While you wait…

- Install Python 2.7, PIL and Arduino
  - http://www.pythonware.com/products/pil/
  - http://arduino.cc/en/main/software
- Download the Tamagotchi tools
  - https://github.com/natashenka/Egg-Shell
- Put batteries into your Tamagotchi
  - There's a few screwdrivers floating around
- Hatch your Tamagotchi
  - Press 'B' to get started
- Connect the Egg Shell board to your laptop via USB make sure it's recognized as a LilyPad USB Arduino

Hacking Tamagotchis for Fun and...

... Well, That's Pretty Much It

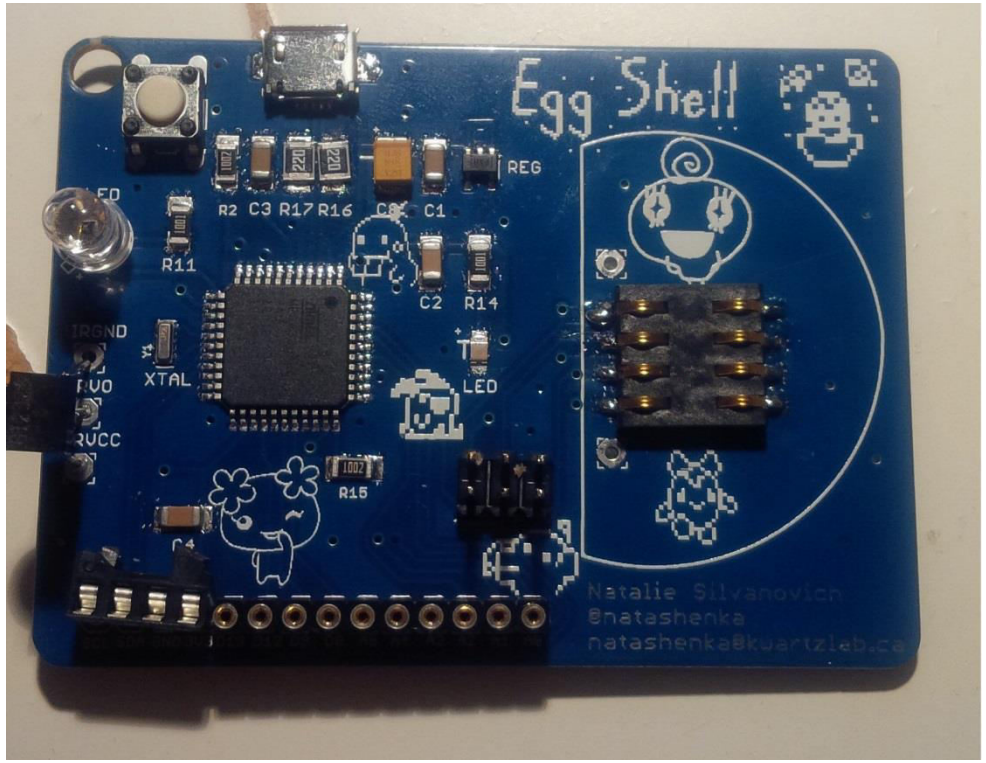
Natalie Silvanovich
@natashenka

Your Tamagotchi

- Press ‘B’ button and enter details to start hatching
- Once hatched, press ‘A’ to navigate, ‘B’ to select and ‘C’ to cancel
- The top right icon is the figure icon (only appears when figure attached)
  - Most tools use figures
- Press A + C to turn off sound
- Feed it quickly before it dies!!!

Egg Shell Board

- Supports figure programming over SPI and IR (no software)
- Detected as a Lilypad USB Arduino over USB



Programming a Figure

- Use serw.py to program figure (Egg-Shell\board\30c3\boardsw)

```
serw.py port infile
```

- Loads figure image file onto figure
- Image files must be 0x80000 bytes long
- Board must be reset using button between each load

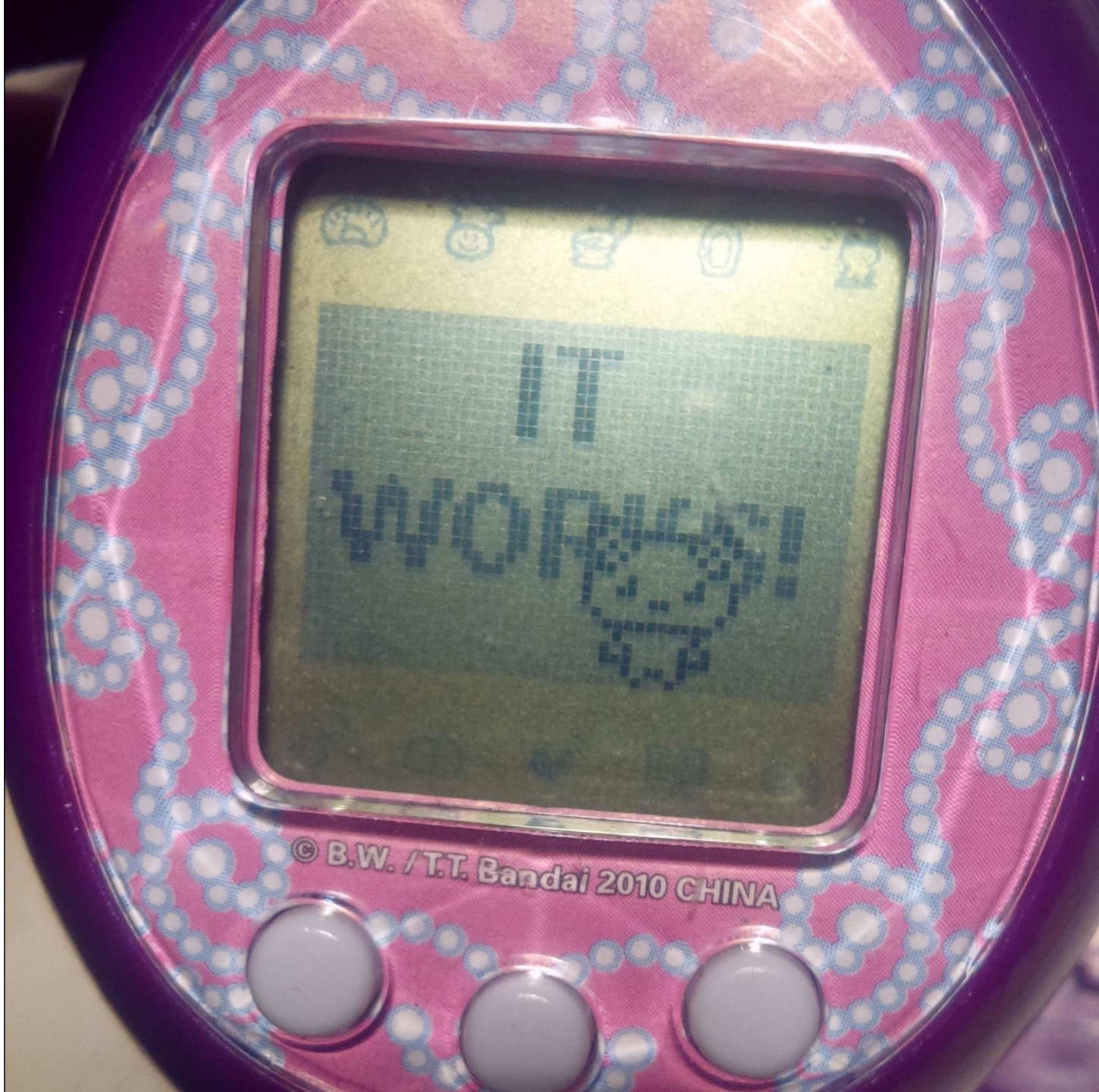
WARNING: program only the figure that came in separate packaging. Do NOT program the one that came with the Tamagotchi!! Tamagotchis (and boards) WILL DIE!!!!!!!!!!

Programming a Figure

- Programming a figure requires pressure!
  - Push hard!
  - 9/10 programming failures are caused by not pushing hard enough

Testing the Board

- Load Egg-Shell/test/itworks.txt
- Attach figure



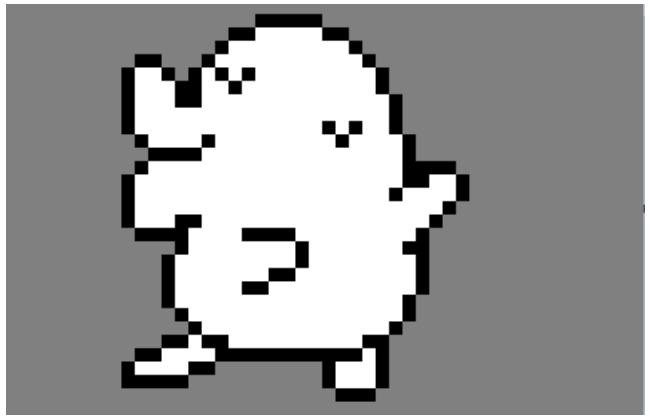
Creating Your Own Picture

- Find a 48 x 31 picture
  - Or use one from /samples
- Save it as a 16-bit bitmap using four tones
  - Note that images are three-tone. Dark grey, grey and white show up as expected. Black is transparent.
- Run

```
portrait.py <your image> <outfile>
```

- Load image
- Attach figure

Creating a Tamagotchi Music Video



- Create a script for your ‘video’
  - See /itemmake/samplescript
- Add images and sound
- Run

```
itemmake.py <script> <outfile>
```

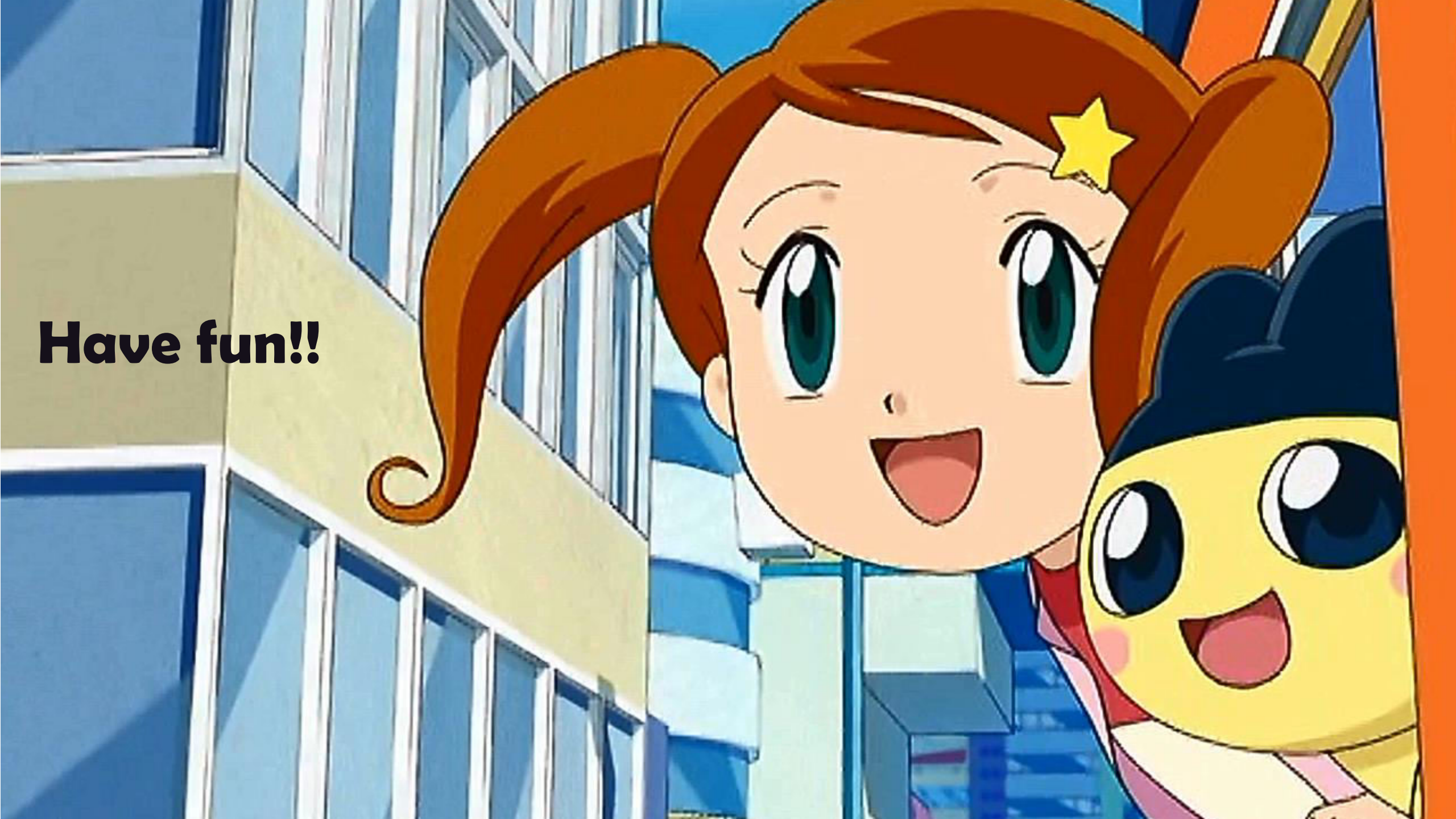
- Load image
- Buy item
  - There’s entropy involved!
- Use item

Writing Assembly

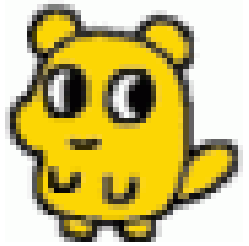
- Write 6502 assembly
  - See /6502/samples
- 0x100 – 0x200 is usable RAM
  - The stack is great too
- Check README for convenience functions
- Run

```
tASMgotchi.py <infile> <images> -o <outfile>
```

- Load image onto figure
- Play “Sound Block” in the figure games


Have fun!!

Questions?



natalie@natashenka.ca

@natashenka

Don’t forget to show me all the cool stuff you made!