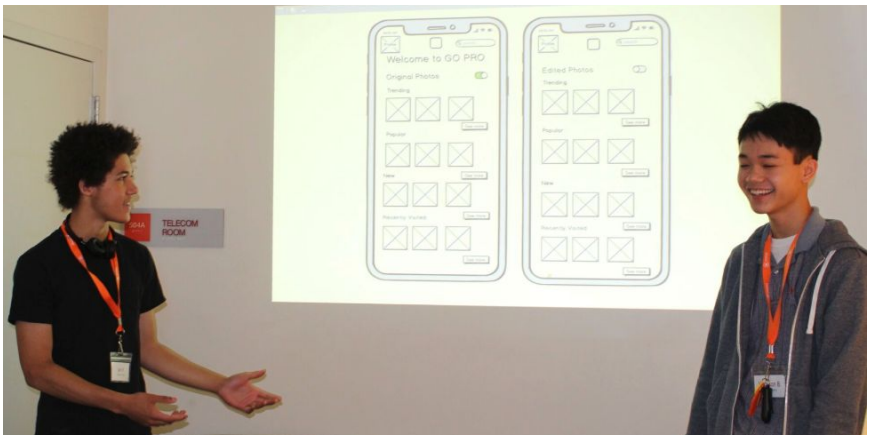
# Computer Science




### Program Highlights

- Experience the full cycle of product development: from architecture to APIs
- Build a fully functioning mobile app for Android or iOS using block-based programming
- Get introduced to Python and Raspberry Pi hardware and create a machine integrated mini project
- Start thinking like a professional programmer 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 13 - July 25, 2020
- July 27 - August 8, 2020

### Academic Program Overview

In their first class, students will break into teams and come up with an original smartphone App idea. Over the course of the week, they develop this idea by using the MIT App inventor or Thunkable before they ultimately pitch their digital product to investors. Along the way, teams need to plan the user interface and data architecture of the app, 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.

### 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.*

**Day 1. Monday**
- Class expectations
- Intro to block-based coding
- Familiarization with MIT app inventor
- Generate a GUI design compatible for a mob device
- Use digital tools to plan and manage the design process

**Day 2. Tuesday**
- Intro to API integration in app inventor
- Integrate the Google Maps API to develop a location and map-based application
- Incorporate a list to store and access data
- Randomization of list activities
- Incorporate mobile device GPS sensor to integrate location awareness on a google API map

**Day 3. Wednesday**
- Develop an understanding of mobile device databases and data persistence
- Collect data or identify relevant data sets
- Analyze the data sets
- Understand how automation works

**Day 4. Thursday**
- Excursion to visit a technology company

**Day 5. Friday**
- Define simple procedures by using prescribe procedure blocks in App Inventor
- Gain an understanding of calling procedures within code and algorithms
- Learn to incorporate mathematical/numerical parameters into procedures

**Day 6. Monday**
- Become familiar with mathematical logic blocks
- Develop loops to replace repeated commands
- Formulate problem definitions suited for technology-assisted methods

**Day 7. Tuesday**
- Guest speaker
- Understand how using UX and UI design and prototyping can produce positive outcomes for app development
- Learn practices and principles of UX and UI
- Use technology to seek feedback that informs and improves their practice
- Plan and employ effective research strategies

**Day 8. Wednesday**
- Plan and employ effective research strategies to locate information and other resources
- Curate information from digital resources using a variety of tools and methods
- Students build knowledge by actively

**Day 9. Thursday**
- Teams pitch judges
- Judges provide feedback
- Knowledge and use of a deliberate design process
- Develop, test and refine prototypes as part of a cyclical design process.
- Publish or present content

**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