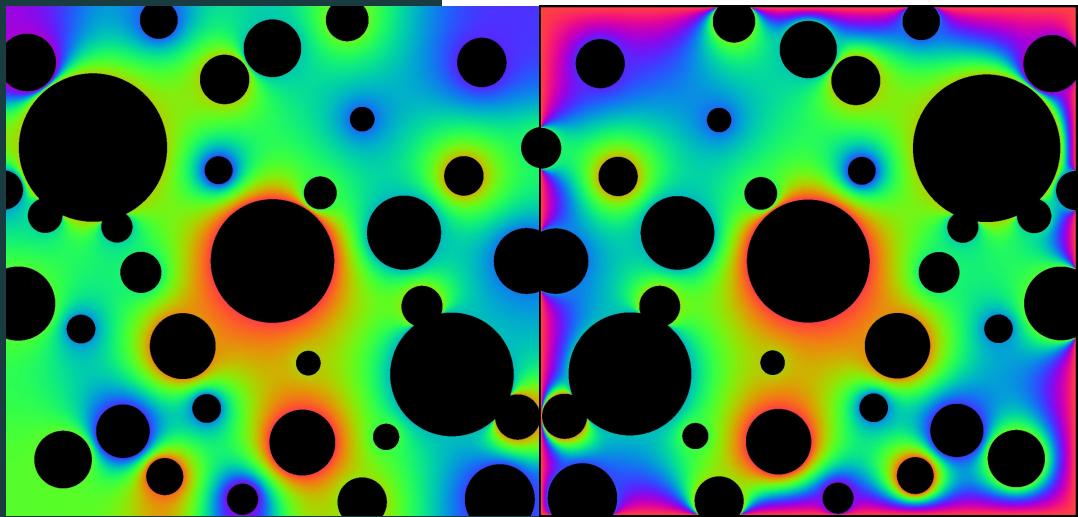
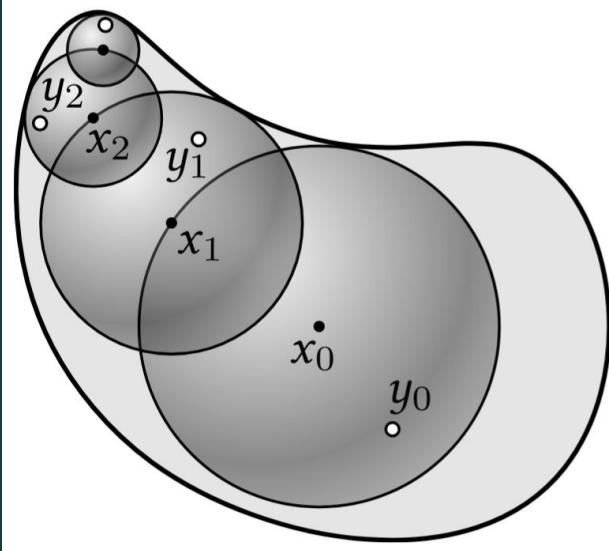


Lewis Gchrist, Hongyi (Johnny) Ding, Oliver Hendrych

Walk on Stars for Interactive PCB Simulation

Milestone 3 Presentation

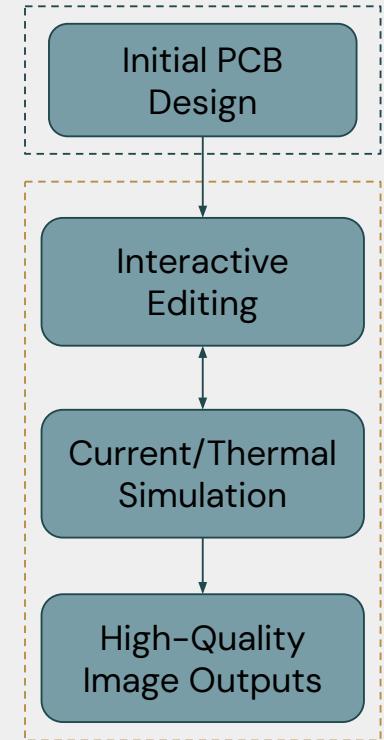


Overview

- **Our Tool:** WebGPU simulator using **Walk-on-Stars** algorithm for heat visualization with **interactive layout editing**
- **Goal:** Provide fast current / thermal insight during early design to catch hotspots and evaluate layout changes

KiCad Software

Our Website



Current Progress

Walk On Stars

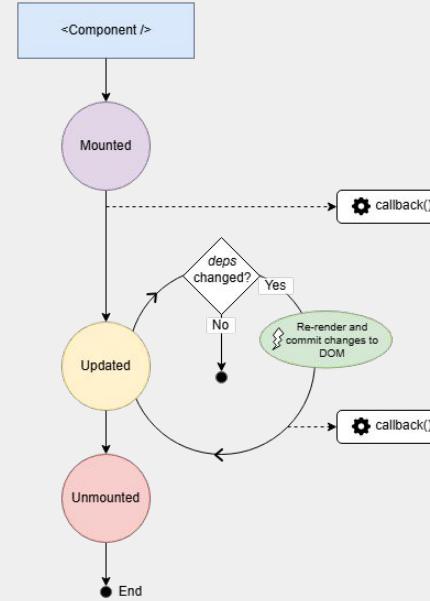
- Spacial grid acceleration structure for faster queries (WIP). Replaces naive querying every boundary in our scene per step for each walk
- Still working on implementing physical properties

Current Progress

PCB Interactivity

- Switched canvas and modifications elements over to React framework
- Forked kicadts package

useEffect() Hook



Current Progress

User Interface

- Added a toggle switch to turn simulation off
- Moved everything to React framework and introduced Material UI
- Draw interaction elements on a transparent canvas overlay
- Deployed to github pages

Live Demo

Next Steps

- Solver Finalizations
 - Physical properties incorporated into solver
 - Combine board interaction with solver / grid
- Interactivity Finalizations
 - Change more properties of PCB elements
 - UI Aesthetic improvements
 - Allow users to set probes on the simulation