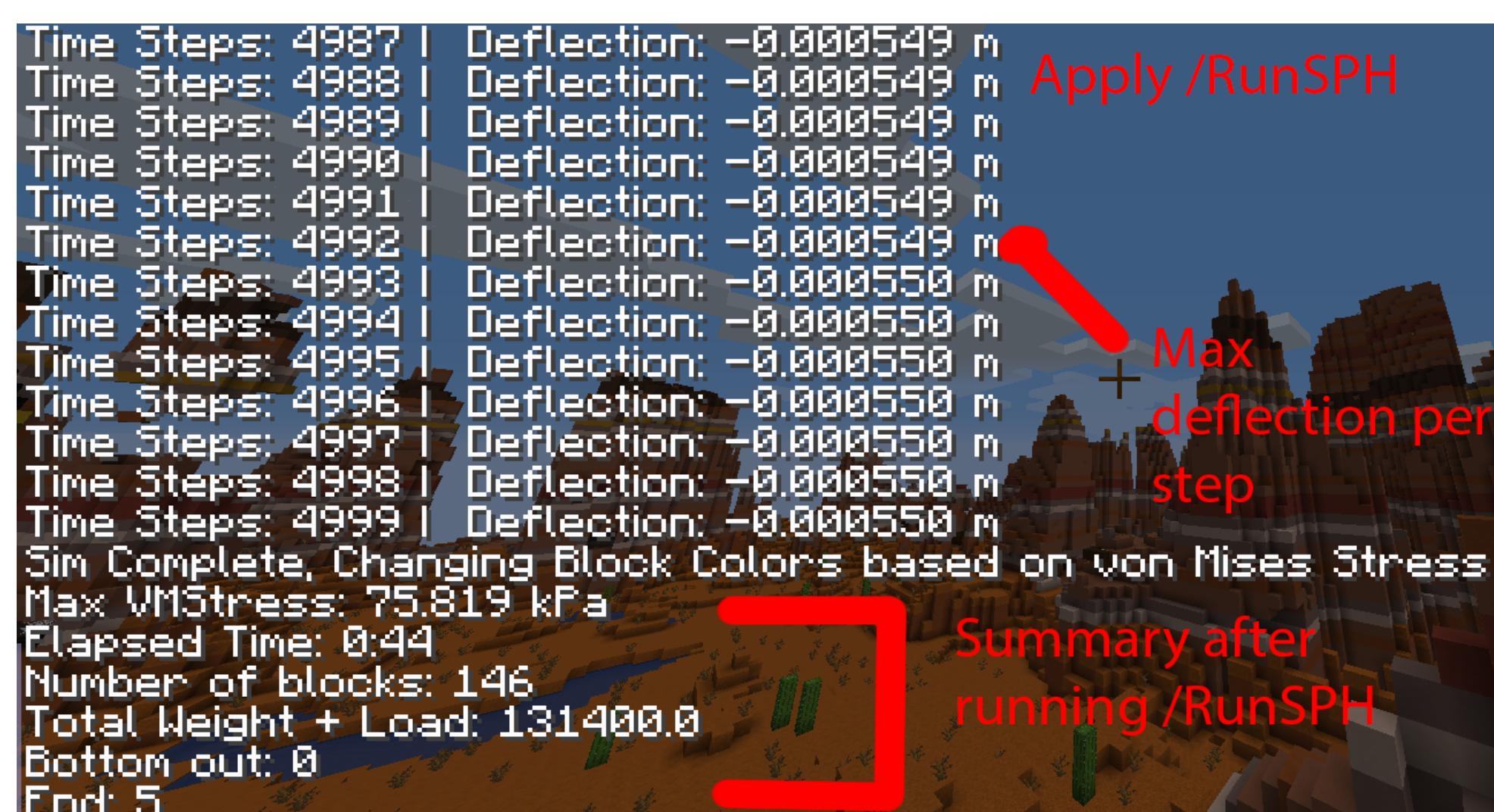
- Develop and test out the mod → build bridges and structures
- Figure out challenges to gain player engagement → Find fun structures to build
- Understand mod functionality and statics fundamentals → Understand how the code works and the theory behind statics

How The Mod Works

Mod Implementation

- Color Tier System
 - Violet = best and Black = bad
- Series of commands to perform calculations

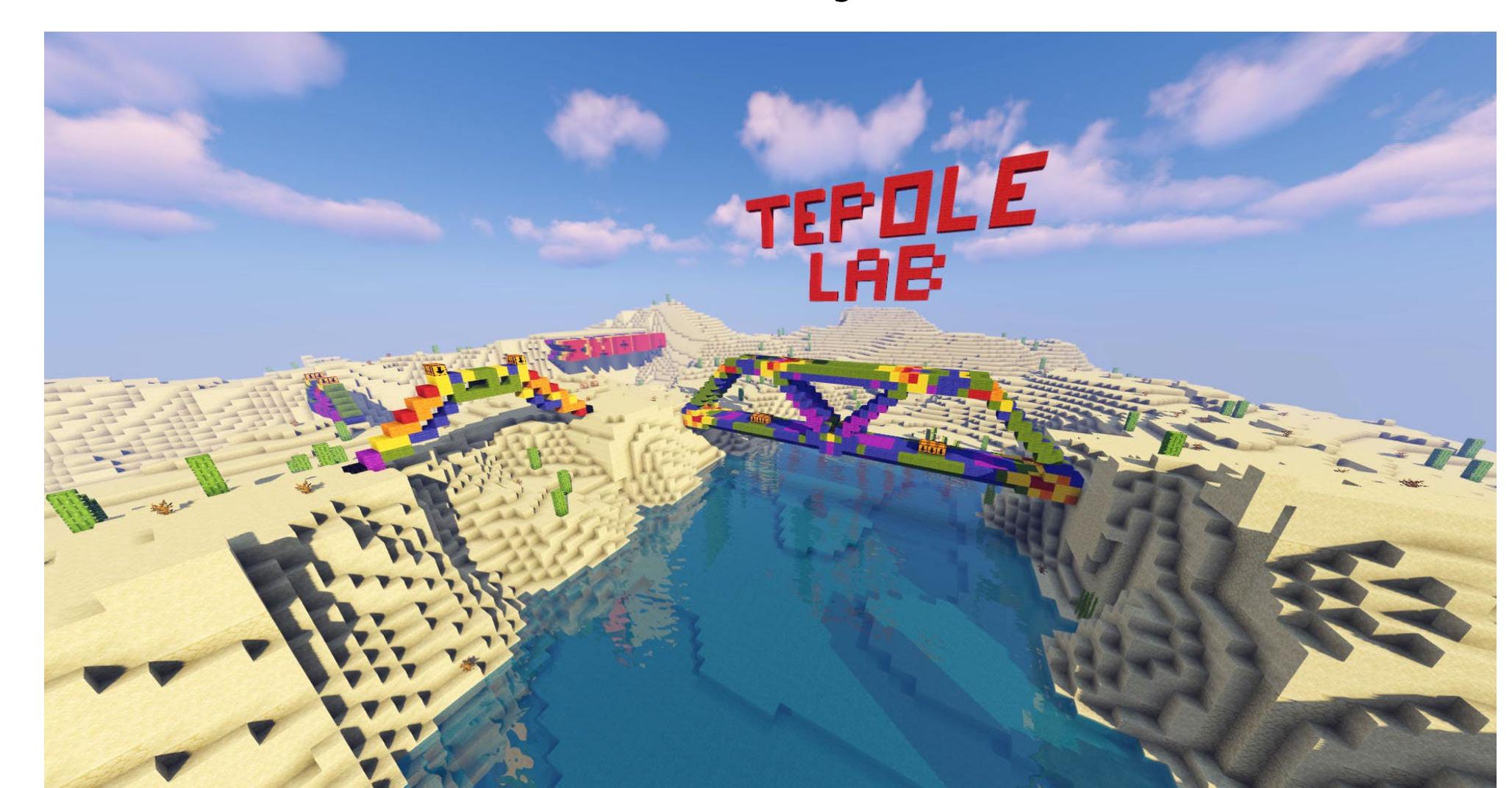
Minecraft Elasticity in Action 1



Game Development Features

- Worlds with different challenges
- Video tutorials about the mod
- Test if a structure will stay standing in real life

Minecraft Elasticity in Action 2



What You Can Do With The Mod

Bridges



Other Structures



Conclusion and Future Questions

Conclusion

- Apply theoretical knowledge
- New approaches to teach engineering

Future Work

- Does the mod increase engagement with statics material?
- Are the things you learn in class transfer to the mod and vice versa.

References and Acknowledgement

[1] Beck, Zachariah, et al. "Elasticity Solver in Minecraft for Learning Mechanics of Materials by Gaming."

[2] Philpot et al., 2003, "Games as Teaching Tools in Engineering Mechanics Courses,"

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