

A close-up photograph of a person's hands resting on a silver laptop keyboard. The person is wearing a white shirt and a dark blue striped tie. A large, semi-transparent blue rectangular overlay is centered over the hands. The text "Intro to Code" is written in a bold, white, sans-serif font. The background is slightly blurred.

# Intro to Code



Tony Alletag

Penn State  
B.S. IST  
M.S. MIS

Open Source  
Development  
Virtual  
Infrastructure

Agile Coach  
IT Project Manager

Chief Technology  
Officer

Small Business  
Owner

15 Years  
Software  
Development

Best Practices  
Modern Tech  
Stack

ICP

ICAGILE  
CERTIFIED  
PROFESSIONAL

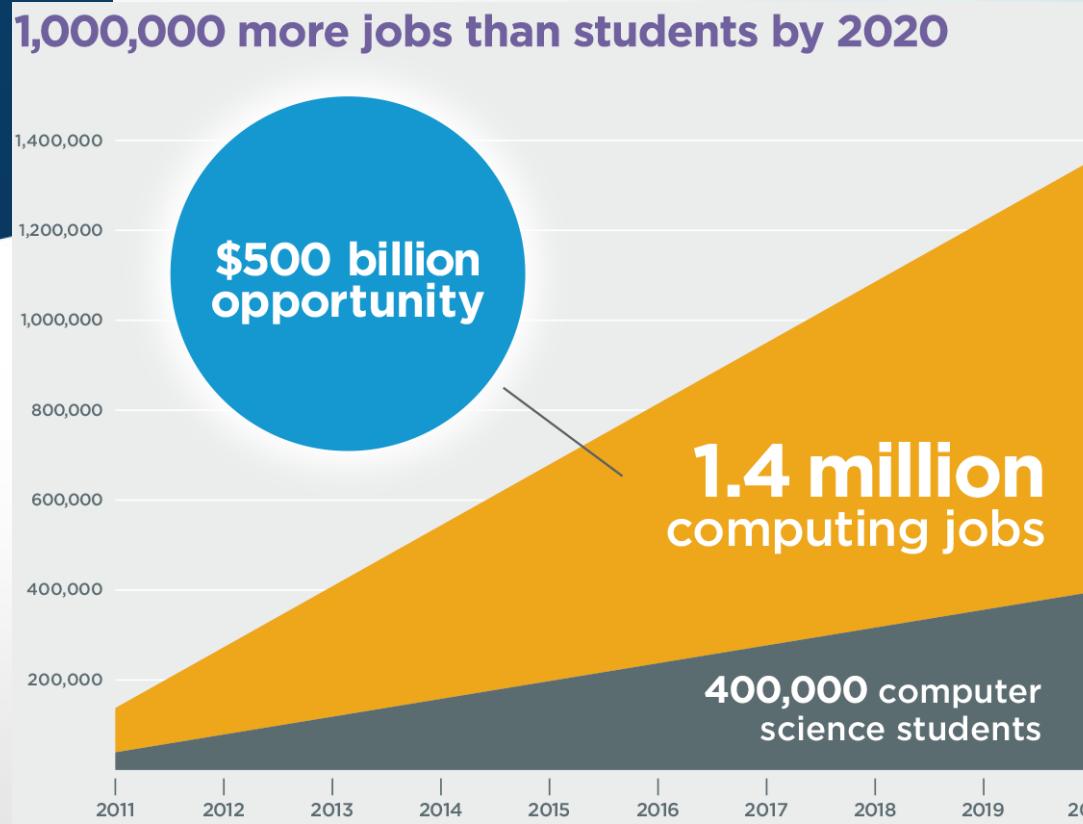
ACES INCORPORATED  
Analysis, Computing & Engineering Solutions



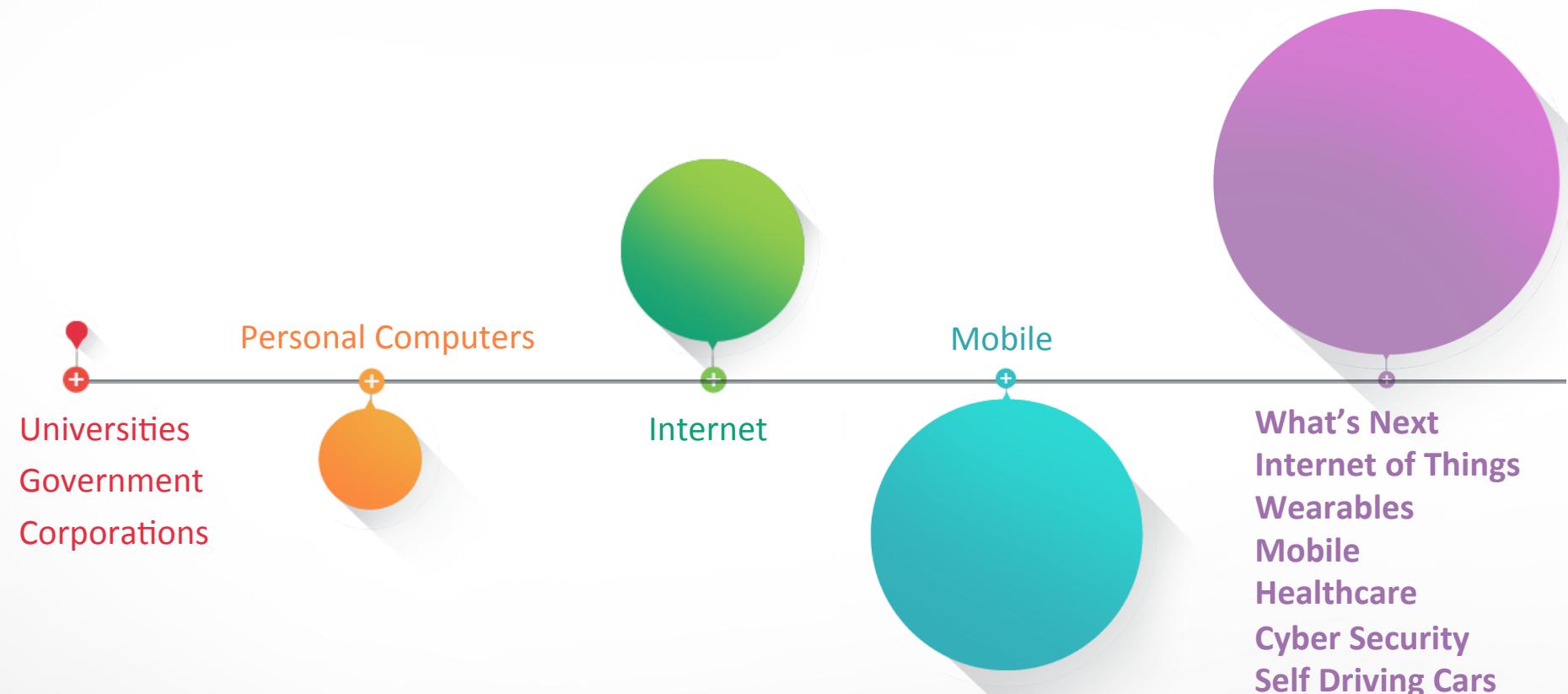
open source

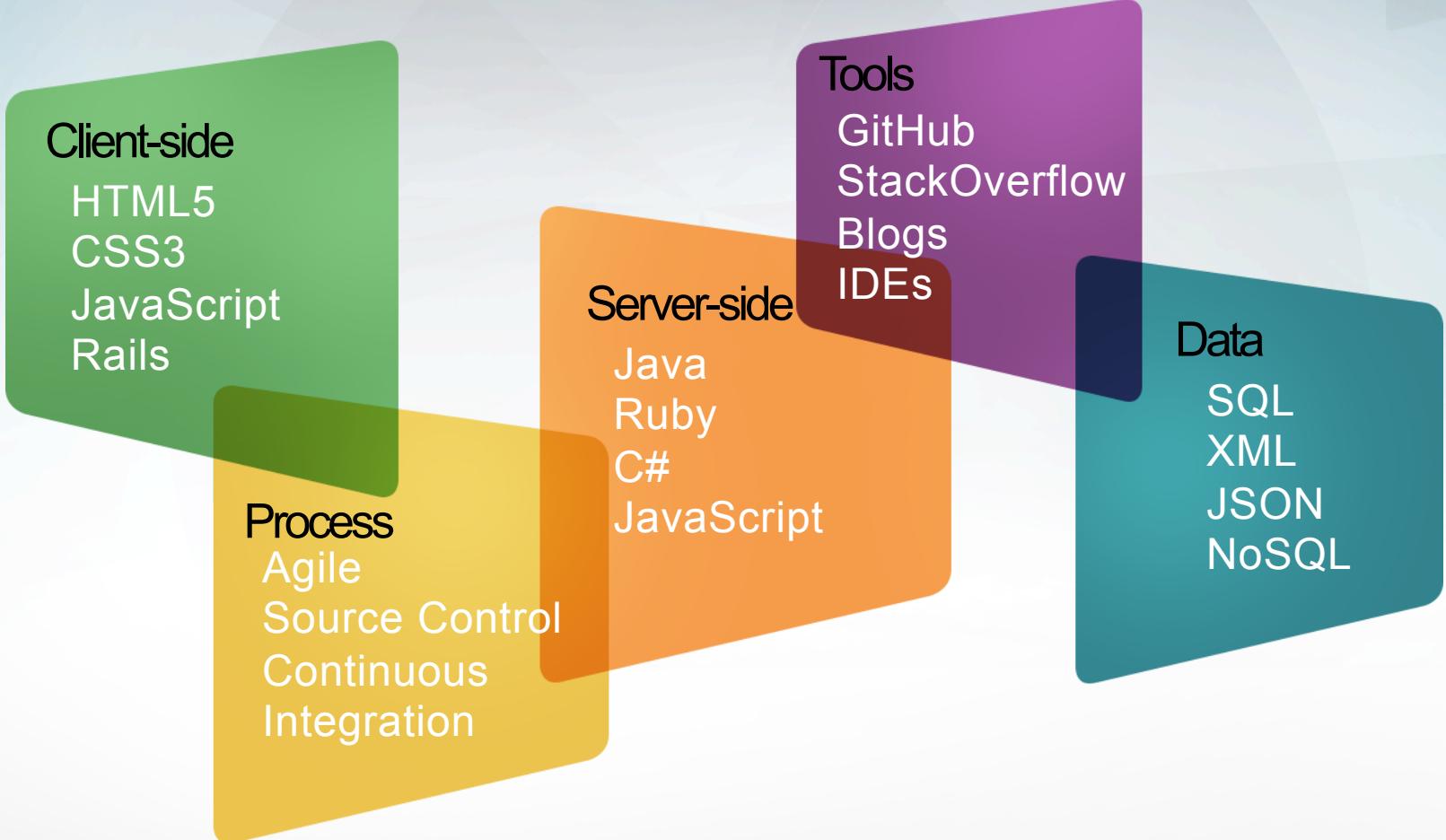
Computer Science is  
a top paying college  
degree and  
computer  
programming jobs  
are growing 2X the  
national average

(<http://code.org>)



# Demand





# Where to Start

# Client-side

## HTML5

- Web Browsers read HTML and display visual, audio, and video content
- W3C (World Wide Web Consortium)
- Standardized Oct 2014
- Support latest Multimedia

## HTML5

- Geolocation
- Drag and Drop
- Local Storage
- Application Cache
- Web Workers
- Video
- Audio
- Canvas
- CORS



```
<!DOCTYPE html>
<html>
<head>
<script src="fizzbuzz.js"></script>
</head>
<body>
<h1>Fizzbuzz test</h1>
<p id="demo"></p>
<button type="button" onclick="fizzbuzzAlert()">FizzBuzz</button>
<p><script>document.write(fizzbuzzOutput())</script></p>
<p><strong>Note:</strong> read js file and output text here</p>
<a href = "fizzbuzz.js"> click here to see code</a>
</body>
</html>
```

# Client-side

## JavaScript

- Dynamic programming language
- Historically used within a web browsers
- Single-page web/mobile app
- JavaScript is not Java

## Libraries

- AJAX
- jQuery
- D3 - Data-Driven Documents
- AngularJS (Google)
- ReactJS (FaceBook)



```
//fizzbuzzAlert() prints the output to an alert box
function fizzbuzzAlert()
{
    var s =""
    for (var i = 1; i <= 100; i++) {
        if (i % 15 == 0) {
            alert("FizzBuzz");
        } else if (i % 3 == 0) {
            alert("Fizz");
        } else if (i % 5 == 0) {
            alert("Buzz");
        } else {
            alert(i);
        }
    }
}
```

# Client-side

## CSS3

- Latest standard for CSS
- Backwards-compatible
- Used to describe the look and formatting of web sites
- Separates Content from Presentation

## FireBug Responsive Design Samples

- <http://bootstrapzero.com/>
- <http://bootswatch.com/>

## CSS3

- Box Model
- Backgrounds and Borders
- Image Values
- Text Effects
- 2D/3D Transformations
- Animations
- Multiple Column Layout
- User Interface



```
.nav {  
    padding-left: 0;  
    margin-bottom: 0;  
    color: #777;  
    background-color: transparent;  
}  
.nav > li > a {  
    position: relative;  
    display: block;  
    padding: 10px 15px;  
}  
  
@media screen and (min-width: 701px){  
    .mobile-menu{  
        visibility:hidden;  
        display:none;  
    }  
    .nonmobile-menu{  
        visibility:visible;  
    }  
}
```

---



ANDROID



Phone**Gap**

<http://phonegap.com/>



*BlackBerry*



# Server-side

## Java

- OOP (Object Oriented Programming)
- Compiled in classes
- JAR – (java application file)
- WAR – (Web Application Archive)
- Write Once Run Anywhere
- Open Source / Oracle
- Runs Over 3 Billion Devices



## Ruby

- OOP
- Dynamic
- Ruby Gem
- RoR (Ruby on Rails)
- Writing Code should be Fun!



Let's Try It - <http://tryruby.org/levels/1/challenges/0>

# Data

## SQL

- Standard Query Language
- CRUD (Create Update Delete)
- Select
- From
- Where



Let's Try It - <http://sqlfiddle.com/>

## JSON

- JavaScript Object Notation
- Language Independent
- Key-Value pairs

```
{  
  "firstName": "John",  
  "lastName": "Smith",  
  "isAlive": true,  
  "age": 25,  
  "height_cm": 167.6,  
  "address": {  
    "streetAddress": "21 2nd Street",  
    "city": "New York",  
    "state": "NY",  
    "postalCode": "10021-3100"  
},  
  ...  
}
```



```
SELECT * from CAMPAIGN;

select * from CAMPAIGN
Where FIRSTNAME = 'tony';

select * from CAMPAIGN
Where CAMPAIGN = 'stateboard';

select * from CAMPAIGN_USERS
Where CAMPAIGN = 'countyboard';

Select count(*)
From CAMPAIGN
Where CAMPAIGN = 'countyboard';

Select MAX(DONATION)
From CAMPAIGN;
```

```
Select *
From CAMPAIGN
Where Donation =
(SELECT MAX(DONATION) FROM CAMPAIGN);

Select SUM(DONATION)
From CAMPAIGN;

Select AVG(DONATION)
From CAMPAIGN;
```

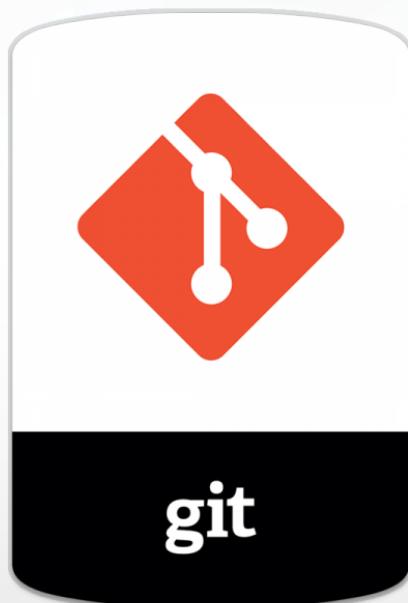
# Process

## Agile

- Scrum
- Kanban

## Source Control

- Git



## Continuous Integration

- Jenkins
- TravisCI

## Collaboration

- IM
- Google Hangouts
- Wikis

# Tools

## GitHub

- Source Control
- Wiki's
- Issue Tracking
- Collaborative Development



## IDEs

- Eclipse
- Sublime
- Textmate
- Vim

## Games

- studio.code.org
- CargoBot -  
<https://itunes.apple.com/us/app/cargo-bot/id519690804?mt=8>



## StackOverflow

- Expert Q&A
  - Knowledge Repository
- Blogs**
- Joelonsoftware



# Next Steps

Experiment

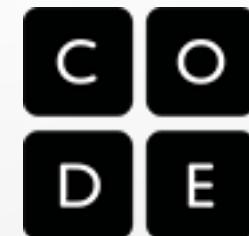
Build  
Something

Collaborate  
with Others

Continue to  
Learn  
Teach Others



PhoneGap



# Need More Information?

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