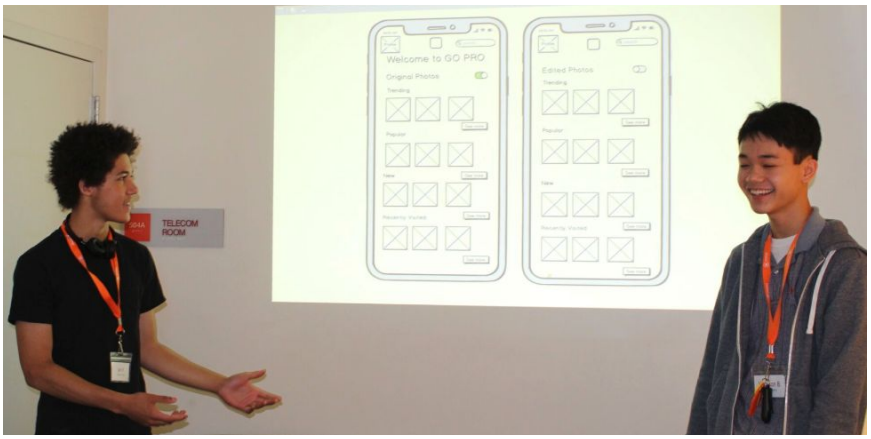
Computer Science



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

Yale University

- June 23 - July 5, 2019

UC Berkeley

- June 23 - July 5, 2019
- July 7 - July 19, 2019
- July 21 - August 2, 2019

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 lead UI/UX Designer Joseph Fajnor of Geek Bears, and a Lead Systems Reliability Engineer of Bridgewater, who spoke to students on cybersecurity and upcoming tech trends.

Previous excursions included a trip to Google Geo Education. There, students received a behind the scenes tour and heard an insightful talk from the Google Earth Education Team. In addition, students got the opportunity to visit Thunkable, a drag-and-drop App Builder for iOS and Android. Students brought their devices and got a special opportunity to code alongside the engineering team!

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.

Curriculum Advisor - Leon Tynes, JD, MBA, MS

While instructors vary each year, the Curriculum Advisors ensure continuity in our curriculum. This course was designed by Leon Tynes. Leon has flipped his classroom to maximize learning in his 3D Modeling, Digital Media, Mobile App Development, and Advanced Placement Computer Science Principles courses. He has also won many teaching accolades including the 2016 Henry Ford Teacher Innovator award & 2016 PBS Digital Innovator award, and is an Apple Teacher and a Microsoft Innovative Educator Expert.

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**: $2,498
  - Includes: academic program, excursions, programming from 9am to 5pm, Monday-Friday
  - Excludes: lodging, meals (lunch plan available for $200), weekend excursions

- **Extended Commuter Students**: $3,398
  - Includes: lunch, dinner, excursions, academic program, programming from 9am to 8pm, weekend excursions
  - Excludes: breakfast, lodging