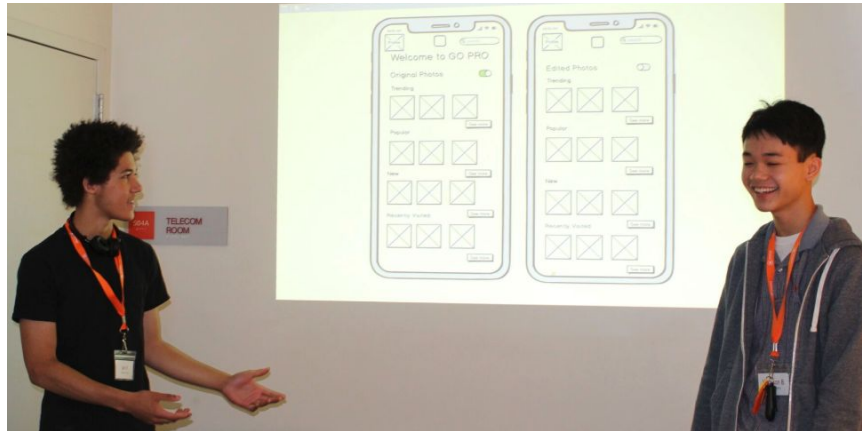




## Computer Science



### Program Highlights

- Learn the most practical programming techniques used by Google and Facebook - Raspberry Pi and Python.
- Create a machine integrated mini project and apply math and physics concepts to interactive programming activities.
- Boost your video game career by using Python to create your own 2D platforming game.
- Start thinking like a technologist and meet programmers and entrepreneurs who are creating the future.

### Campus Locations

#### Boston

- July 5-July 17, 2020
- July 19-July 31, 2020

#### UC Berkeley

- June 21-July 3, 2020
- July 5-July 17, 2020
- July 19-July 31, 2020

#### Georgetown University

- July 27 - August 8, 2020

#### American University

- June 28- July 8, 2020
- July 12 - July 24, 2020

### Academic Program Overview

In their first class, students will jump into learning the fundamentals of programming and game design. Over the course of the week, they develop a custom game using Python with game logic and graphics of their own design and showcase their ideas to their peers. Along the way, students need to plan the user interface and architecture of their game, as well as program conditional algorithms and procedures.

In their second week, students will be introduced to Python and Raspberry Pi by completing hands-on projects using the sensors and LED matrix of the Sense HAT. By using an experiential learning approach, students will quickly engage in these topics, and the instructor introduces the underlying theory and concepts as students tackle these issues while coding. Ultimately, students will tie together their game design knowledge with their experience with the Raspberry Pi to create a project utilizing their newfound skills.

### Guest Speakers & Excursions

Last summer, guest speakers included a developer from Microsoft.

Previous excursions included a trip to GoogleSF, as well as visiting the Raspberry Pi offices in San Francisco where students had an opportunity to learn more about the Raspberry Pi platform and got an opportunity to do some hands on coding.

### **Instructors**

Courses are taught by accomplished and passionate faculty recruited from many area colleges, universities and professional forums. Each faculty member is selected for their subject area expertise and proven ability to both challenge and captivate students.

### **Sample Schedule from Past Year**

*This is only to provide a general idea of the class structure. The exact sequence of lessons will change based on availability of guest speakers and on companies that can host our students.*

#### **Week 1**

- Python programming language and integrated development environment
- Video game design and iterative development
- Students will gain knowledge of:
  - Programming syntax and best practices
  - Variables and I/O
  - Fundamentals of game development programming
  - Computer graphics and sound libraries
  - Arrays, lists, functions and random number generators

#### **Week 2**

- Machine integration and Linux Operating System.
- Integrating sensors and peripherals into game design
- Through Raspberry Pi and Sense HAT software projects, students will:
  - Learn to communicate with the Sense HAT using Python
  - Manipulate the LED matrix to display messages and images
  - Program variables to record and analyze sensor data
  - Utilize loops to repeat sensor interaction

### **Tuition**

- **Residential Students:** \$4,998
  - Includes: all meals, lodging, excursions, academic program, weekend excursions
  - Excludes: optional airport pickup and drop off service (available for an additional fee)
- **Commuter Students:** \$2,798
  - Includes: academic program, excursions, programming from 9am to 5pm, Monday-Friday
  - Excludes: lodging, breakfast, dinner, weekend excursions
- **Extended Commuter Students:** \$3,398
  - Includes: lunch, dinner, excursions, academic program, programming from 9am to 8pm, weekend excursions
  - Excludes: lodging, breakfast