WOLFRAM SUMMER SCHOOL 2023

Exploring Call Graphs of Nestedly Recursive Functions

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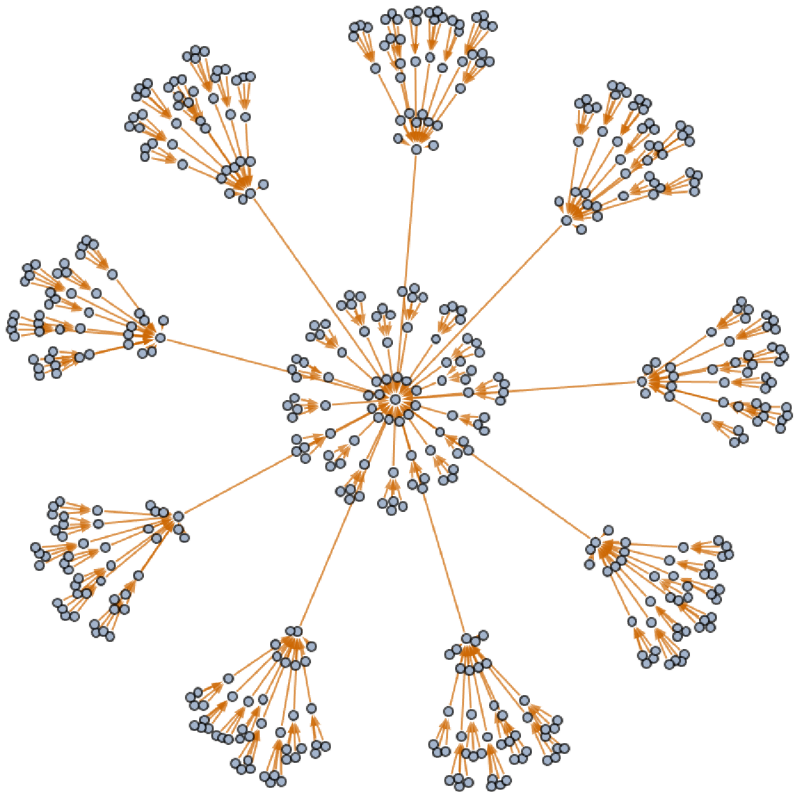


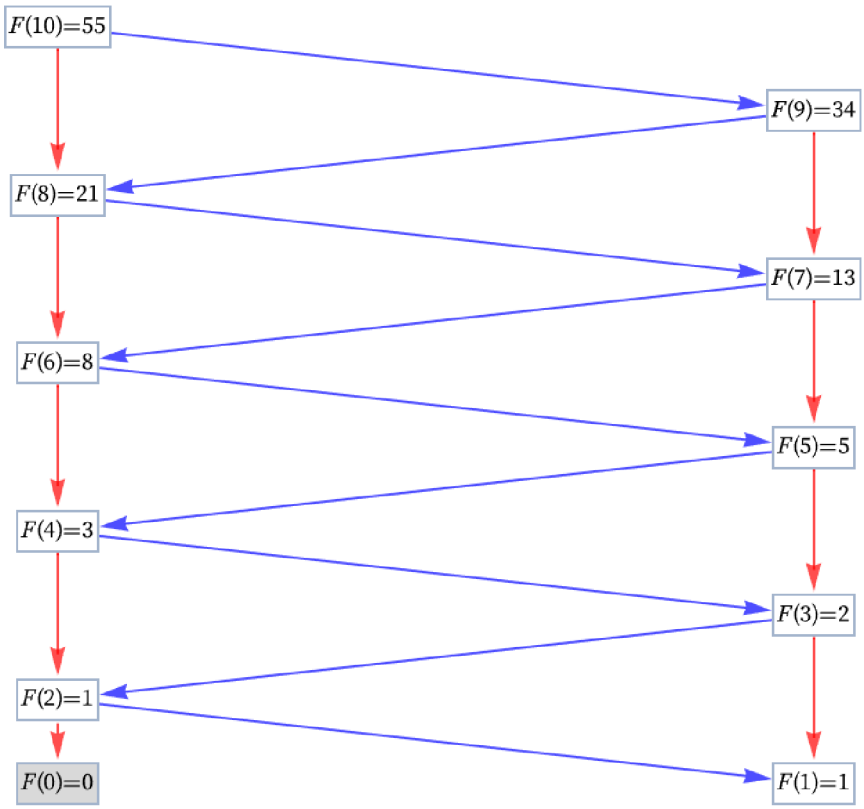
GOAL OF THE PROJECT: Find simple functional forms that exhibit complex behaviors.

1. Implemented a stack-based recursive function from scratch

Avoid recursion depth limit errors
Better introspection in memory allocation & computational complexity

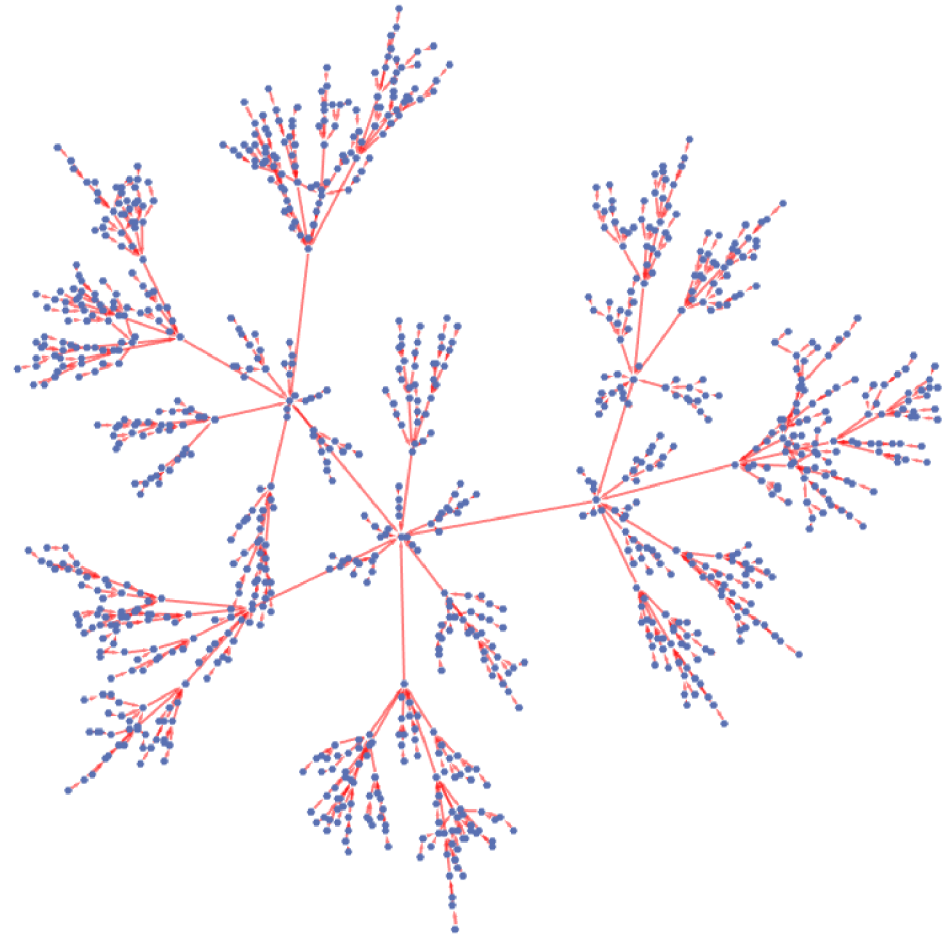
2. Call Graphs

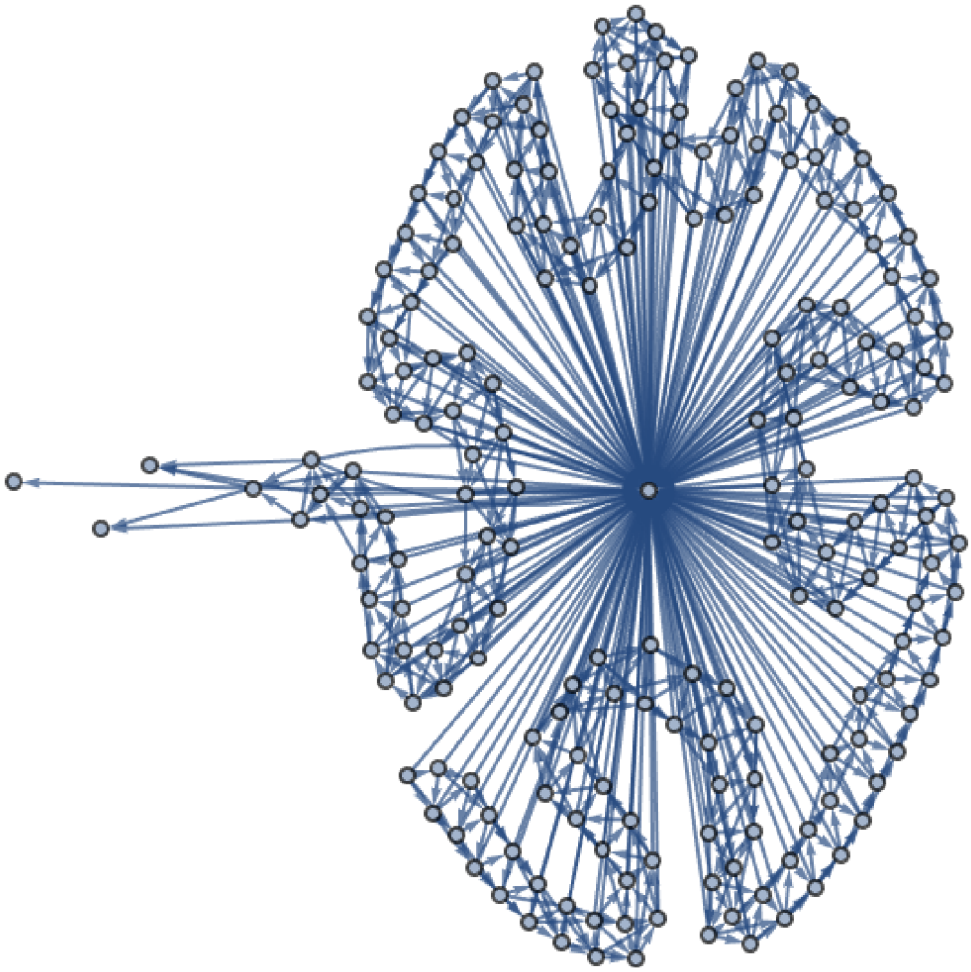
fibonacci[n] := fibonacci[n - 1] + fibonacci[n - 2]

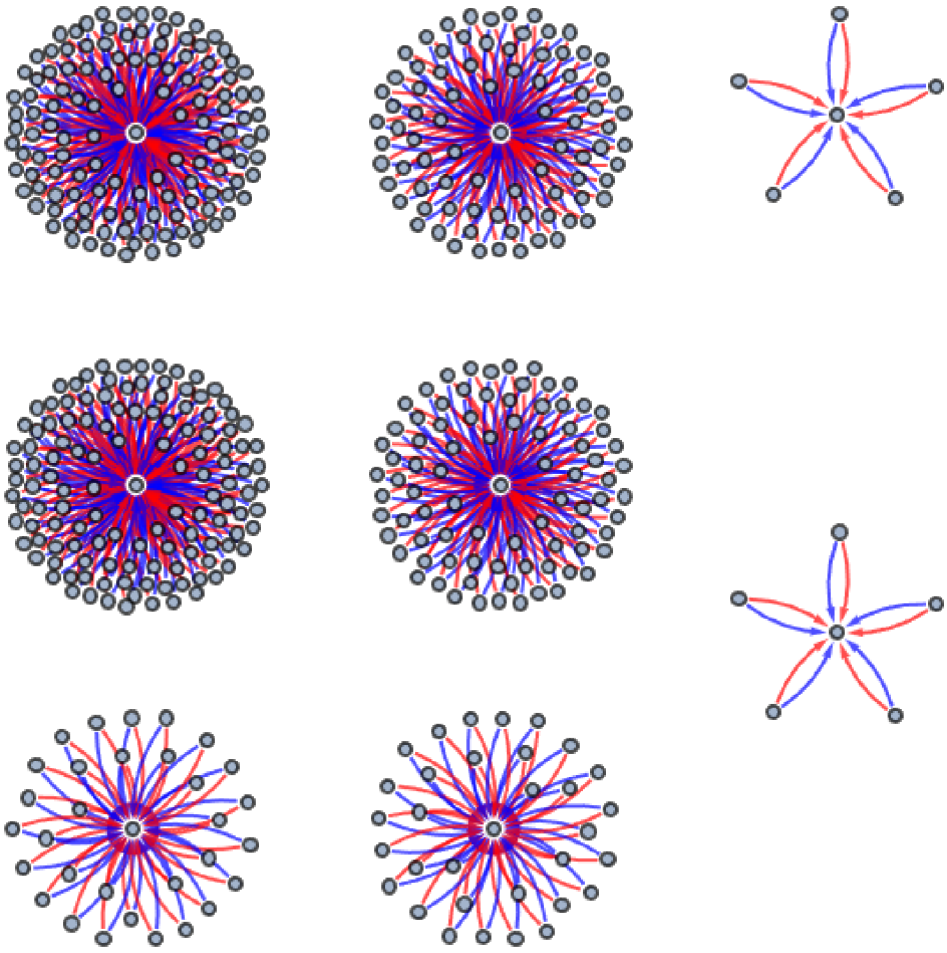


3. Shifters

F[n] = 1 + F[n - F[SplitShift[n]]]







3. Future Work

Optimise our implementation of the stack-based recursive function and explore even simpler arithmetic operations.