3) Obstacle avoidance:

Certainity grids combined with Ganesha/ Artificial Potentials
Simulation

4) Sensing:

Close proximity sensors: Capacitive, contact, whiskers
Range : Pulsed laser-intensity sensors on each leg.
Extra recon sensors on beam to acommodate body.
Laser Range-finder chip?

5) Computing & power:

Fast detection Proximity << Range & reaction
Safety interrupts to avoid collisions but continue
Target: use 3/4th computing power of 68020
Sensing power < 4 W

Comments:

Reactive Body balance is combined with foot placement
Add impact sounding mode for lava tube walking.
Force sensors are invaluable for stance analysis and
detecting surface failure

Action Items:

Dynamic analysis
Sensor freeze
Feedback controller simulation, sensor analysis
Simulate stratergies

Reactive foot placement of beam walker

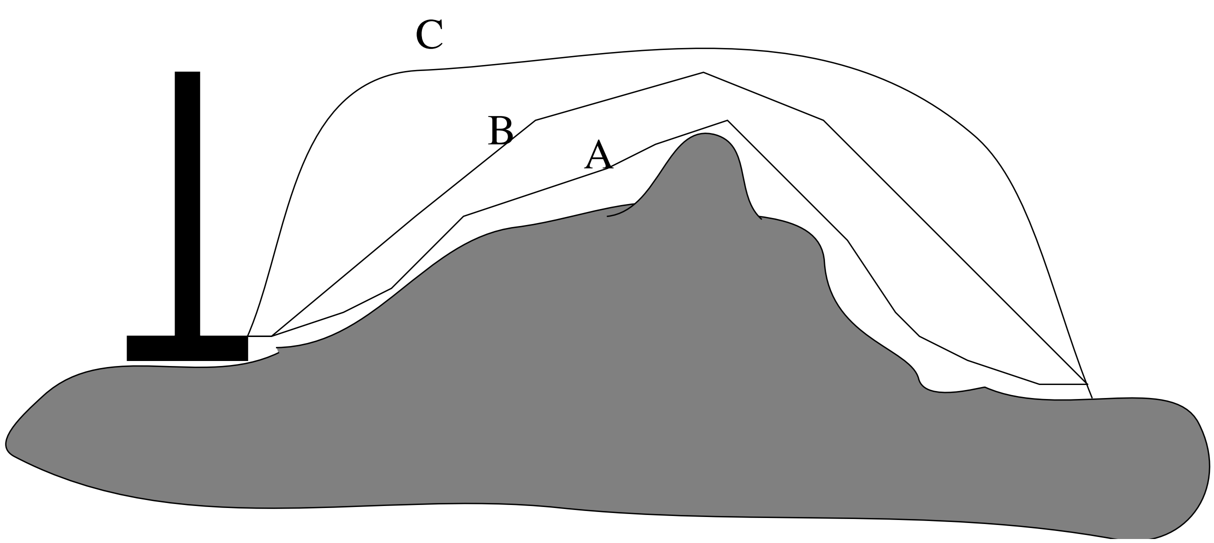
Lalit

Major issues:

1) Position, vel control body, legs:

Kinematic and Dynamic model (Kanes)
Damped body-leg position/vel control using model feedback
Simulate w. control delay

2) Reactive Walking:



A) First line of defense: Rugged proximity/contact sensors
B) Reactive leg and body motion based on distance sensors
C) Ideal, based on stereo/range sensors. Fastest, Safest.

Subproblems: Develop a lookup table for max speed based on the sensor capability (what is the range requirement for fast locomotion).
D) Ability to learn body lift based on sensor readings, exp.