Graph Genomes

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The Problem

Everyone agrees that a graph-based reference genome is the future...

...but there is no roadmap to making it a reality.

Many difficult problems to solve

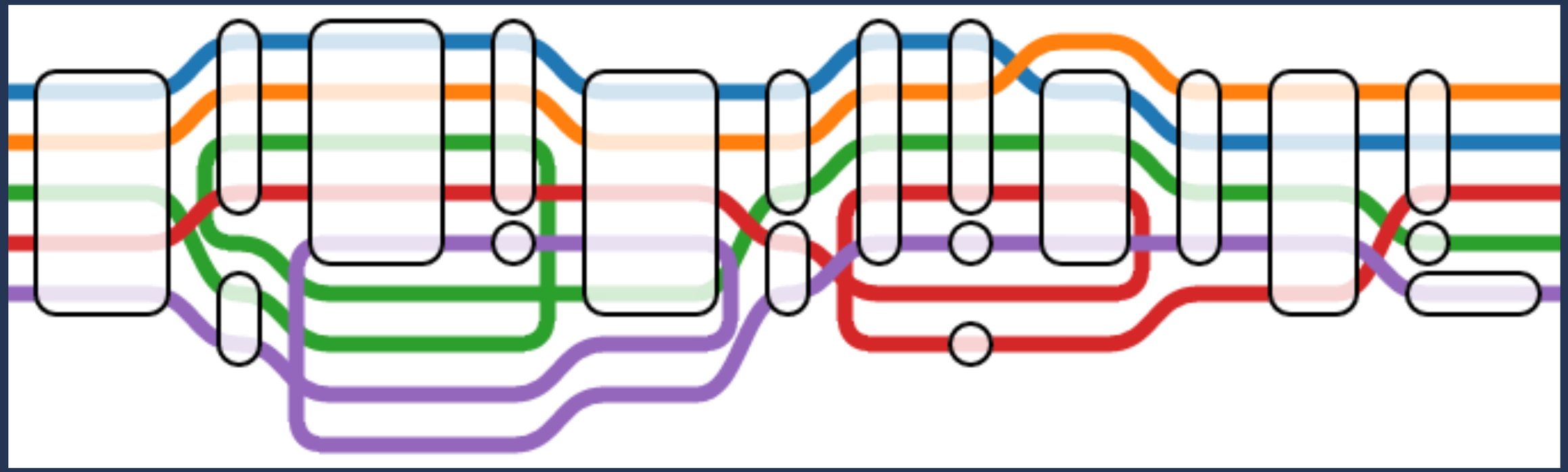
- Coordinate system
- Annotation
- Alignment/assembly tools
- **Visualization**

Our project

1. Simulate NGS reads from simulated genomes with structural variants
2. Build a graph representation of alignments to the reference genome (GRCh38)
3. Create an interactive (zoomed-in) visualization of the graph
4. Stretch-goal: zoomed-out visualization (chord graph?)

Strategy

1. Use existing simulation tool (SVgen)
2. Align using vg or Cortex
3. Convert GFA (graph format) to JSONGraph format
4. Visualization using Sequence Tube Maps



Example of a Sequence Tube Map