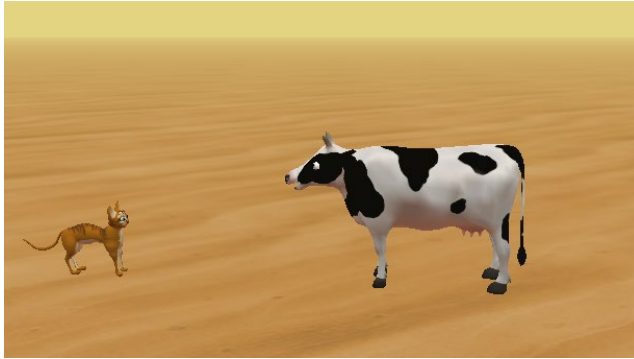


# CompSci 94

## Introduction to Programming Animation and Virtual Worlds

### August 27, 2024

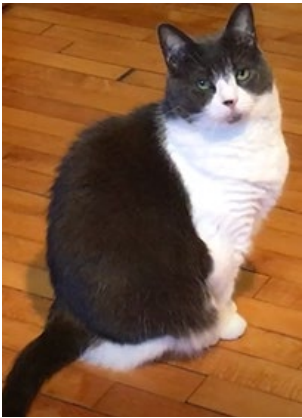


Prof. Susan Rodger

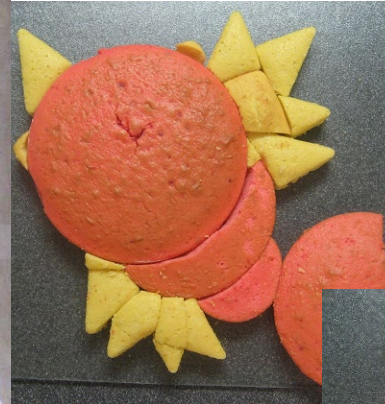
# Class Today

- Go over syllabus, web page
- Introduce computer science and Alice
- Demos of Alice
  - Simple world/sample Alice worlds
- Classwork – Get to know each other
- Course website:  
[www.cs.duke.edu/courses/fall24/compsci94](http://www.cs.duke.edu/courses/fall24/compsci94)

# About Prof. Rodger



How do you keep  
your sanity?



# TA/UTA introductions


- Graduate TA: Jiasheng Wang
- Undergraduate TAs:
  - Caroline Dolan Gilman
  - Linnea Kuruvilla
  - Abby Melton
  - Charley Nasiedlak





# Course Web page

[www.cs.duke.edu/courses/fall24/compsci94](https://www.cs.duke.edu/courses/fall24/compsci94)



**CompSci 94, Fall 2024 Home**

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**CompSci 94  
Introduction to Programming  
Via Animation and 3D Virtual  
Worlds**

CompSci 94 is an introductory programming course that teaches fundamental computer science concepts and animation concepts. This version of CompSci 94 uses the tool Alice 3 (see below on how to install) to create 3-D virtual worlds. You will learn programming constructs such as repetition (calculating how many steps a person needs to walk to their car), selection (deciding which animal is the tallest), and organizing data (grouping penguins to waddle together), along with how to control objects (raise hands, flap wings, move, turn, spin, walk, etc.). You will learn animation concepts such as how to position 3-D objects in a 3-D space, moving a camera between different tripods, and creating events (when the person is close to the door, have the door automatically open). At the later part of the semester we will make some interactive games.

# What is Computer Science?

- Computer science is no more about computers than astronomy is about telescopes. - Edsger Dijkstra



- Computer science is not as old as physics; it lags by a couple hundred years. However, this does not mean that there is significantly less on the computer scientist's plate than on the physicist's: younger it may be, but it has had a far more intense upbringing! - Richard Feynman



# Computer Science is a young discipline

- First computer science department formed in 1962



1962

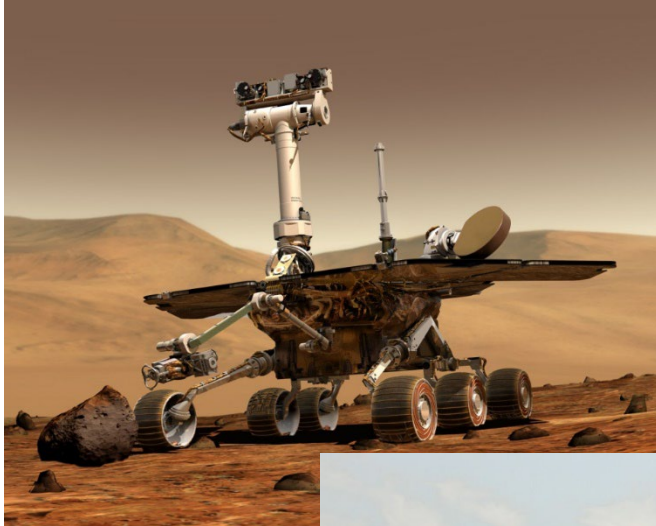


## **Samuel D. Conte**

Professor emeritus of computer science and mathematics was the founding department head of the nation's first computer science program. October 1962.

# What is Computer Science?

- Artificial Intelligence



Spirit,  
Mars Rover



Self-driving car



Roomba



Personal Robot



# What is Computer Science?

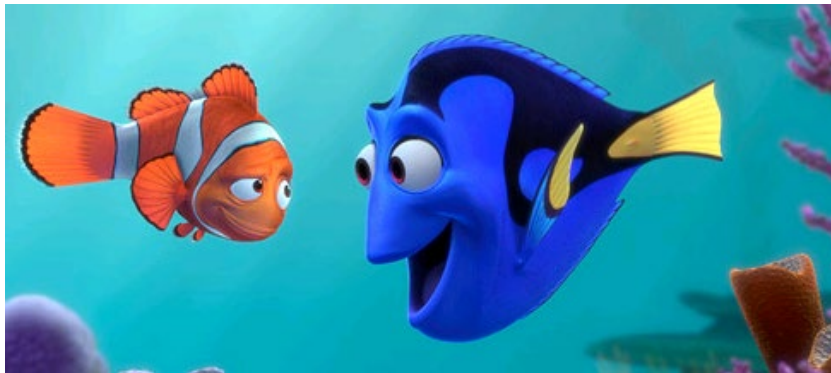
- Medicine, Genomics



Co

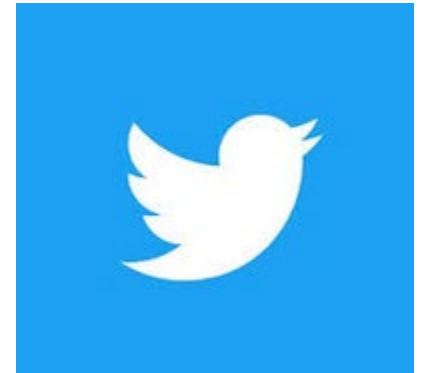
# What is Computer Science?

- Animation



# What is Computer Science?

- The Organization of Data, Sharing, and Searching



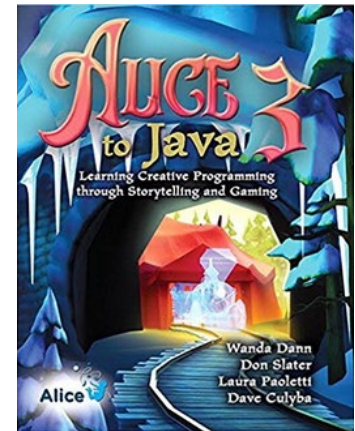
# Computer Science and Programming

- Computer Science is more than programming
  - Called *Informatics* in many countries
  - Elements of both science and engineering
  - Elements of math, physics, cognitive science, music, art, and many other fields
- To some programming is an art, to others a science, to others an engineering discipline.



# What Will We Do in CompSci 94?

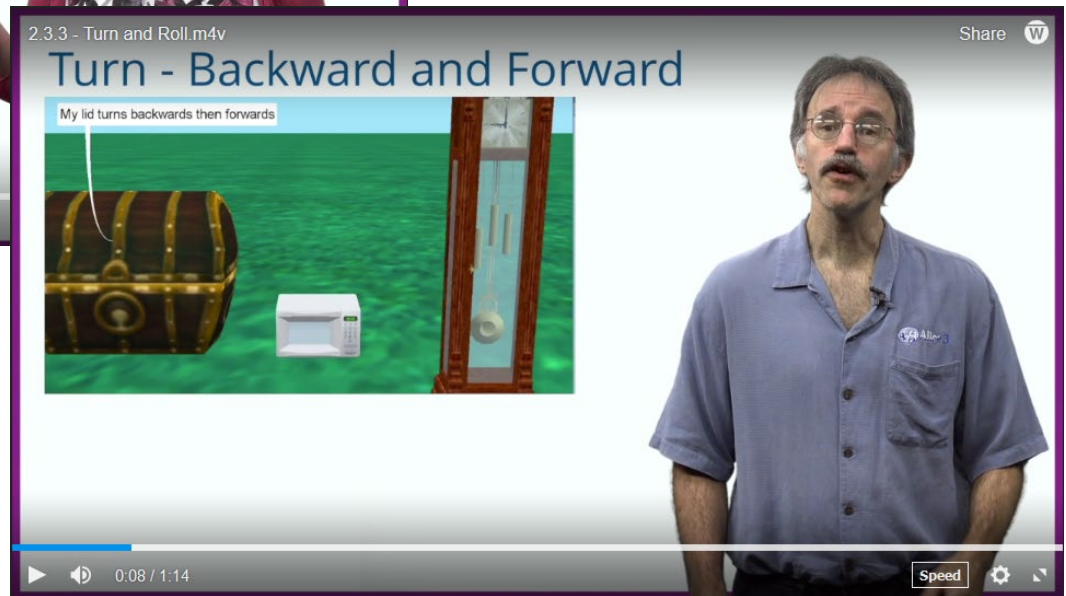
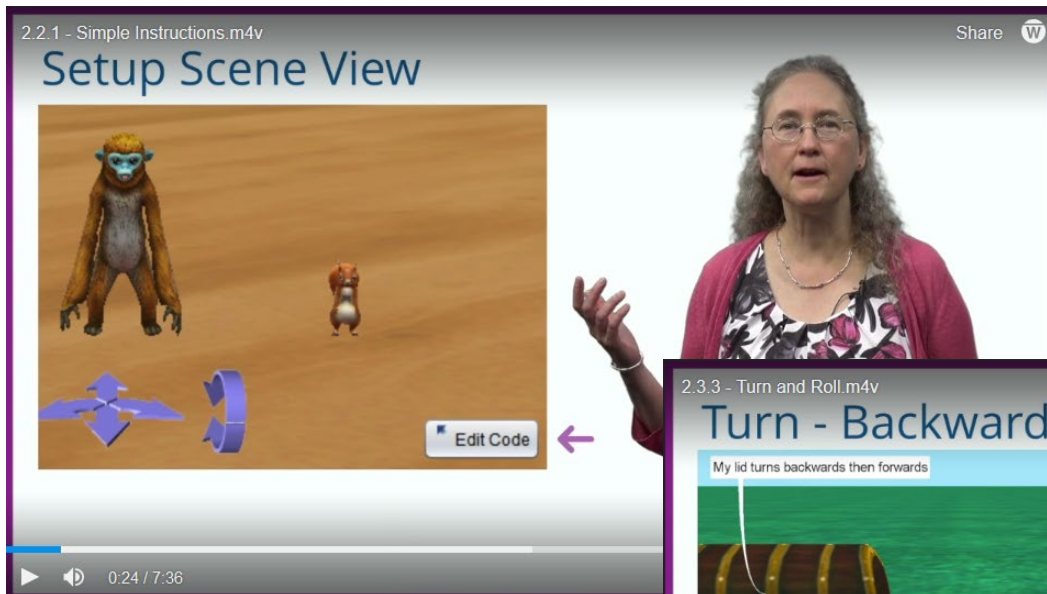
- Alice 3 programming
- Logistics – bring to lecture
  - laptop/computer
  - **optional** Textbook
  - Instead: Free videos
- **THIS IS A CLASS WITH PARTICIPATION**
- You will write a program everyday!



Optional

# Videos – Watch and take online quiz (on Sakai) before class

Prof. Susan Rodger/Prof. Steve Cooper



# How CompSci 94 Will Work

- In Class

- Lecture/demos/review – short
- Full Lecture slides posted later
- Classwork
- REQUIRED ATTENDANCE
- Checkoff Classwork

You participate

Fill in missing parts

First one Thursday

Show us your program

- Outside of class

- Complete work not finished in class
- Watch Videos – before class
- Online Quizzes – before class
- Assignments

Take before class!

# How CompSci 94 Will Work

- In Class
  - Lecture/demos/review – short
  - Full Lecture slides posted later
  - Classwork
  - REQUIRED ATTENDANCE
  - Checkoff Classwork
- Outside of class
  - Complete work not finished in class
  - Watch Videos – before class
  - Online Quizzes – before class
  - Assignments



# Don't Send email, use Ed Discussion to ask questions!

The screenshot shows the Ed Discussion interface for COMPSCI 94 01. The browser address bar displays the URL: <https://edstem.org/us/courses/26335/discussion/1691873>. The page title is "ed COMPSCI 94 01 – Ed Discussion".

On the left sidebar, there is a "New Thread" button and a search bar. Below the search bar, a list of threads is shown, including a "Welcome!" thread by Susan Rodger (STAFF) 5 days ago in the "General" category, which has 7 likes. Below this, a section titled "This Week" shows a thread "Issue With Installing Alice 3?" by InstallingAlice, Anonymous, 5h ago, with 1 like.

The main content area displays a welcome message from Susan Rodger (STAFF) 5 days ago in the "General" category. The message reads:

Welcome! #1

Hi everyone,

We're using Ed Discussion for class Q&A.

This is the best place to ask questions about the course, whether curricular or administrative. You will get faster answers here from staff and peers than through email.

Here are some tips:

- Search before you post
- Heart questions and answers you find useful
- Answer questions you feel confident answering
- Share interesting course related content with staff and peers

For more information on Ed Discussion, you can refer to the [Quick Start Guide](#).

We do not have consulting hours setup yet, they will start sometime next week. In the meantime you can post questions here.

You want to try to download Alice 3 (just the regular version) onto your computer before coming to the first class if possible. We will not use it the first day but can check to see if you have it installed correctly. We will start using it on the second day of class.

The website and info on Alice 3 installing is on our course web site here:

# What Is Alice?



- A modern programming tool
  - 3-D graphics
  - 3-D models of objects
- Animation
  - Objects can be made to move around virtual world (a simulation or video game)

# What does Alice run on?

- Alice is written in Java – should run on many systems
  - supports Mac and PC
- Which version of Alice are we using?
  - Alice 3 (NOT netbeans version, NOT beta)
  - Alice.org, see the CompSci 94 resources page
    - Version 3.11
  - Note: Alice 3 is quite a bit different from Alice version 2

# Example from Alice 2

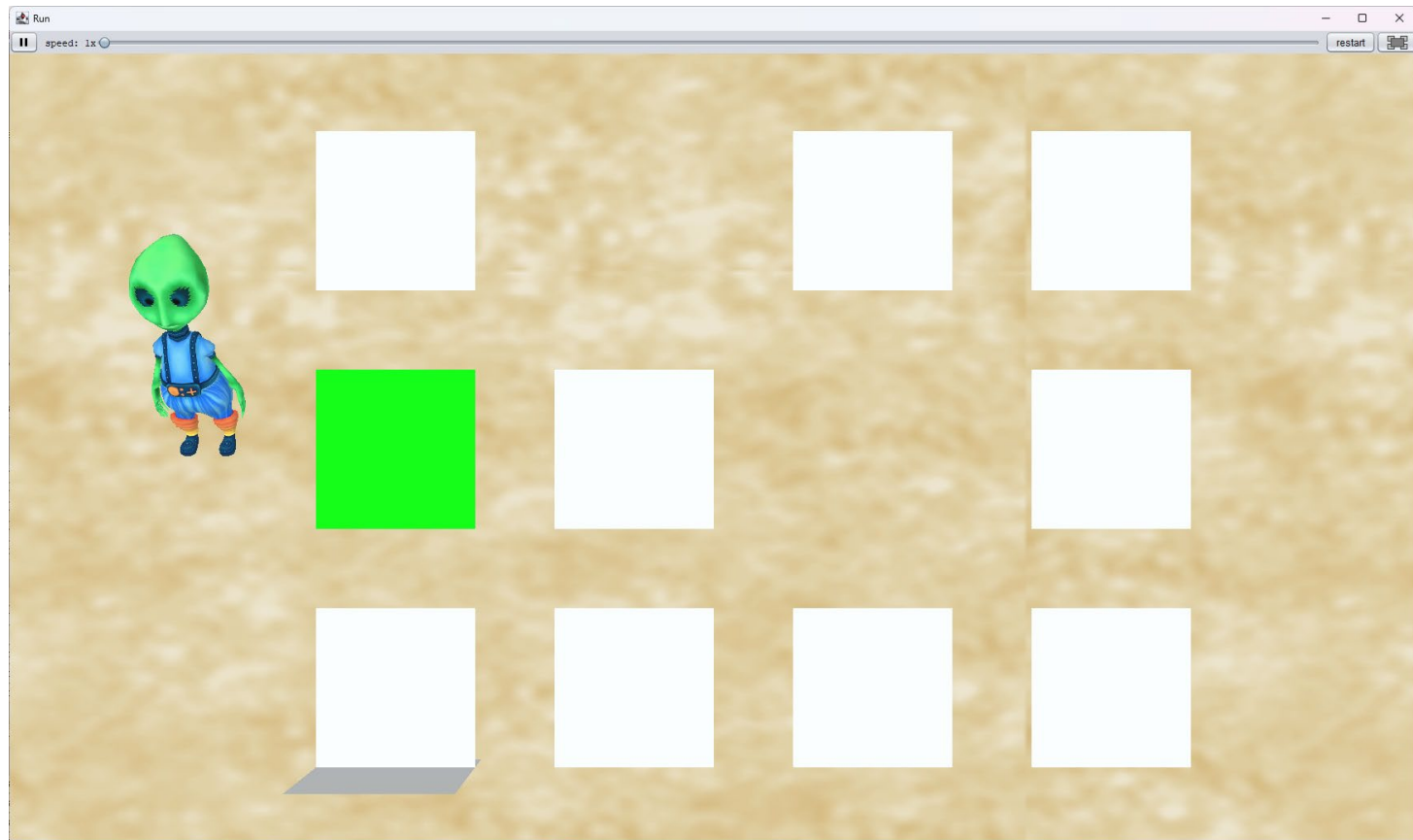




# Example from Alice 2



# Sample Project Alice 3



# Another Sample Project Alice 3



# Who are you?

**`https://bit.ly/cps94f24-01`**

# The Power of Alice

- Automatically keeps track of 3-D objects
  - What objects are in the virtual world
  - Types of objects
  - Positions of objects in the world

# Alice Demo



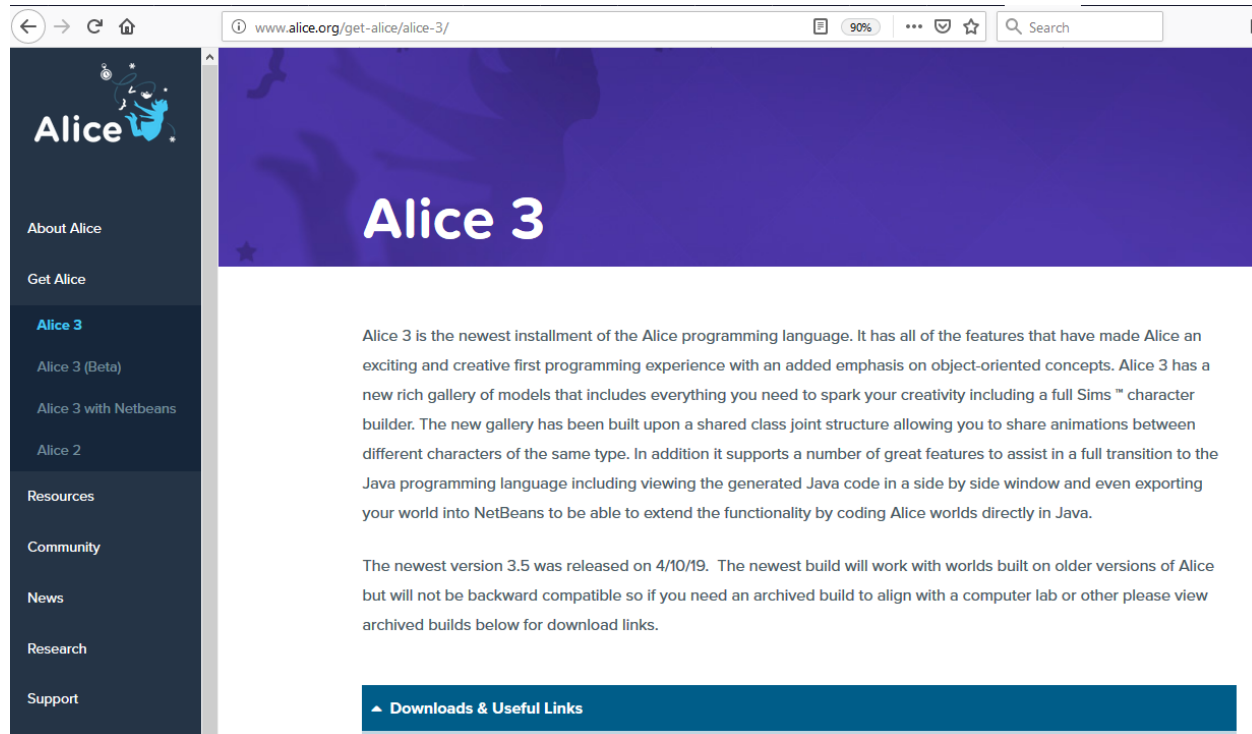


# Code

do in order

this.Cow	turnToFace	this.Cat	add detail
this.Cat	turnToFace	this.Cow	add detail
this.Cat	say	"Watch what I can do"	add detail
this.Cat	move	UP, 2.0	add detail
this.Cat	move	FORWARD, 5.0	add detail
this.Cat	move	DOWN, 2.0	add detail
this.Cow	say	"Whoa!!!"	add detail
this.Cow	turn	LEFT, 0.5	add detail
this.Cat	turn	RIGHT, 0.5	add detail

Download Alice 3 from [alice.org](http://alice.org),  
instructions CompSci 94 webpage,  
NOT Alice 2! NOT netbeans, NOT Beta!



# For Thursday!

- No Alice classwork today but usually you would finish it
- We can check your Alice 3 install!!!
- Download Alice 3 if you haven't yet
- Assignment 1 out – Due Sept 5
  - This assignment does not use Alice
- Watch videos BEFORE coming to class.
- Take Quiz on Sakai BEFORE class starts