LumiNet: Prototyping Organic Physical Networks
The Workshop

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www.luminet.cc
Get the following:

- 9 LumiNet nodes in 3x3 grid with cables
- 1 vector node (marked) with cable
- 1 battery
- 1 Arduino board (for serial link)
- Arduino LumiNet Edition software
  - from USB stick, DVD, or luminet.cc
LED jumper

North: Jan Borchers

East

South

West

VCC 0 1 GND

VCC

/Reset

GND

VCC

GND

VCC

SCK 9 MISO 10 MOSI

VCC 5 4 GND
Horizontal connection

![Horizontal connection diagram](image-url)
Vertical connection
Blink for LumiNet

- Mac: Get Info on Arduino for LumiNet app, check 32bit option
- Launch Arduino for LumiNet
- Select board: “LumiNet Vector Node”
- Select your serial port
- Open Sketchbook: Examples: Digital: Blink
- Upload sketch as usual
Programming by Infection

- Disconnect vector from Arduino
- Remove jumper cable from vector
- Connect vector to LumiNet network
- Connect battery to any Vcc+GND pins
- Power up LumiNet
- Watch infection spread (~ 1 minute)
- When all nodes are blue or green, power off
Run LumiNet Blink

- Remove vector
- Power on
- All nodes should blink
- Congratulations!
Experiment #2: LightRing

- Power net off and remove vector
- Put vector jumper cable back
- Connect vector to Arduino again
Install LightRing code on LumiNet

• Load LightRing code from file (came with IDE)
• Upload to vector
• Remove jumper cable from vector
• Move vector from Arduino back to net
• Power up net to infect it (takes a while)
• Power down net, remove vector, power up
Using LightRing

- Ground any RX pin (e.g., pin 7) with a jumper cable for light ripple effects

- How does LightRing work?
  - Buffers incoming signal on all 4 sides, passes it on after 100ms to opposite side and immediately to the other 2 sides

  - Simple code, emergent behavior
Experiment #3: Social LightRing

- Connect IR sender/receiver node to any node
- Remember to connect only
  - WEST to EAST or
  - NORTH to SOUTH!
- To orient boards correctly, let jumper point to upper left corner
- Pass light ripples from net to net or jacket!
luminet.cc