

# CompSci 94

## Introduction to Programming Animation and Virtual Worlds

August 24, 2021



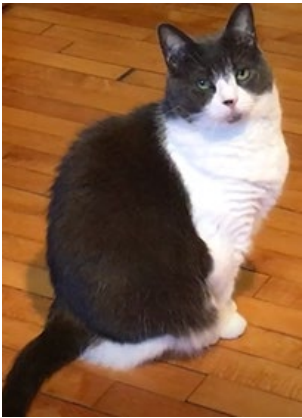
Prof. Susan Rodger

# Class Today

- Go over syllabus, web page
- Introduce computer science and Alice
- Demo of Alice
  - Simple world/sample Alice worlds
- Classwork – Get to know each other

[www.cs.duke.edu/courses/fall21/compsci094/sec01/](http://www.cs.duke.edu/courses/fall21/compsci094/sec01/)

# About Prof. Rodger



How do you keep  
your sanity?



# TA/UTA introductions

- Graduate TA: Derrick Adam (3:30pm Sec.)
- Undergraduate TAs:
  - Lauren Garbett (10:15am Section)
  - Alex Slover (10:15am Section)
  - Benjamin Keschner (10:15am Section)
  - Sara Azimi (3:30pm Section)



# Course Web page

[www.cs.duke.edu/courses/fall21/compsci094/sec01/](http://www.cs.duke.edu/courses/fall21/compsci094/sec01/)

## CompSci 94, Fall 2021 Home

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### Course Announcements

- August 24, 2021 is the first day of class.
- You will need to bring a laptop to class and download a particular version of Alice 3 before coming to the first class if possible. More info on Alice 3 and downloading it is on the [Resources page](#)



### 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](#) to create 3-D virtual worlds. You will learn programming constructs such as repetition (calculating how

# 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

**PURDUE**  
UNIVERSITY

1962

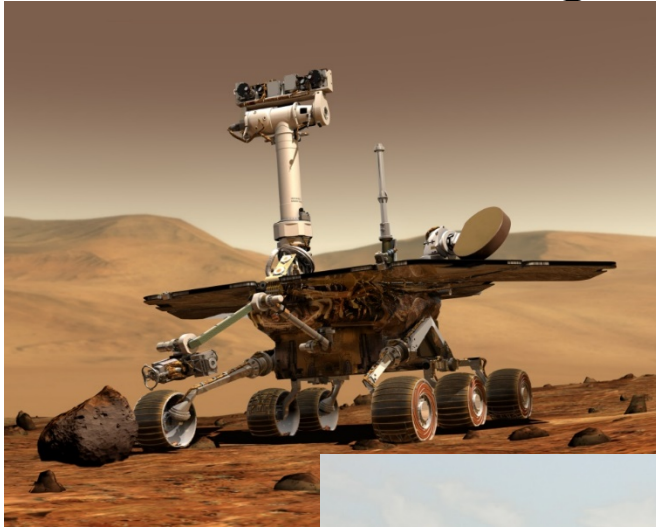


## **Samuel D. Conte**

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



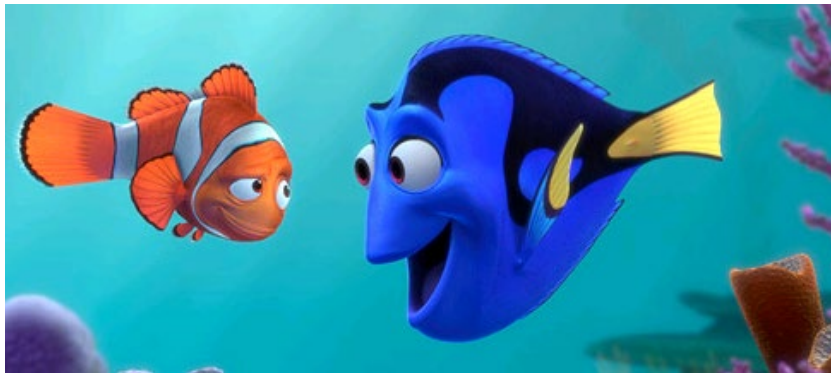
# What is Computer Science?

- Medicine, Genomics



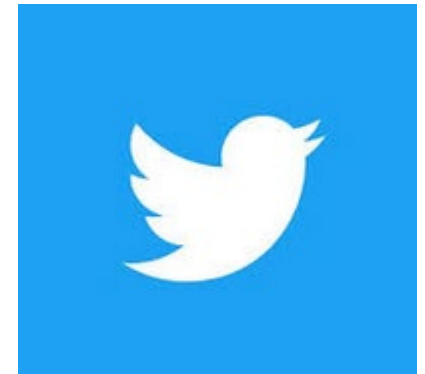
# What is Computer Science?

- Animation



# What is Computer Science?

- The Organization of Data, Sharing, and Searching



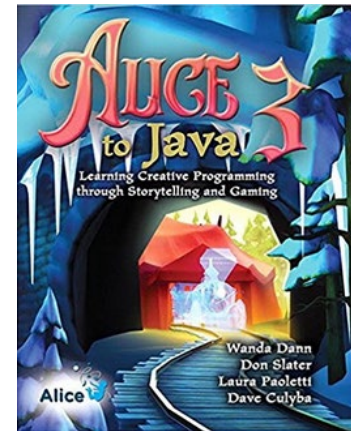
# Computer Science and Programming

- 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 online lecture
  - laptop/computer
  - **optional** Textbook
  - Instead: Free videos




Optional

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

Prof. Susan Rodger/Prof. Steve Cooper

2.2.1 - Simple Instructions.m4v Share

## Setup Scene View



← Edit Code


0:24 / 7:36

This video player shows a 3D scene titled 'Setup Scene View'. The scene features a large brown monkey-like creature on the left and a smaller, reddish-brown animal on the right, both on a light brown ground. Below the scene is a camera control interface with a blue directional pad and a circular rotation arrow. A purple arrow points from the 'Edit Code' button to the right, towards the second video player.

2.3.3 - Turn and Roll.m4v Share

## Turn - Backward and Forward

My lid turns backwards then forwards



Speed

0:08 / 1:14

This video player shows a 3D scene titled 'Turn - Backward and Forward'. The scene is set on a green surface and contains a brown treasure chest with gold bands on the left, a white microwave in the center, and a tall wooden grandfather clock on the right. A white speech bubble with a pointer to the microwave contains the text 'My lid turns backwards then forwards'. The video player interface includes a progress bar at the bottom showing 0:08 / 1:14 and a 'Speed' control button.

# How CompSci 94 Will Work

- In Class
  - Lecture/demos - short
  - 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!

ed COMPSCI 94 01 – Discussion

New Thread

Search

Filter

Pinned

Welcome!

General Susan Rodger INSTRUCTOR 9m

COURSES

- COMPSCI 94 01
- COMPSCI 94FS 01 1
- Duke CS Playground 8

CATEGORIES

- General
- Lectures
- Classwork
- Pework
- Assignments
- Exams
- ConsultingOfficeHours

Welcome! #1

Susan Rodger INSTRUCTOR  
9 minutes ago in General

UNPIN STAR WATCHING 25 VIEWS

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](#).

All the best this semester!

Susan Rodger



# What Is Alice?

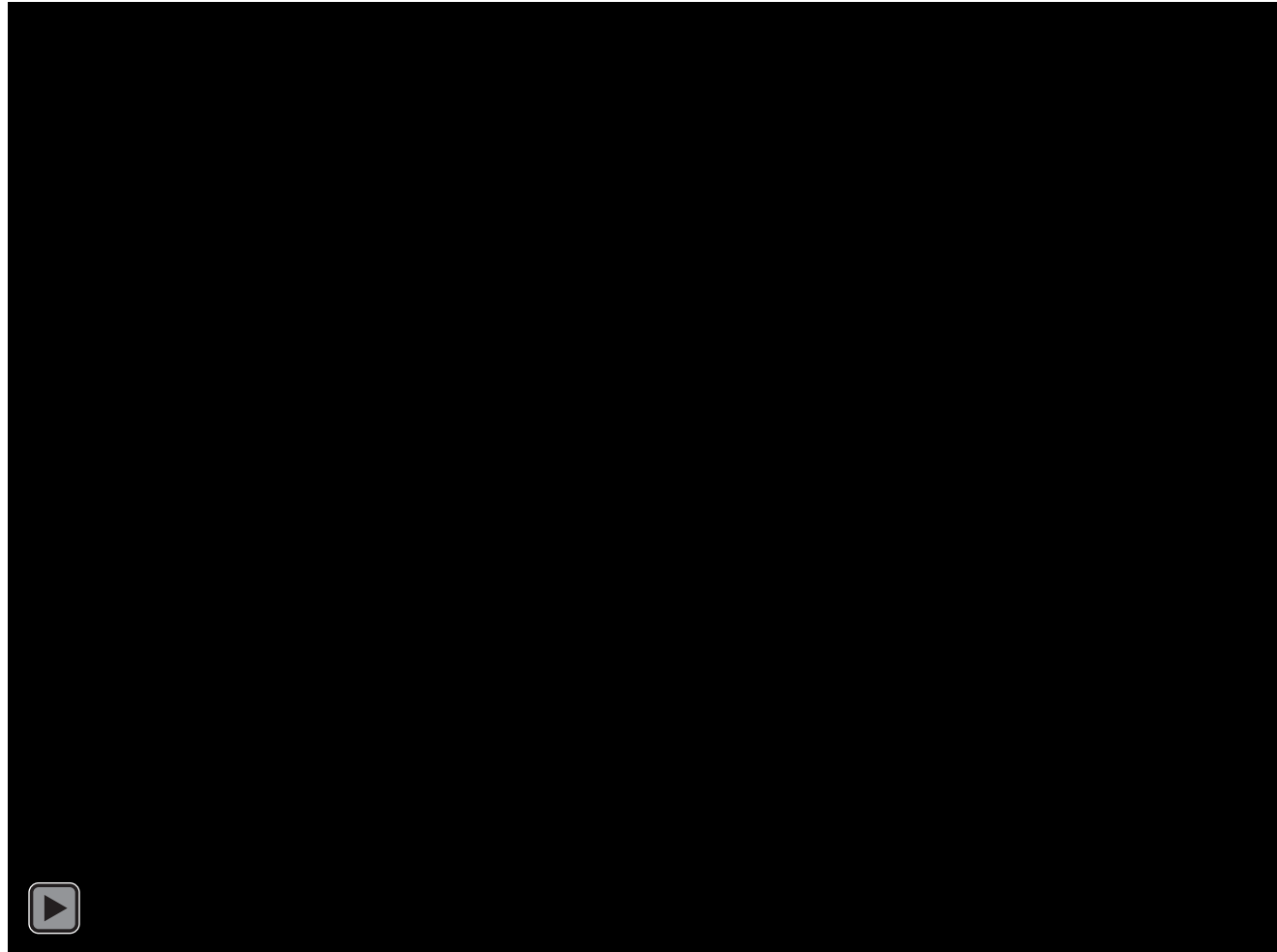


- A modern programming tool
  - 3-D graphics
  - 3-D models of objects
- Animation
  - Objects can be made to move around virtual world (a simulation or video game)

# 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 3.6
  - Note: Alice 3 is quite a bit different from Alice version 2

# Example from Alice 2



# Some Alice 3 examples



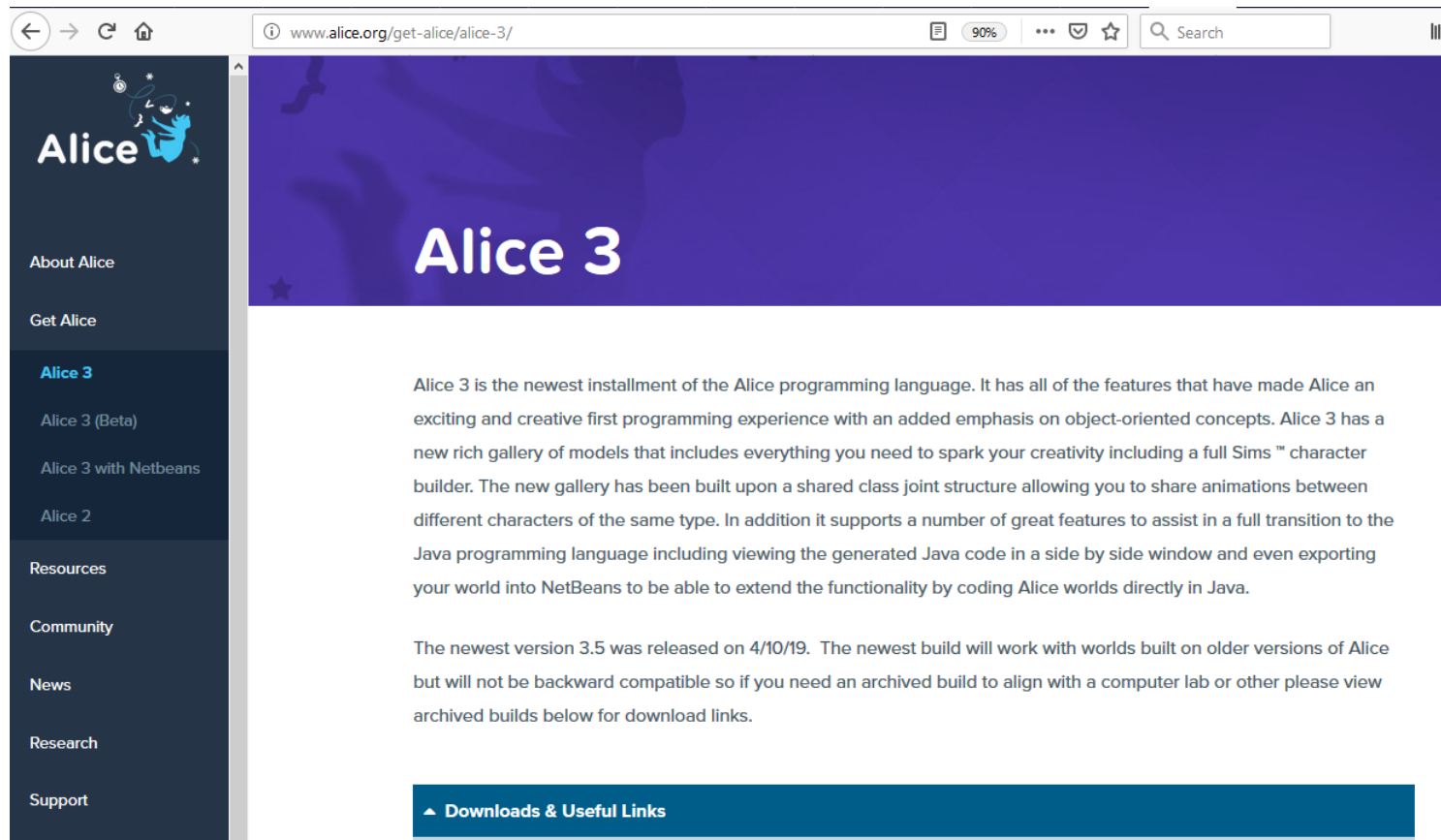
# Who are you?

<https://bit.ly/cps94f21-0824-1>

# 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

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



The screenshot shows a web browser window with the URL [www.alice.org/get-alice/alice-3/](http://www.alice.org/get-alice/alice-3/). The page features a dark blue header with the Alice logo and a large purple banner with the text "Alice 3". A left sidebar contains navigation links: "About Alice", "Get Alice", "Alice 3" (highlighted), "Alice 3 (Beta)", "Alice 3 with Netbeans", "Alice 2", "Resources", "Community", "News", "Research", and "Support". The main content area has a paragraph describing Alice 3 as the newest installment of the Alice programming language, highlighting its features like object-oriented concepts, a rich gallery of models, and support for Java integration. Below this is another paragraph mentioning the release of version 3.5 on 4/10/19 and providing information about backward compatibility. At the bottom, there is a dark blue button labeled "Downloads & Useful Links".

**Alice 3**

Alice 3 is the newest installment of the Alice programming language. It has all of the features that have made Alice an exciting and creative first programming experience with an added emphasis on object-oriented concepts. Alice 3 has a new rich gallery of models that includes everything you need to spark your creativity including a full Sims™ character builder. The new gallery has been built upon a shared class joint structure allowing you to share animations between different characters of the same type. In addition it supports a number of great features to assist in a full transition to the Java programming language including viewing the generated Java code in a side by side window and even exporting your world into NetBeans to be able to extend the functionality by coding Alice worlds directly in Java.

The newest version 3.5 was released on 4/10/19. The newest build will work with worlds built on older versions of Alice but will not be backward compatible so if you need an archived build to align with a computer lab or other please view archived builds below for download links.

▲ Downloads & Useful Links

# 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
```

# For Thursday!

- No Alice classwork today but usually you would finish it
- Download Alice 3 if you haven't yet
- Assignment 1 out – Due Sept 2
  - This assignment does not use Alice
- Watch videos and answer questions for online quiz BEFORE coming to class.