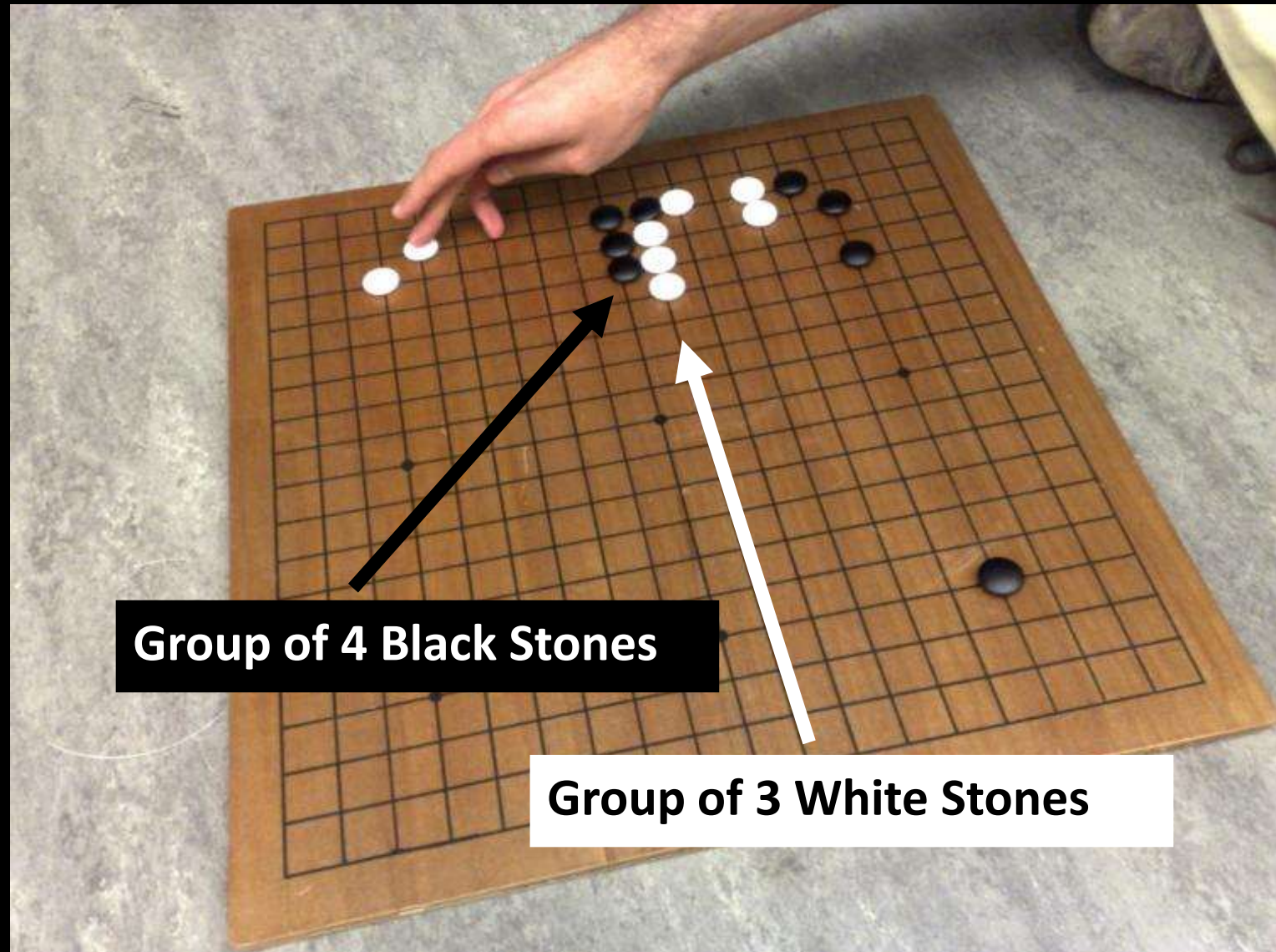# Recording a Game of Go

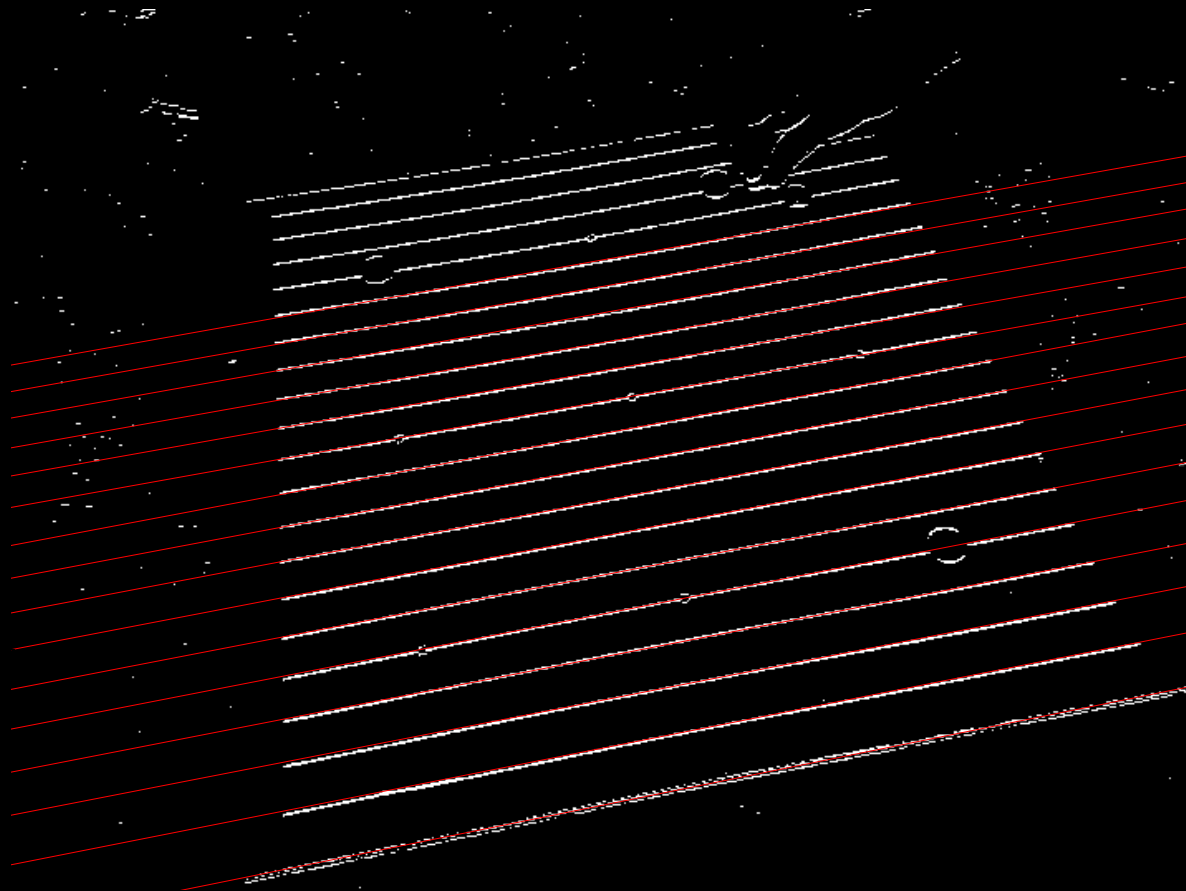## Steven Scher & Ryan Crabb

A Typical Go Game

Group of 4 Black Stones

Group of 3 White Stones

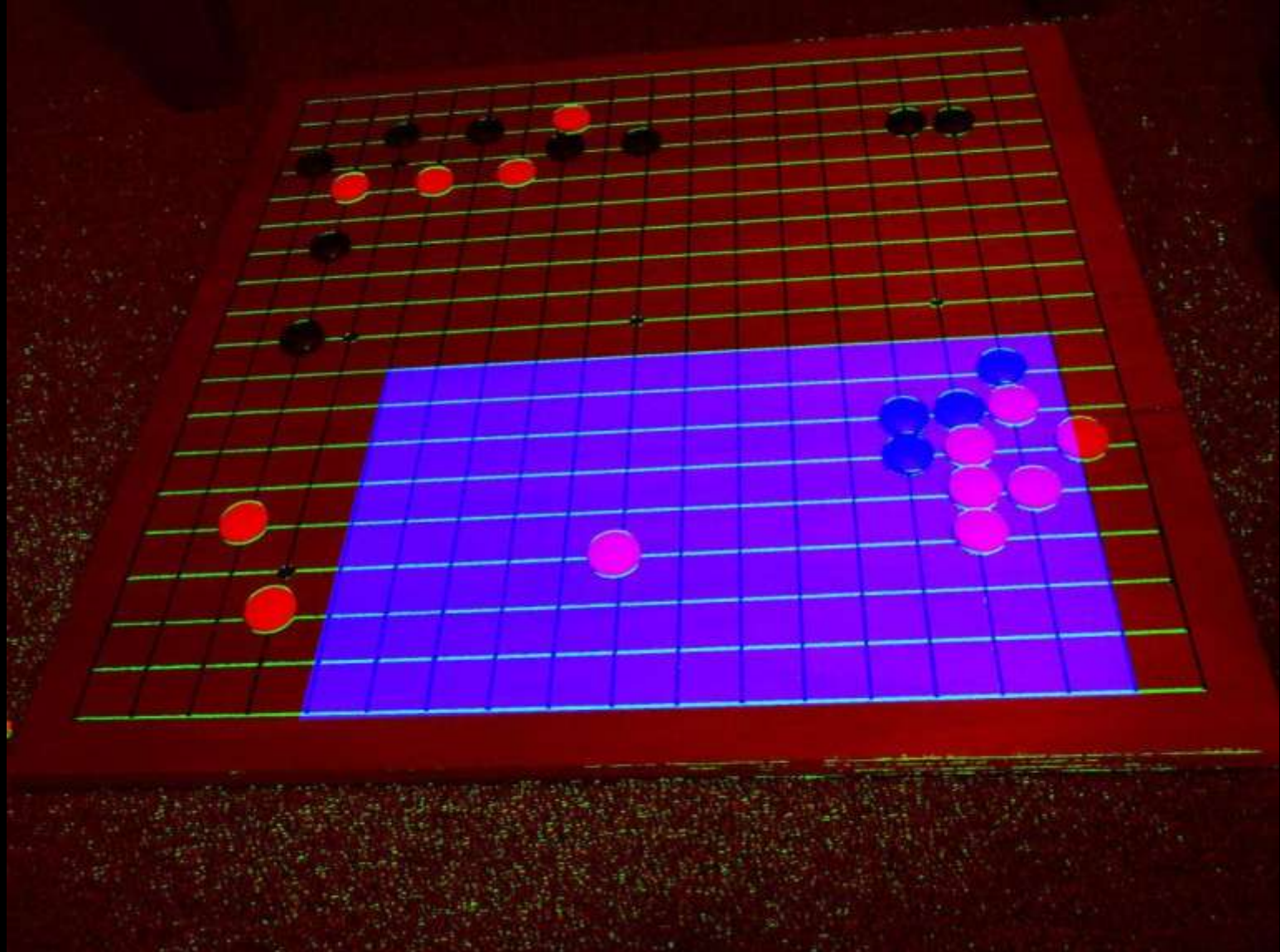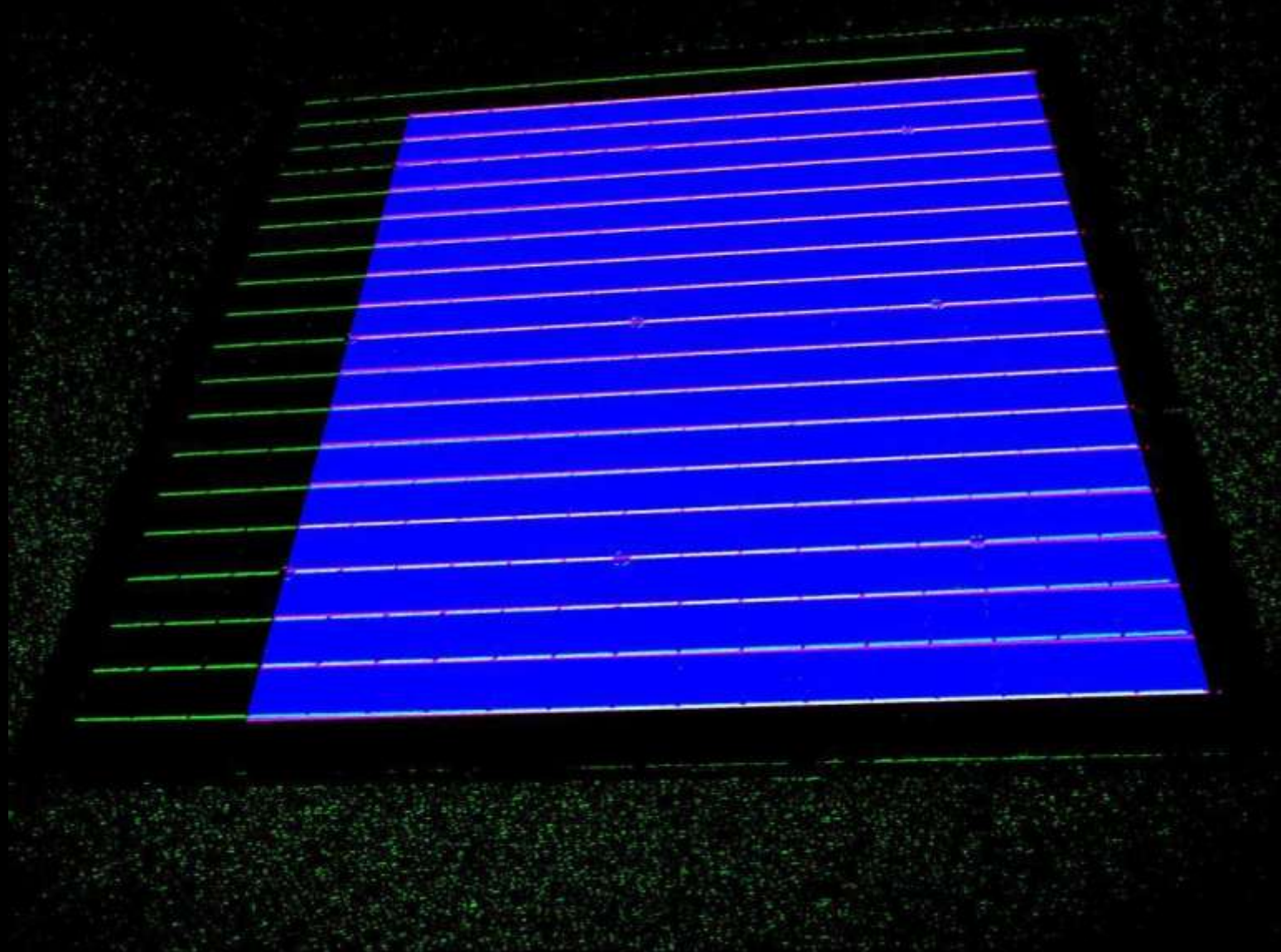# Ignoring Hands

Detecting Lines

RANSAC: Try a pair of pairs of lines
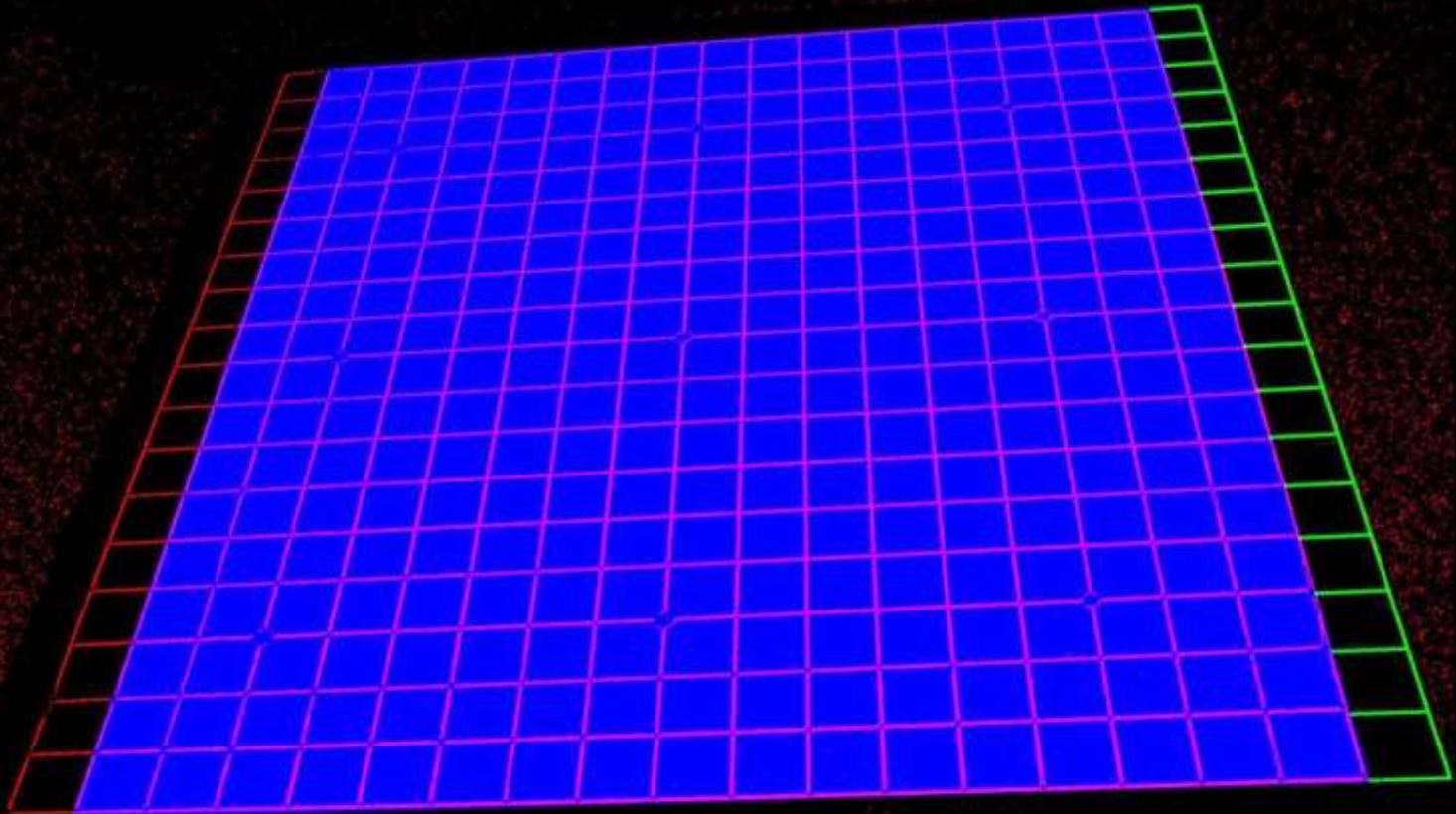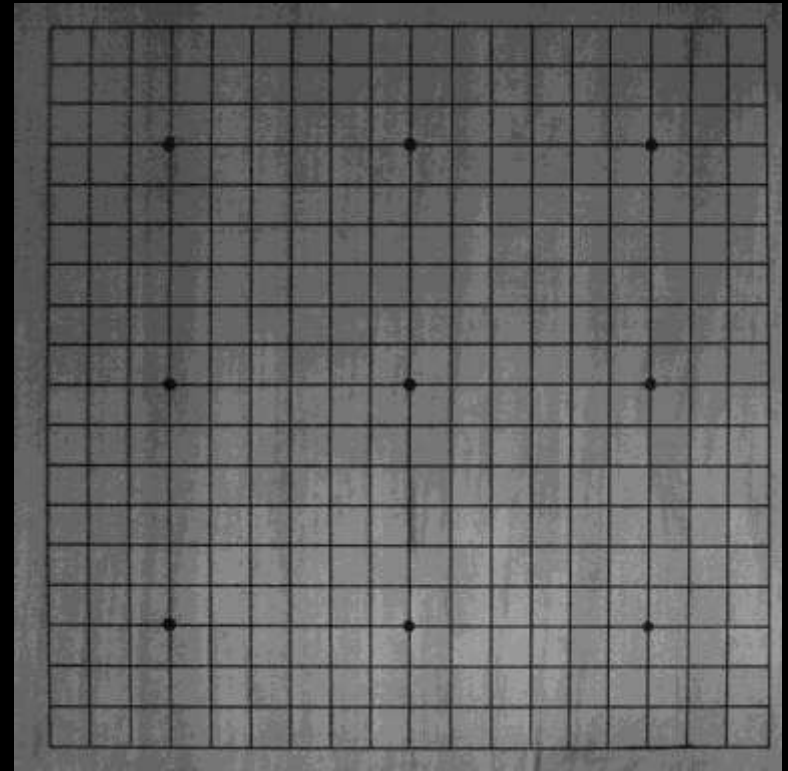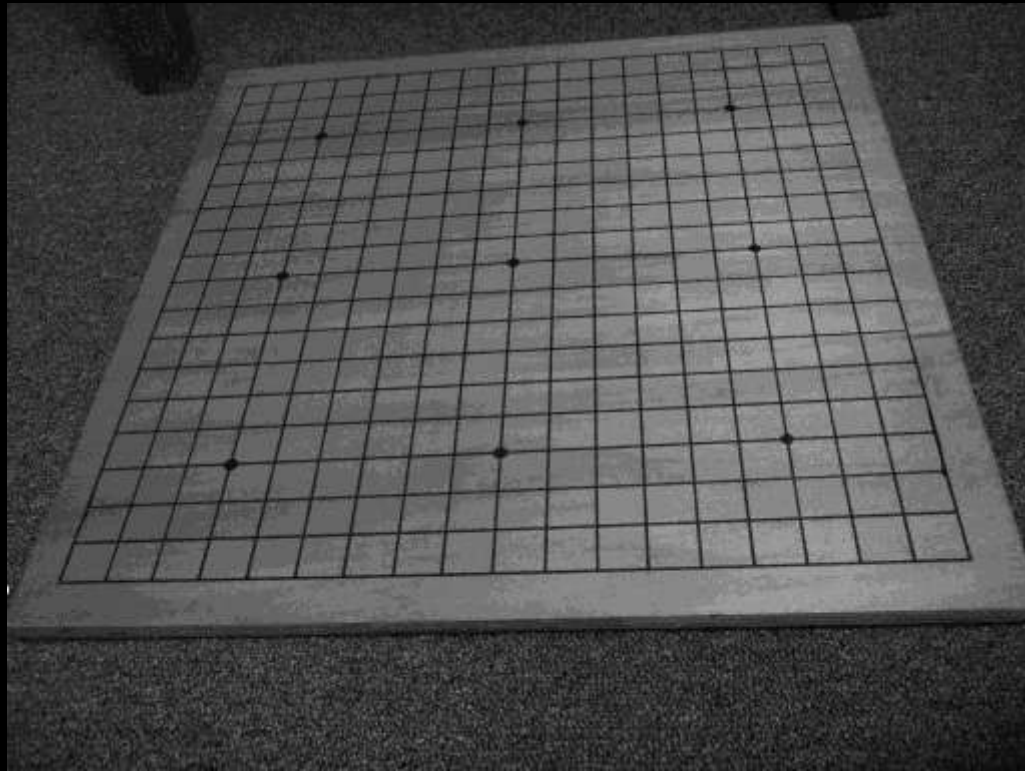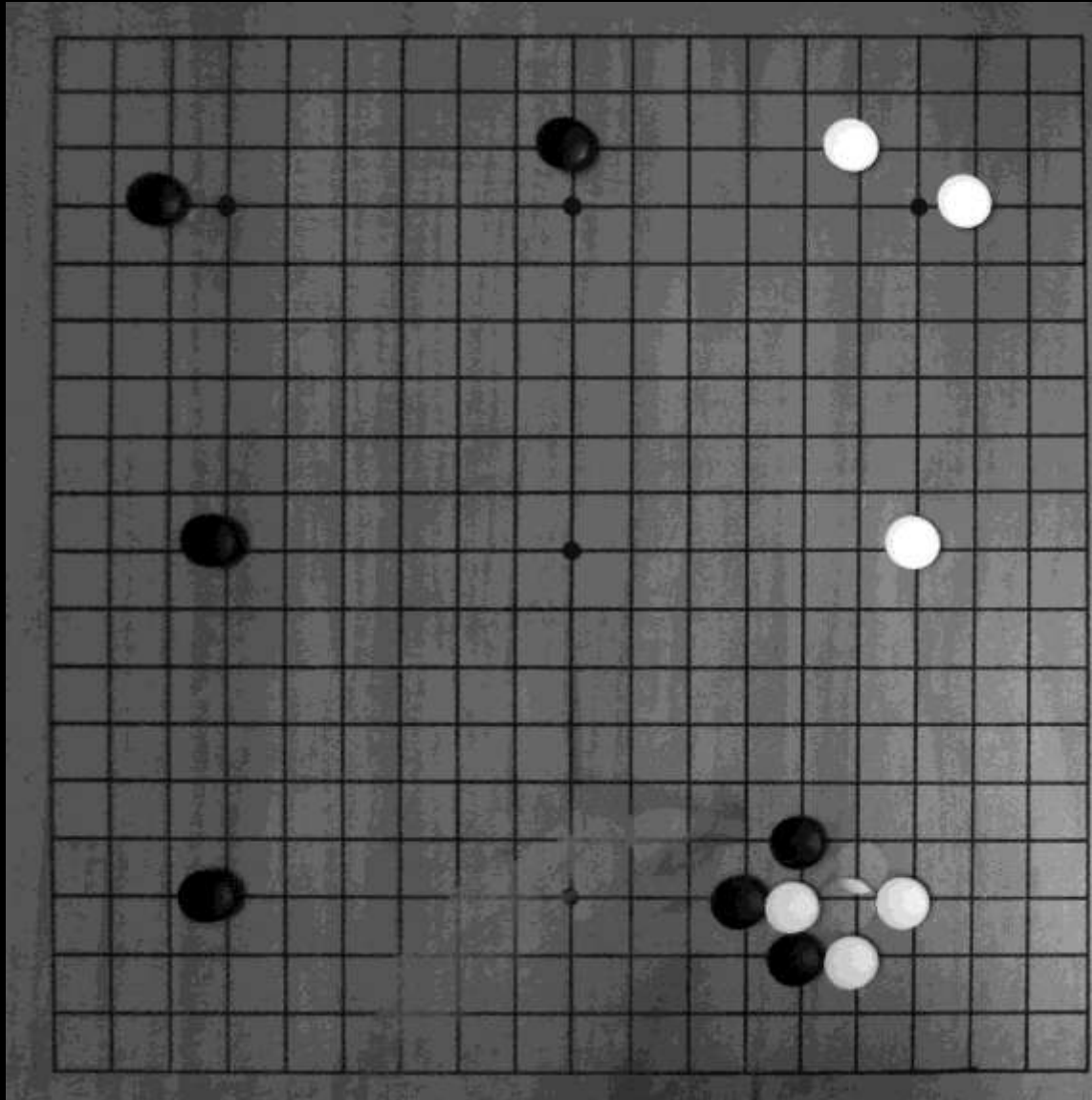
Ransac - Guess Spacing
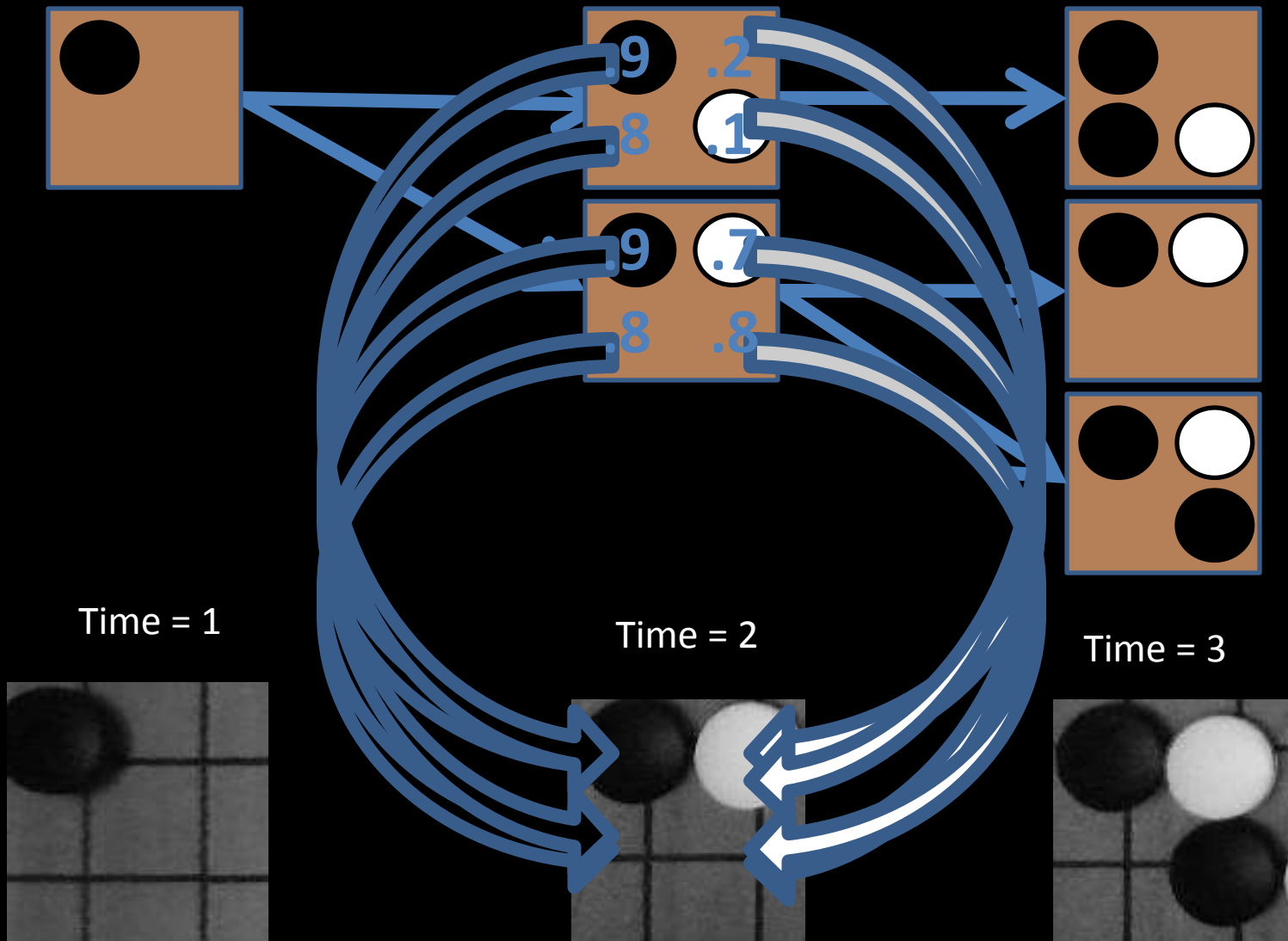
Grow Grid - Greedy
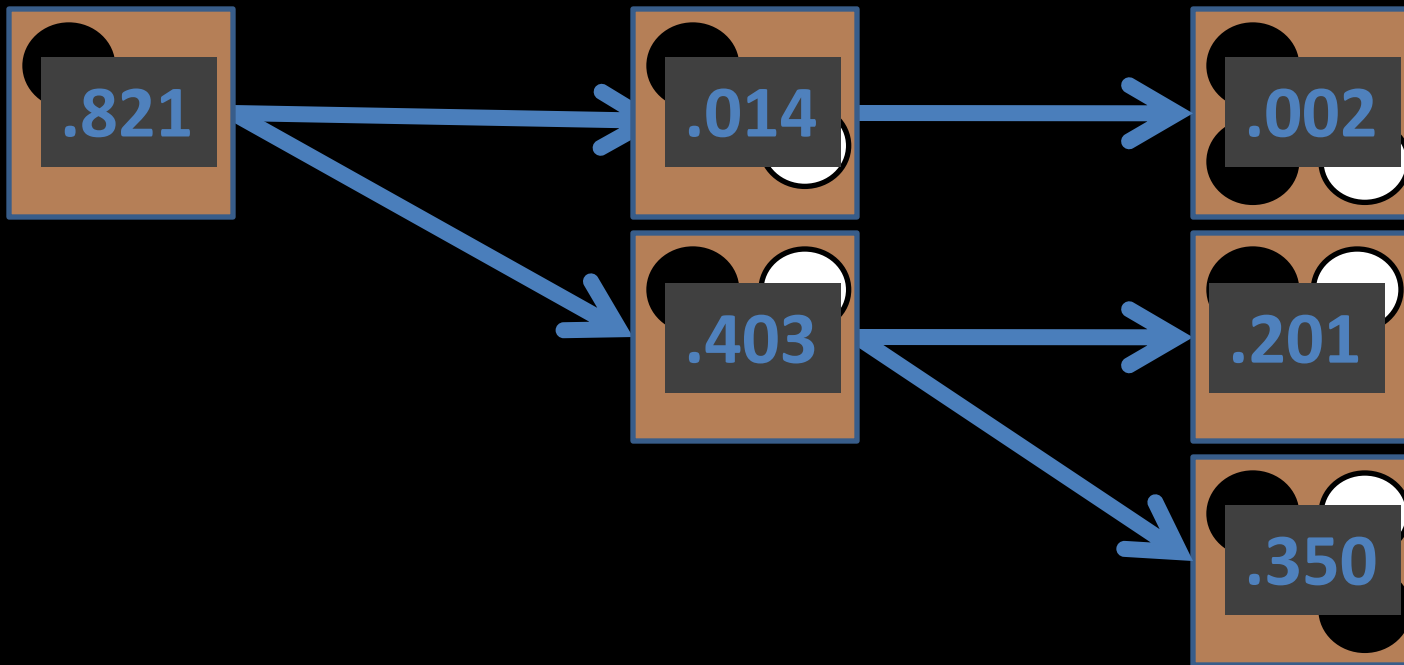
Rectify Image

Linear Filter == Template Matching

Result of Raw Stone Detector

Play movie vid1.avi
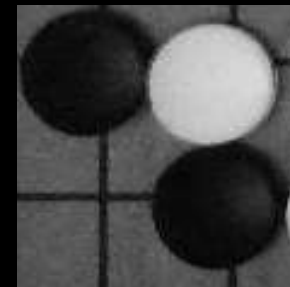
Optimal Move Sequence
is a shortest path

.9 .2
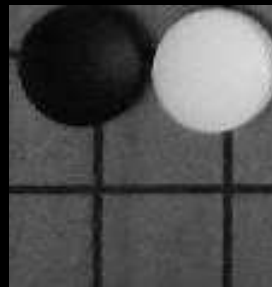
.8 .1

.9 .7

.8 .8

Time = 1

Time = 2

Time = 3

Optimal Move Sequence
is a shortest path

.821 → .014 → .002
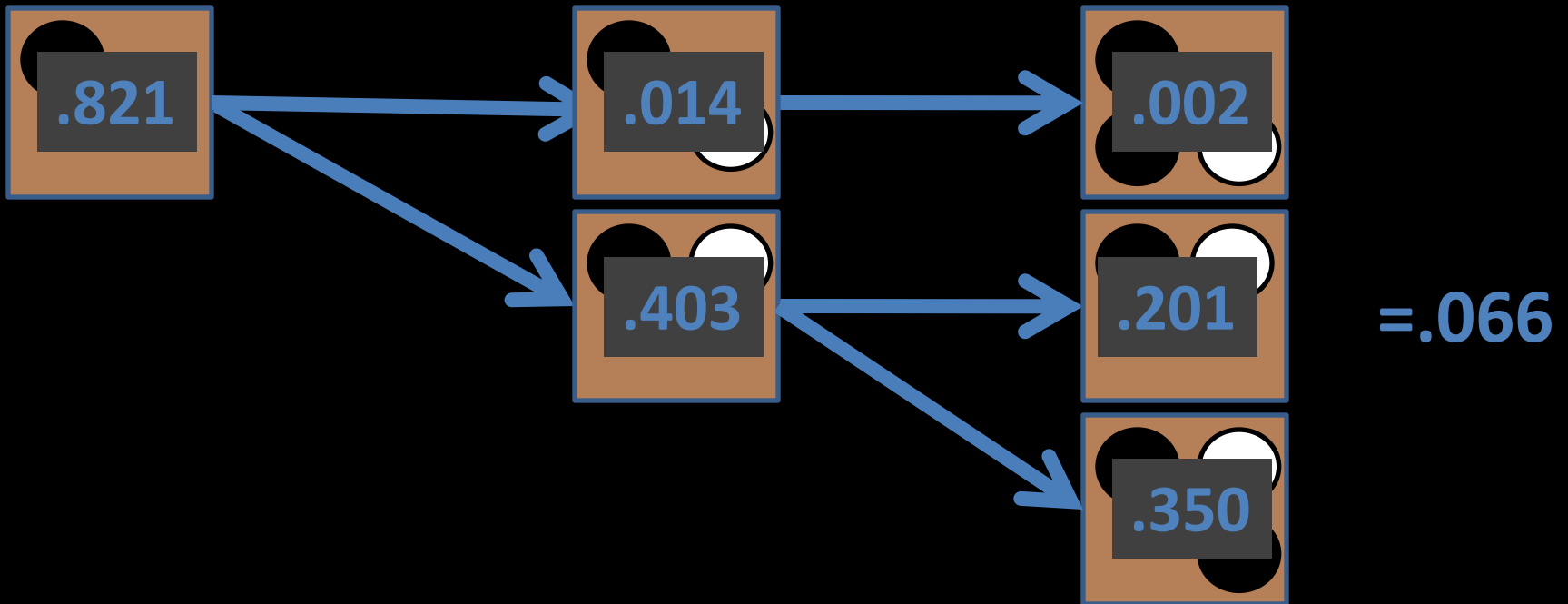.821 → .403
.403 → .201
.403 → .350

Time = 1

Time = 2

Time = 3

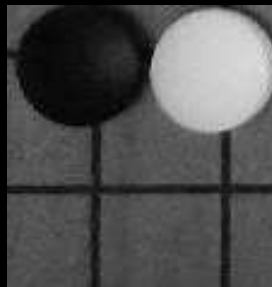# Optimal Move Sequence
is a shortest path

Time = 1
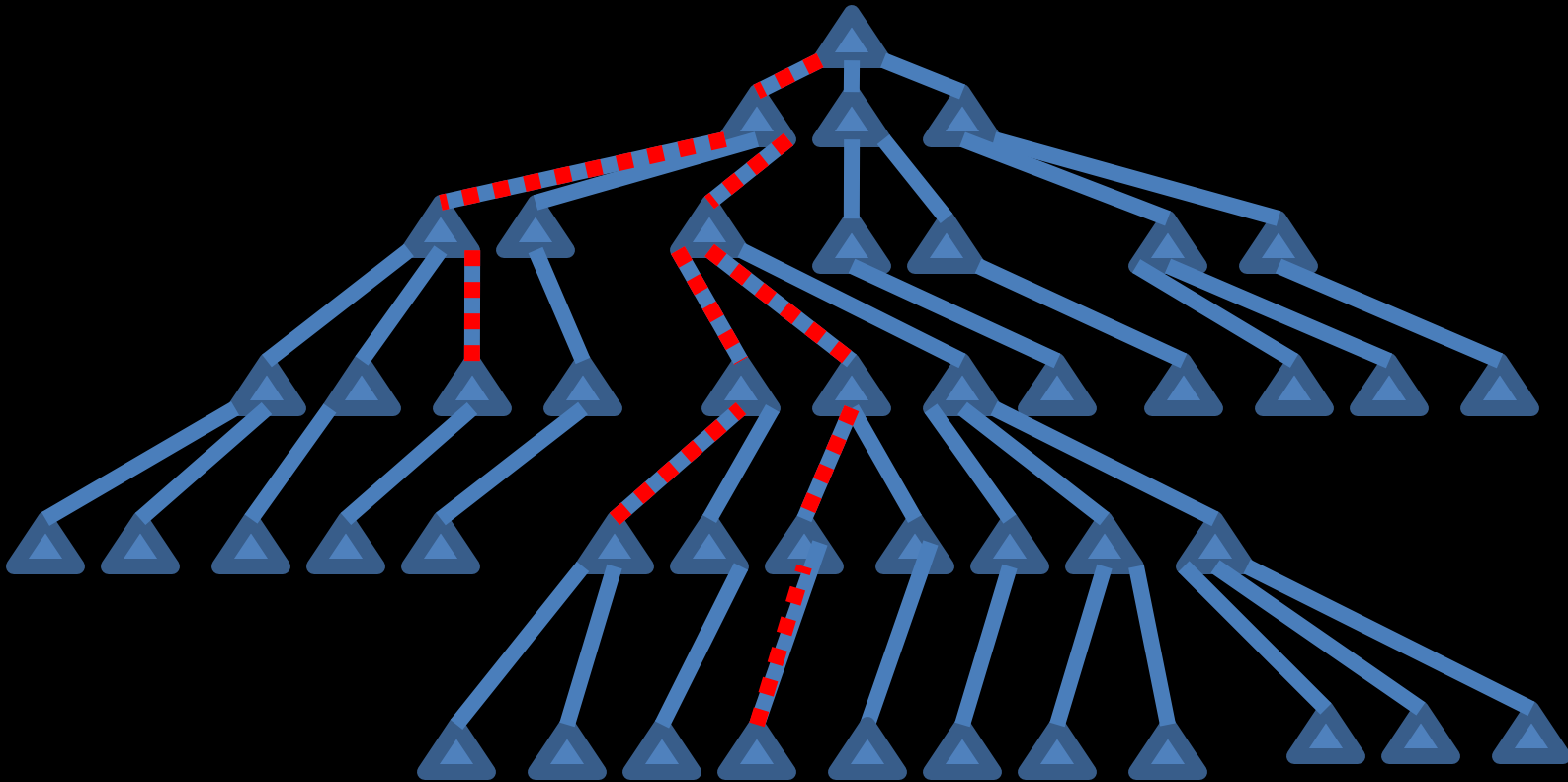
Time = 2

Time = 3
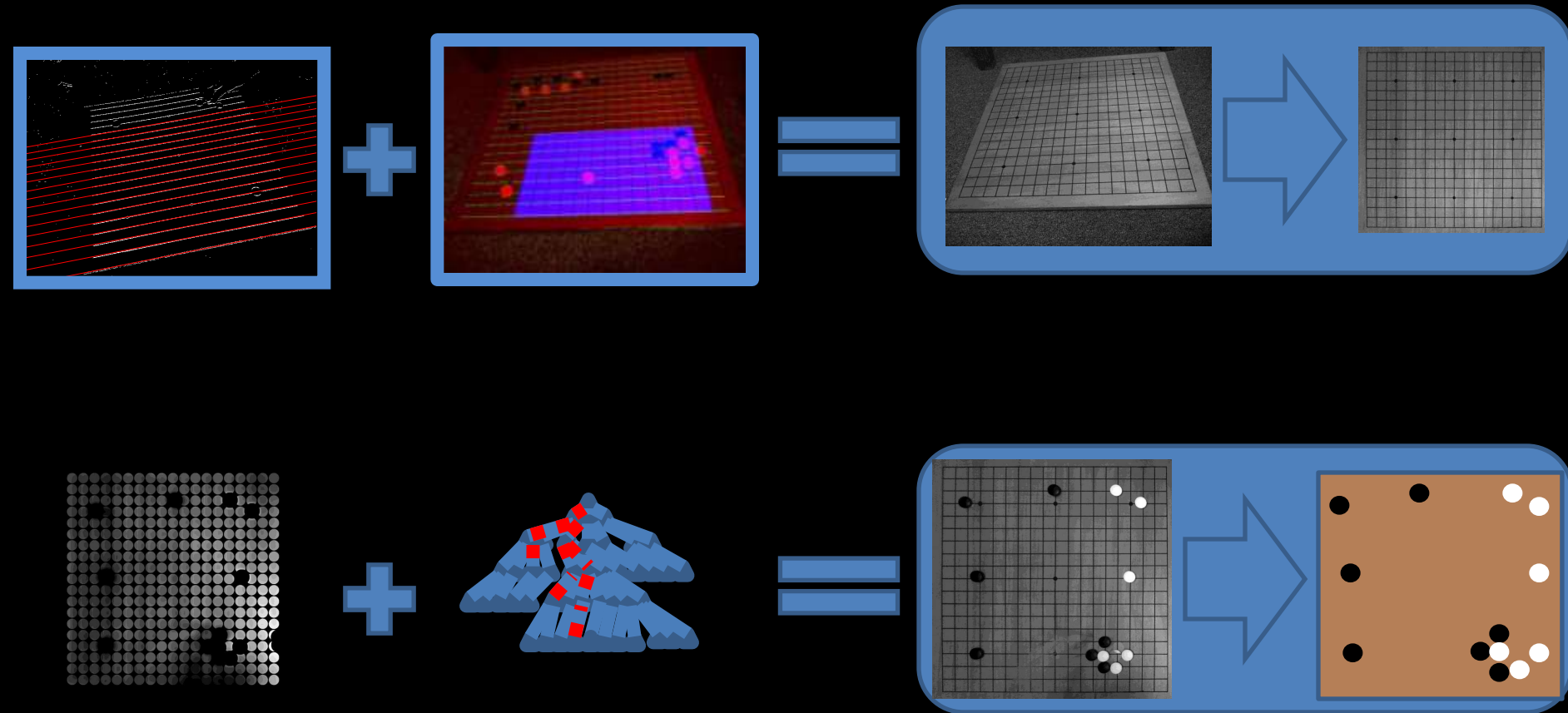
.821

.014

.002

.403

.201

.350

=.066

13

Greedy, Iterated
Depth-Limited Search

Optimal move sequence
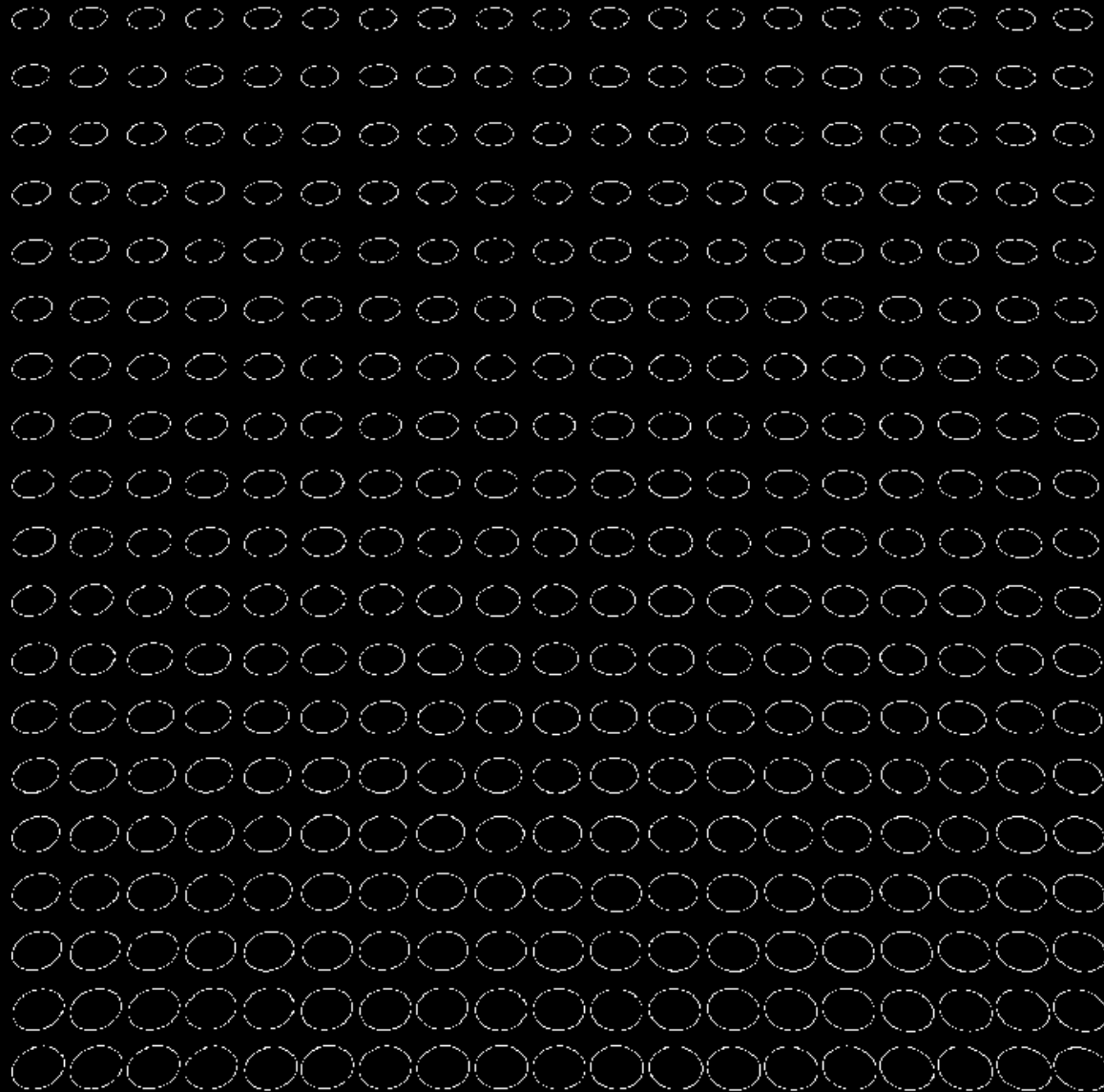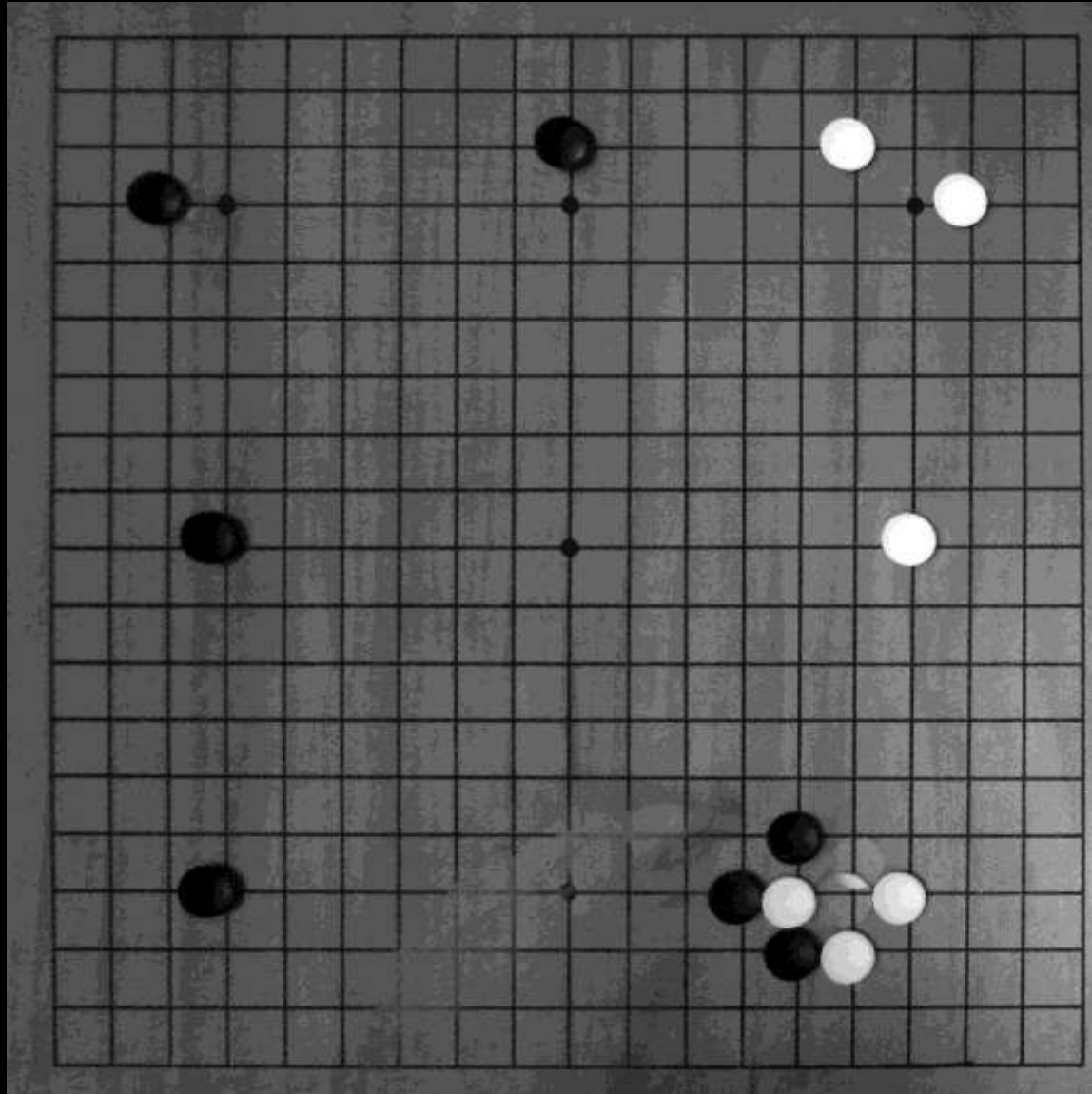
Play movie vid2.avi

Moral of the Story

Future Work

- Better Stone Detector
  - Use Gradients to find first 6 stones
  - Train SVM on first 6 stones
- Faster Shortest-Path search
  - transposition table

Alternative: Transform the circle we're looking for into the original image space

Keep Them Separated

Hard Cases
Brightness vs Gradients

**Brightness:
One Stone or two?**

**Gradients of white eye
& black stone similar**