Why are computer programs so frustrating?

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Harvard Airplane (WWII)
You don’t always want the landing gear down.
The Harvard Control Panel

Problem #1: Conditioned response
stall -> push button; therefore stimulus nullified
Problem #2: Negative transfer

T-33’s: tip-tank jettison button in same location
Who’s fault was it that these planes crashed?
What makes a great hammer?

Efficiency: It can drive in nails faster.
What makes a great hammer?

Make the head move faster by lengthening the handle.

Make the head heavier.
Eventually, you end up with a hammer than no human can lift.

Do you blame the human?
Instead of blaming your user, build a better tool.
You can’t just build it the way you that makes sense to you.
Quick Test...

Count the green squares...you will have three seconds...
How many were there?
You are here.
You are here.
Ever felt this way?
What works for you may not work for others.
To make software that works for real people, you have to get inside the heads of real people.
Storytelling Alice Demo

Warning: This demo shows cartoon characters kissing
philip.kiss No parameters
No variables
(Do Nothing)

- target
- the entire World
- ground
- kristen
- philip
- LunchLad
- Cafeteria
- Camera
- Light
- Camera Tripods

- Do in order
- Do together
- Set
- Loop
- While
- For all in order
- For all together
- Wait
- print
Objects: add new objects
- kristen
- philip
  - hips
  - lowerTorso
  - upperTorso
  - neck
  - head
  - rightUpperArm

Scenes: create new scene
- current scene
  - Opening Scene Tripod

Events: create new event
- When the world starts, do World.scene 1 method

head's details
- properties
- methods
- functions
  - head turn
  - head roll
  - head straighten up
  - head move
  - head resize

philip.kiss
- No parameters
- No variables

philip.kiss
- walk to kristen
- amount = 0
- more...

- Do together
- touch kristen
- side = left
- more...

- Loop 2 times
- times
- show complicated version

- philip.hips.lowerTorso.upperTorso.neck.head roll left 0.1 revolutions more...
- philip.hips.lowerTorso.upperTorso.neck.head roll right 0.1 revolutions more...

- Do in order
- Do together
- If
- Else
- Loop
- While
- For all in order
- For all together
- Wait
- print
Kristen, I love you....
Why build Storytelling Alice?

1. Enable kids to build their own animated stories because it’s fun.
2. Give more kids a little taste of computer science.

When you build a story or a game in Storytelling Alice, you’re using the same kinds of blocks that professional computer scientists use to solve important problems.
Tamagotchi
Tamagotchi

When Tamagotchi needs something, it calls you with a beep and the Attention icon is highlighted. Check what it needs with the Hunger Meter and play, feed or discipline them.
Caring for a Virtual Dragon
Oh no! Sorin died.
So, basically...

We watch the dragon’s hunger. When it gets larger than a certain value, we tell the user that it’s time to feed him (by turning the plate red).

Where else do we have this same problem?
A simple computer program monitors patient’s heart rates, respiratory rates, etc. If they rise or drop to a dangerous level, the programs sounds an alarm to call a nurse or doctor.
As a computer scientist, you can work on problems in almost any field.
Computer Science and Psychology

Virtual Reality to help treat phobias: arachnophobia (spiders), acrophobia (heights), agoraphobia (public places), etc.
Computer Science and Education

Project LISTEN is a reading tutor that uses speech recognition to listen to and help beginning readers.

Washington University in St. Louis
Computer Science and Nursing

NurseBot is a project that seeks to develop mobile, personal service robots that assist elderly people suffering from chronic disorders in their everyday life.

Washington University in St. Louis
Try it...

- Download Storytelling Alice from www.alice.org