

Modeling Complex Systems with Category Theory

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Objective and Scope of the Project

Scope of the Project

My objective for this project was to learn about the brand new field of categorical systems theory , which applies the pure math field of category theory to the study of arbitrary systems , and then use the tools that I learned to model a complex real-world system.

But I didn't know category theory or any complex systems...

The Actual Scope of the Project

1. Learn Category Theory
2. Learn Categorical Systems Theory
3. Write a software package for it in Python
4. Learn about a real world system (Transcription Networks)
5. Model it and simulate the results
6. Live to tell you all about it

Scope of this Presentation

Keep things high-level and descriptive and move fast.

1. Tell you what a system is.
2. Tell you what a category is.
3. Tell you how they can work together.
4. Show you a complex system and how I modeled it.
5. Talk about the simulation results.

Systems

Categories

Composing Systems

Case Study

Results

Conclusion
