

Introduction to CS480

CS480 Software Engineering

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yusun@cpp.edu



CAL POLY POMONA

About Myself



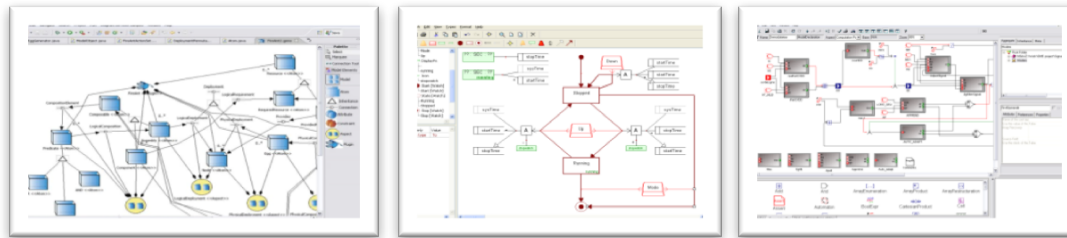
Research in Software Engineering

Problem Domains



Represent the System

Domain-Specific Modeling Languages



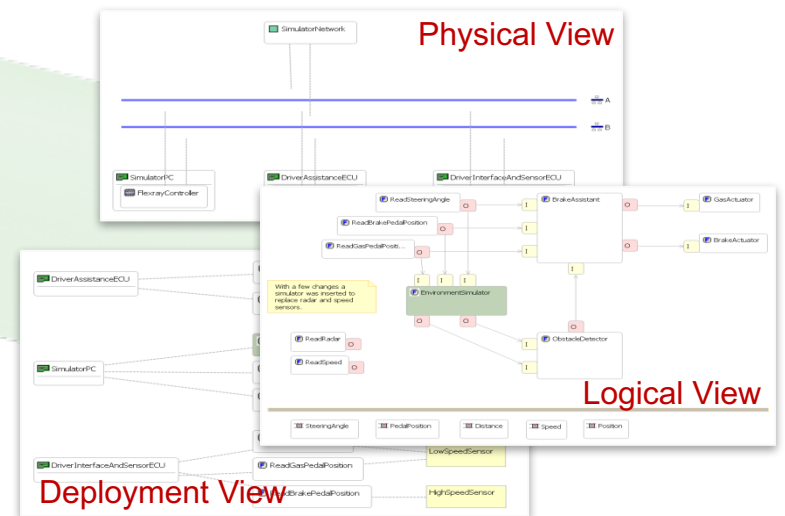
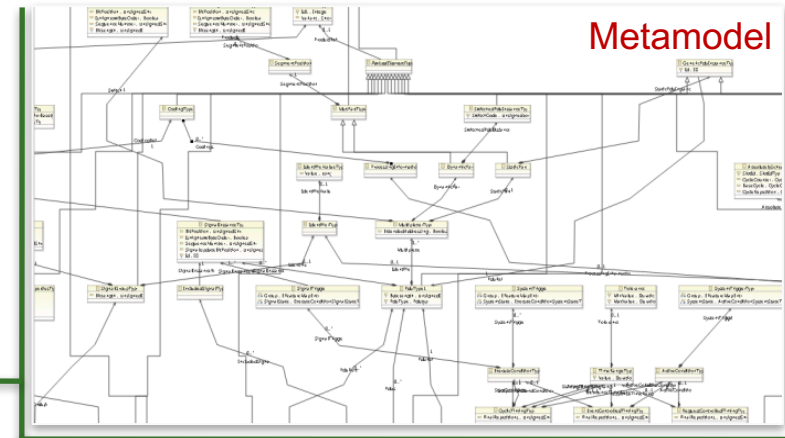
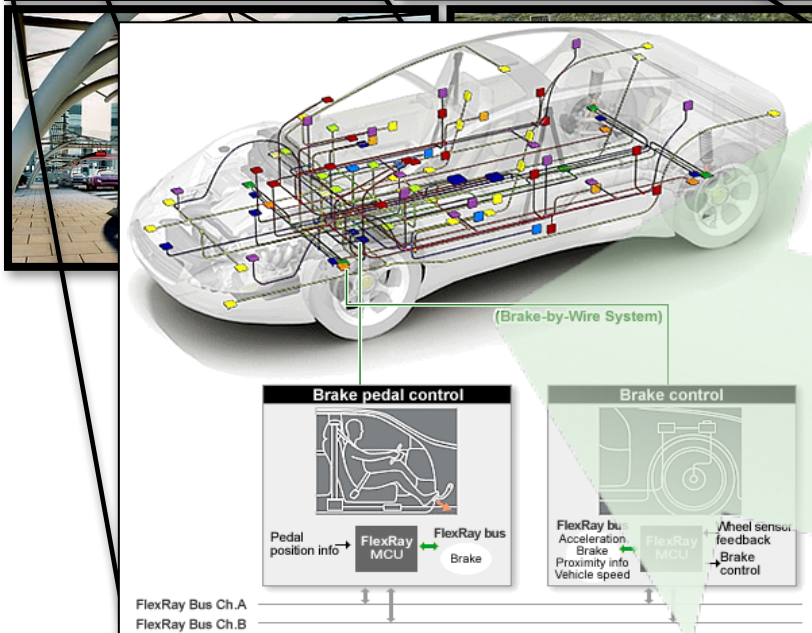
Generate the Code

Low-Level Software Artifacts



Embedded Software Systems

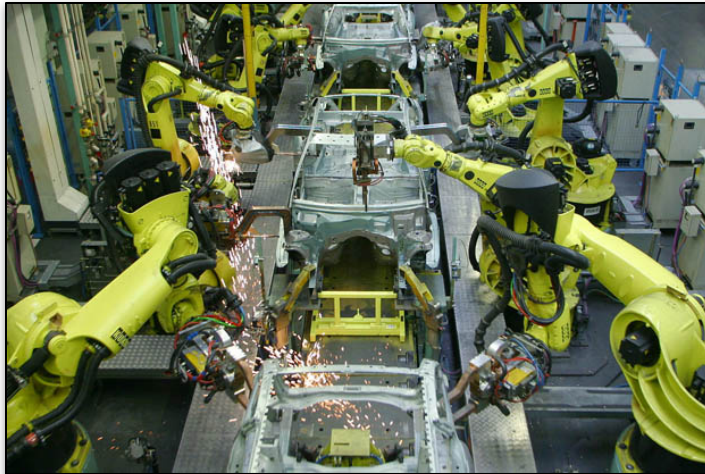
SIEMENS



Embedded Software Systems

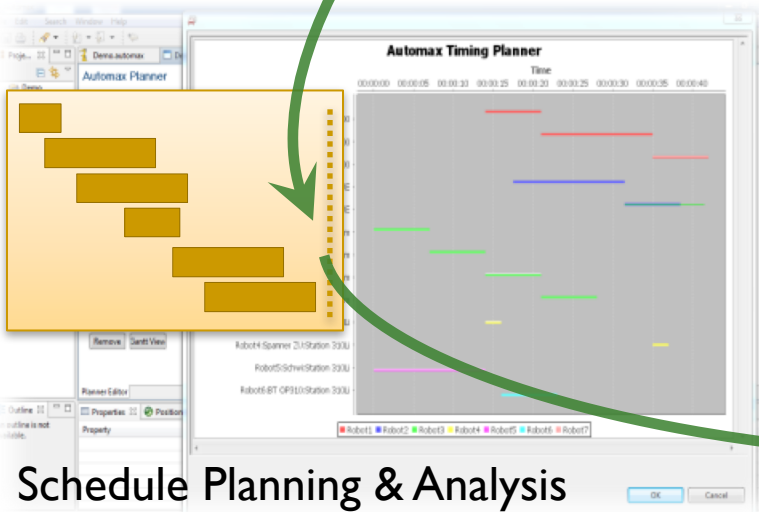


Mercedes-Benz

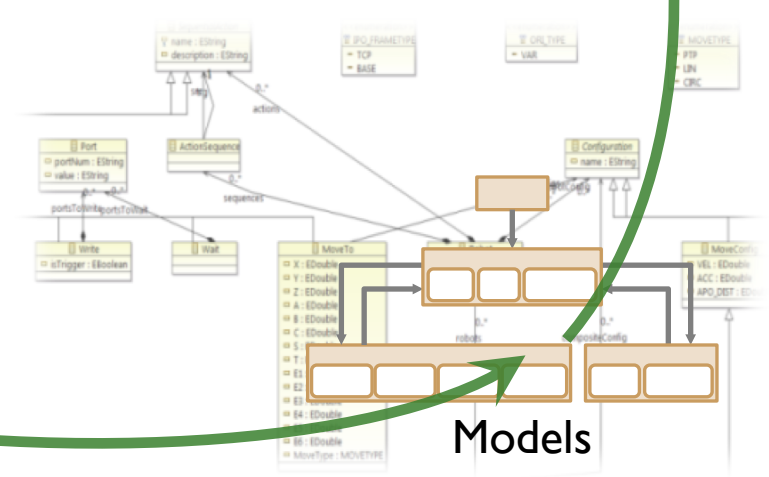


```
...:FOLD PTP IMP110 CONT Vel= 100 % PDA133 Tool[9]:GR01_RC_Base[0]:A[FE]NR 5.2.34,ANKURATPRBASIS,4CNMOVE,4VPTF,4P 1:PTP, 2:LRP110
SBWDSTART = FALSE
PDA1_ACT=PPGAT33
PDA1_ACT=VIMP110
BAS(#FTP_PARAMS,100)
PTF_XLRP110_C_FTP
;ENDFOLD
;FOLD ; Bauteil Entnommen ST300;A[FE]NR 5.2.34,ANKURATPRBASIS,4CNMOVE,4VPTF,4P 1:PTP, 2:LRP110
;ENDFOLD
;FOLD SYN OUT 3250 *A3250;-IRM Bauteil Entnommen ST300
TRIGGER WHEN DISTANCE=0 DELAY=0 DO
;ENDFOLD
;FOLD ; Ausser Bereich ST300;A[FE]NR 5.2.34,ANKURATPRBASIS,4CNMOVE,4VPTF,4P 1:PTP, 2:LRP110
;ENDFOLD
;FOLD SYN OUT 3281 *A3281;-Assessieren Bauteil Entnommen ST300
TRIGGER WHEN DISTANCE=0 DELAY=0 DO
;ENDFOLD
;FOLD PTP IMP120 CONT Vel= 100 % PDA133 Tool[9]:GR01_RC_Base[0]:A[FE]NR 5.2.34,ANKURATPRBASIS,4CNMOVE,4VPTF,4P 1:PTP, 2:LRP110
SBWDSTART = FALSE
PDA1_ACT=PPGAT32
PDA1_ACT=VIMP120
BAS(#FTP_PARAMS,100)
PTF_XLRP120_C_FTP
;ENDFOLD
;FOLD PTP IMP130 CONT Vel= 100 % PDA133 Tool[9]:GR01_RC_Base[0]:A[FE]NR 5.2.34,ANKURATPRBASIS,4CNMOVE,4VPTF,4P 1:PTP, 2:LRP110
SBWDSTART = FALSE
PDA1_ACT=PPGAT24
PDA1_ACT=VIMP130
BAS(#FTP_PARAMS,100)
PTF_XLRP130_C_FTP
;ENDFOLD
```

Control Code



Schedule Planning & Analysis



Models

Amazon Silk



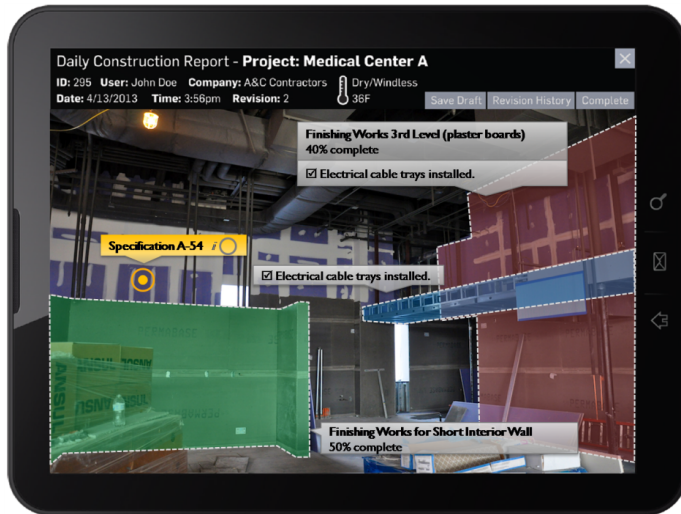
- Amazon Silk
- Cloud-Based Web Browser for Amazon Kindle Devices



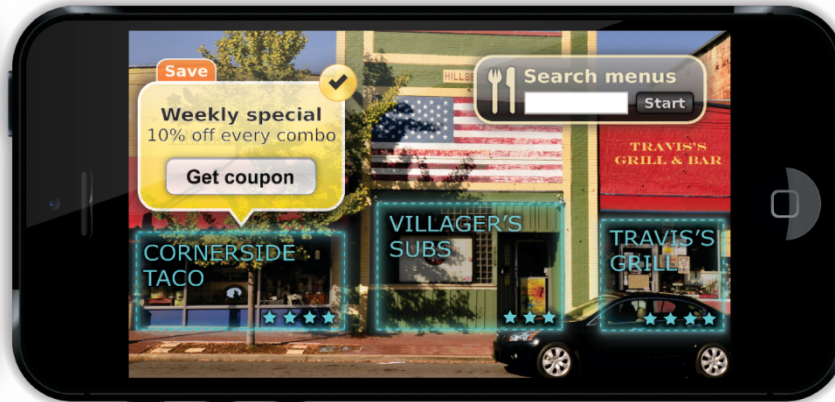
Cloud-based Mobile Software Systems



Mobile Augmented Reality



Mobile Augmented Reality



• For more info and demos: <http://www.cloudpoint.io/>

Mobile Security



OPTIO LABS
An Allied Minds Company



Ziio – Indoor Navigation System



ANIME FESTIVAL ASIA 8, 9 & 10 NOVEMBER 2013
SUNTEC CONVENTION & EXHIBITION CENTER, LEVEL 4

3 DAYS OF JAPAN POP CULTURE NOW!

AF13 MAIN STAGE SCHEDULE

FRIDAY : 08.11 MAIN STAGE SCHEDULE
HALL ENTRY - 11.00AM

11.30AM	Movie Screening: Gintama The Final Movie
1.30PM	Press Preview Featuring appearances by the stars of the festival.
2.30PM	Anime Screening: Little Witch Academia
3.00PM	Featured Anime Screening: PSYCHO-PASS
3.30PM	HOW JAPAN by JFA CHANNEL Music Showcase Featuring: P-Model
7.30PM	I LOVE ANISONG CONCERT @ All USA, Milky Home, May 7

SATURDAY : 09.11 MAIN STAGE SCHEDULE
HALL ENTRY - 10.30AM

11.00AM	Anime Showcase: Sword Art Online
12.00PM	Nagisa presents: Special Artists Showcase
1.00PM	BABYMETAL Showcase
1.45PM	Microsoft Special Showcase
2.00PM	Artists Appearance: I Love Anisong
2.15PM	Featured Anime Showcase: Psycho-Pass
3.00PM	Featured Anime Showcase: Love Live! School Idol Project
4.00PM	Fashion Showcase: MARBLE WONDERLAND by Asia Kawaii Way
7.30PM	I LOVE ANISONG CONCERT @ All USA, Milky Home, May 7

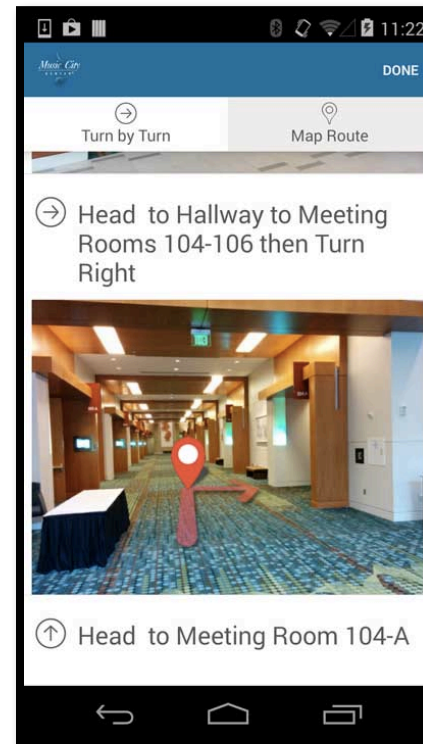
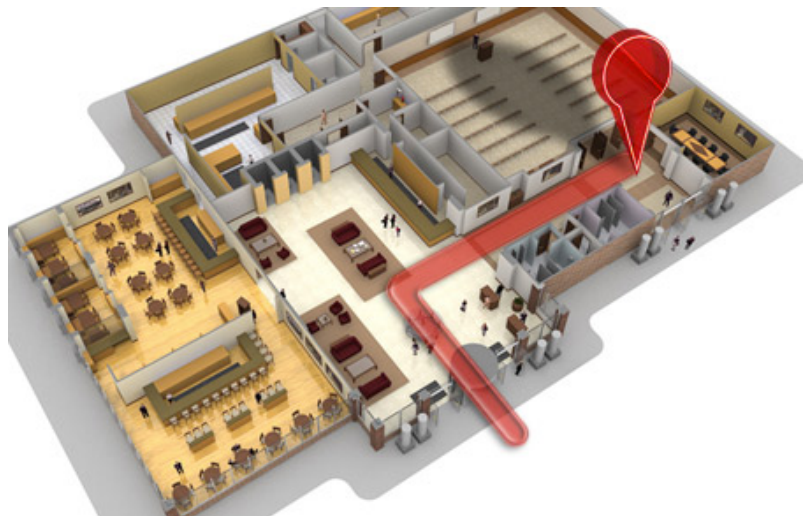
SUNDAY : 10.11 MAIN STAGE SCHEDULE
HALL ENTRY - 10.30AM

11.00AM	Featured Anime Showcase: Attack on Titan
12.00PM	Featured Anime Showcase: Yakuza - First Fighting in Singapore
12.45PM	Artists Appearance: I Love Anisong
1.15PM	Featured Anime Showcase: Spiritual Healing
2.15PM	Featured Anime Showcase: Manganist
3.00PM	Guest Feature: ARCC Grand Feast
7.00PM	I LOVE ANISONG CONCERT: Yakuza Night

Catch these contents (Excluding Concerts) with the SS10 Exhibition Friday Ticket
Catch the full content including concerts with the SS08 / Day Standard Concert Ticket

Catch these contents (Excluding Concerts) with the SS20 E+S Saturday Ticket
Catch the full content including concerts with the SS08 / Day Standard Concert Ticket

Catch these contents (Excluding Concerts) with the SS20 E+S Saturday Ticket
Catch the full content including concerts with the SS08 / Day Standard Concert Ticket



- Indoor Navigation System
- <http://zii.io>

Ziio – Indoor Navigation System



- Indoor Navigation System
- <http://zii.io>

Ziio – Indoor Navigation System



- Indoor Navigation System
- <http://zii.io>

Ziio – Indoor Navigation System

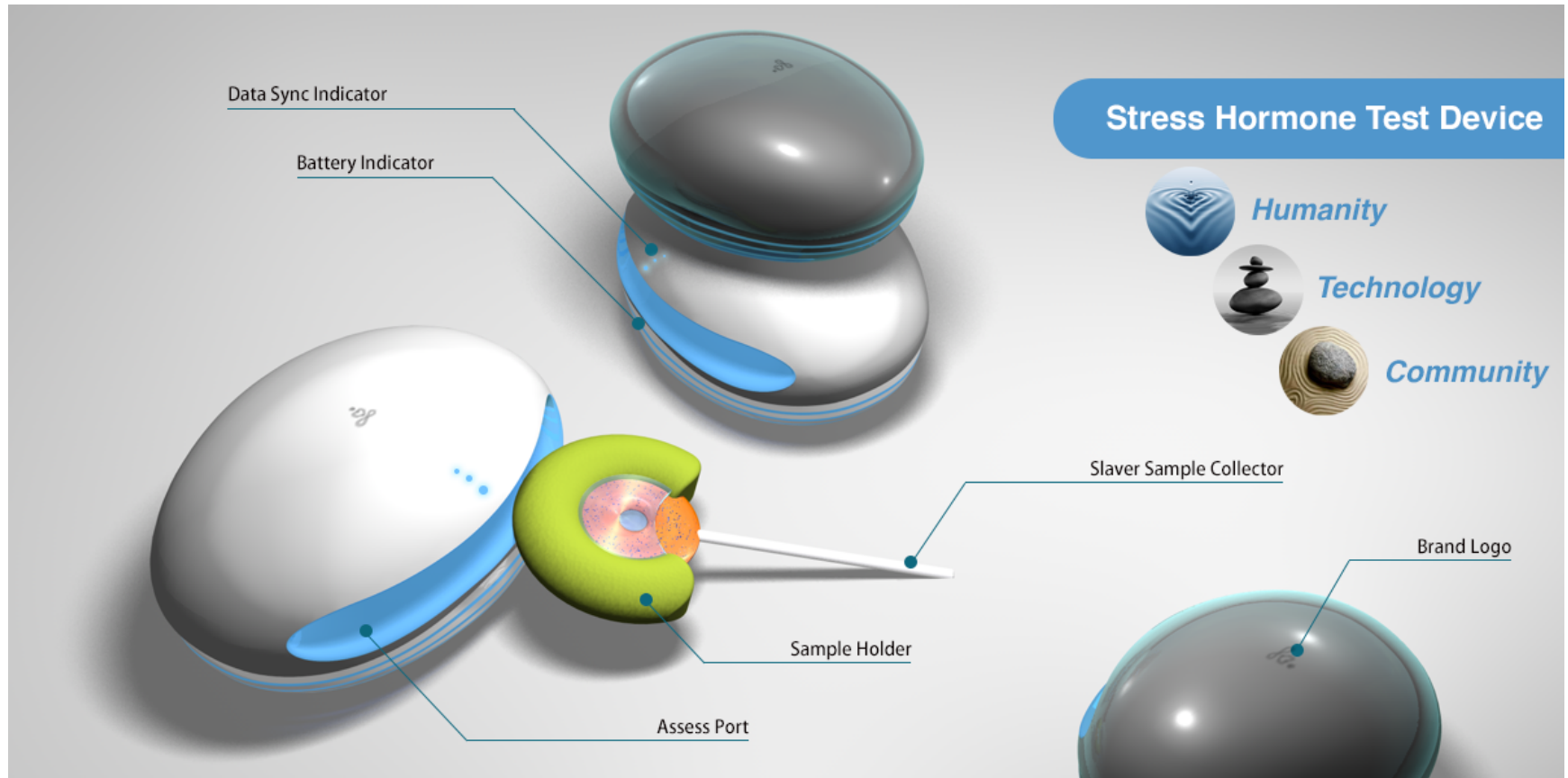


- Indoor Navigation System
- <http://zii.io>

ZynBit – Email Tracking



Emolance – Stress Management



CS Education for K-12

Google IgniteCS



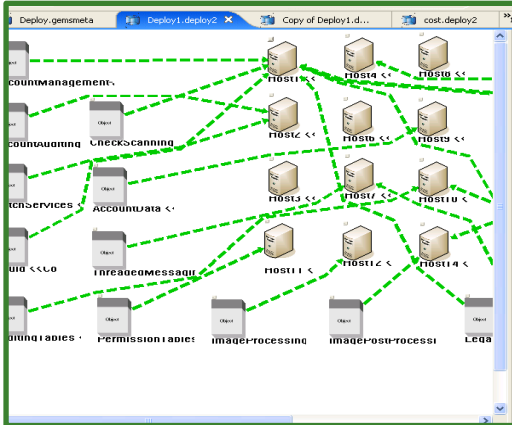
SoftCom Lab

Software Engineering, Cloud and Mobile Computing Lab

<http://softcom.io>

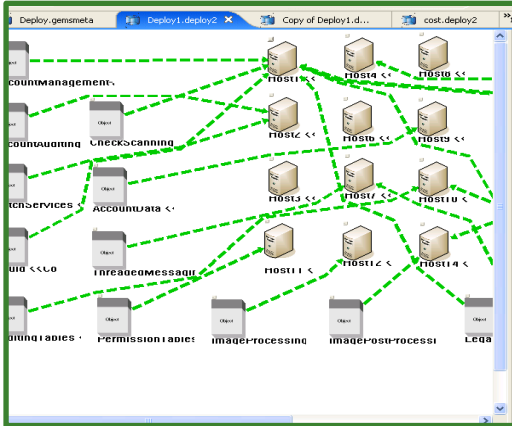


Summary of My Research Area



Software Engineering -
Model-Driven Engineering/
End-User Programming

Summary of My Research Area

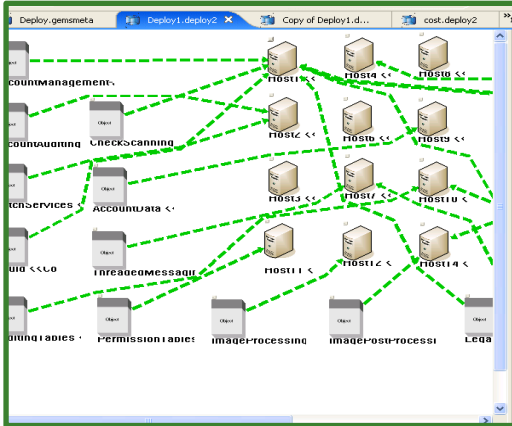


Software Engineering -
Model-Driven Engineering/
End-User Programming

Cloud Computing –
Optimization/Application



Summary of My Research Area



Cloud Computing –
Optimization/Application

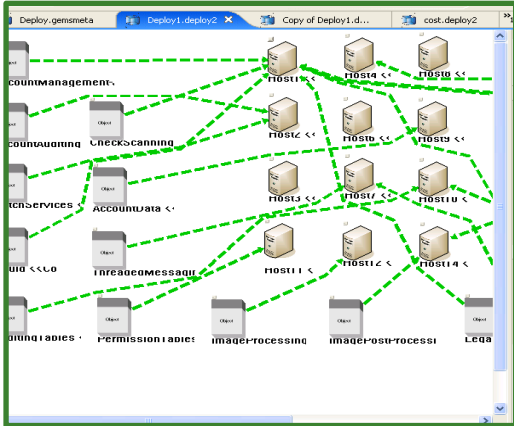


Software Engineering -
Model-Driven Engineering/
End-User Programming

Mobile Computing –
Augmented
Reality/Any Cool
Applications



Summary of My Research Area



Cloud Computing –
Optimization/Application



Software Engineering -
Model-Driven Engineering/
End-User Programming

Mobile Computing –
Augmented
Reality/Any Cool
Applications



My work focuses on using **modeling, optimization, automation & cloud services** to deal with the complexity of domain-specific problems.

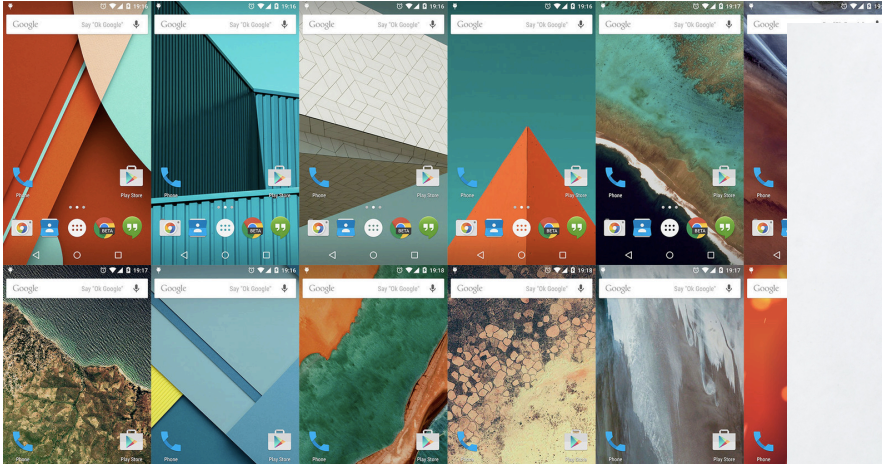
Software Industry in 2017



iPhone 8 & X



Android 8.0 – Oreo & Pixel 2



Amazon Echo & Amazon Go

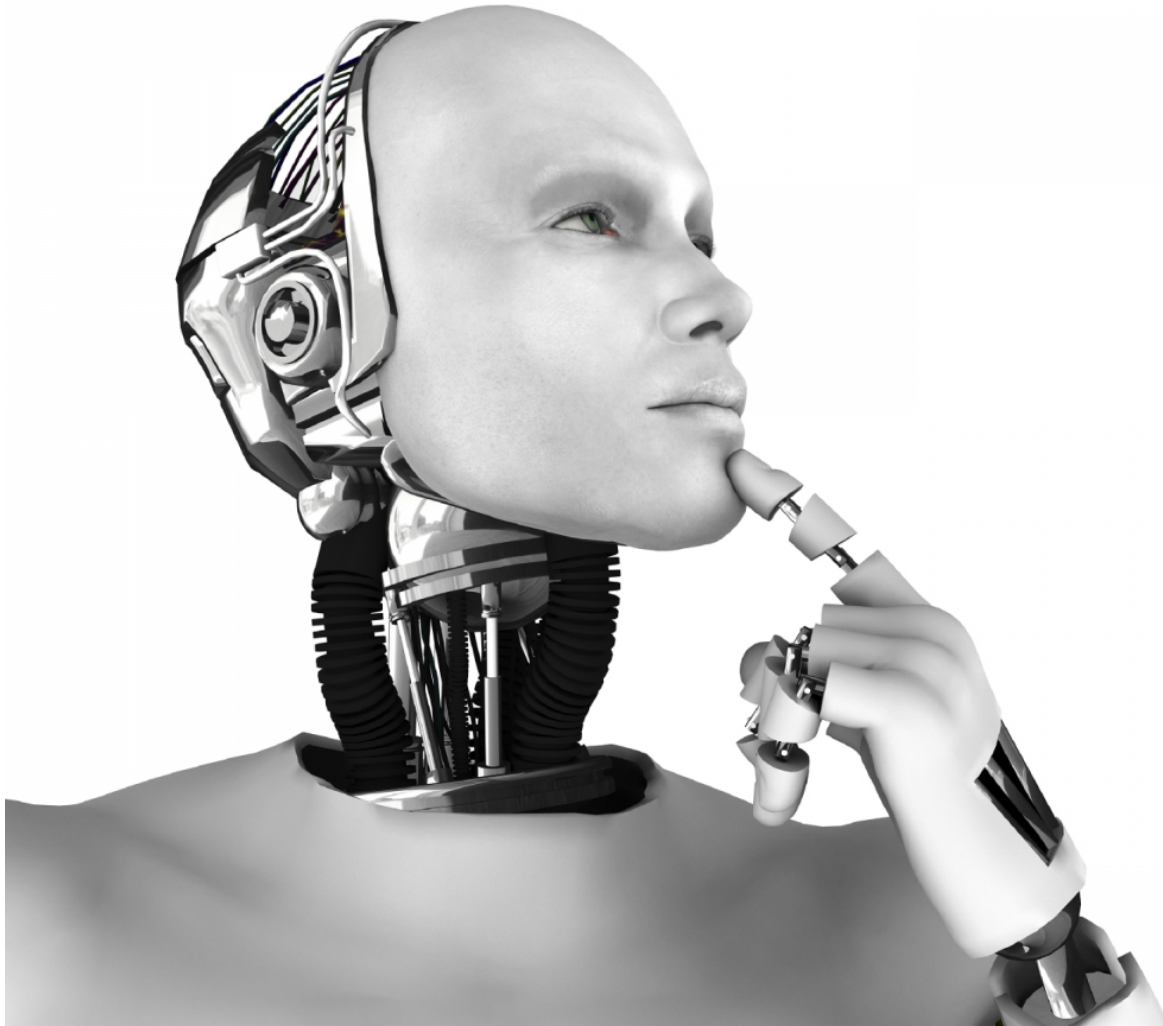
amazon echo



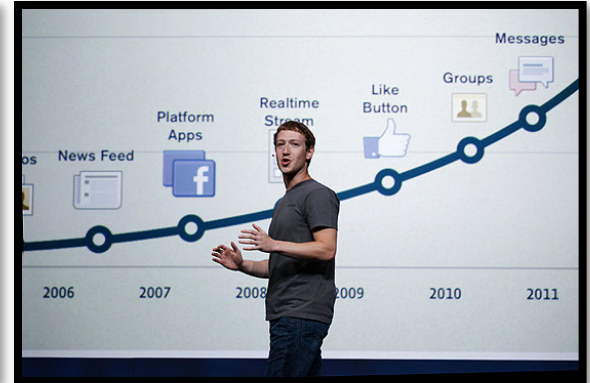
INTRODUCING
amazon go



AI & Machine Learning



Fast Growing Software Industry



- NASDAQ Composite



Fast Growing Software Industry



Uber - \$1.2 Billion Raise

BREAKING

3 Big European Oil Companies Get Negative Outlook From S&P Over Price of Crude

TWEET

Uber Valued at \$40 Billion in \$1.2 Billion Equity Funding

Save +

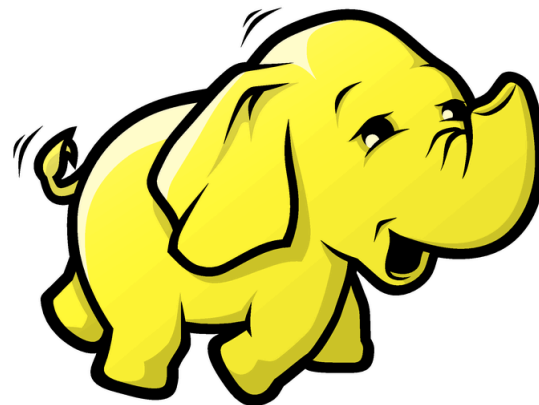
By Serena Saitto | Dec 4, 2014 1:08 PM PT | - [Comments](#) [Email](#) [Print](#)



Cloudera - \$4 Billion Valuation



cloudera[®]
Ask Bigger Questions



Airbnb - \$10 billion Valuation

airbnb Queens, NY

SIGN UP LOG IN HELP LIST YOUR SPACE

75 Rentals · Queens

FILTERS ROOM TYPE PRICE NEIGHBORHOODS

- INCREDIBLE Deal in HEART of NYC!!!**
Private room
Ridgewood, Queens
\$84 Per night
- Large private bedroom and bath**
Private room
Astoria, Long Island City
\$95 Per night
- Affordable, private bedroom for you**
Private room
Jackson Heights, Queens
\$75 Per night
- 15 MINUTES to TIMES SQUARE**
Private room
Astoria, Queens
\$65 Per night

LANGUAGE AND CURRENCY Map data ©2013 Google - Terms of Use Report a map error



SnapChat IPO



Startup Accelerators

VENTURE SPUR 

500 startups

tech
WILDCATTERS



techstars

DREAMIT
VENTURES



Combinator

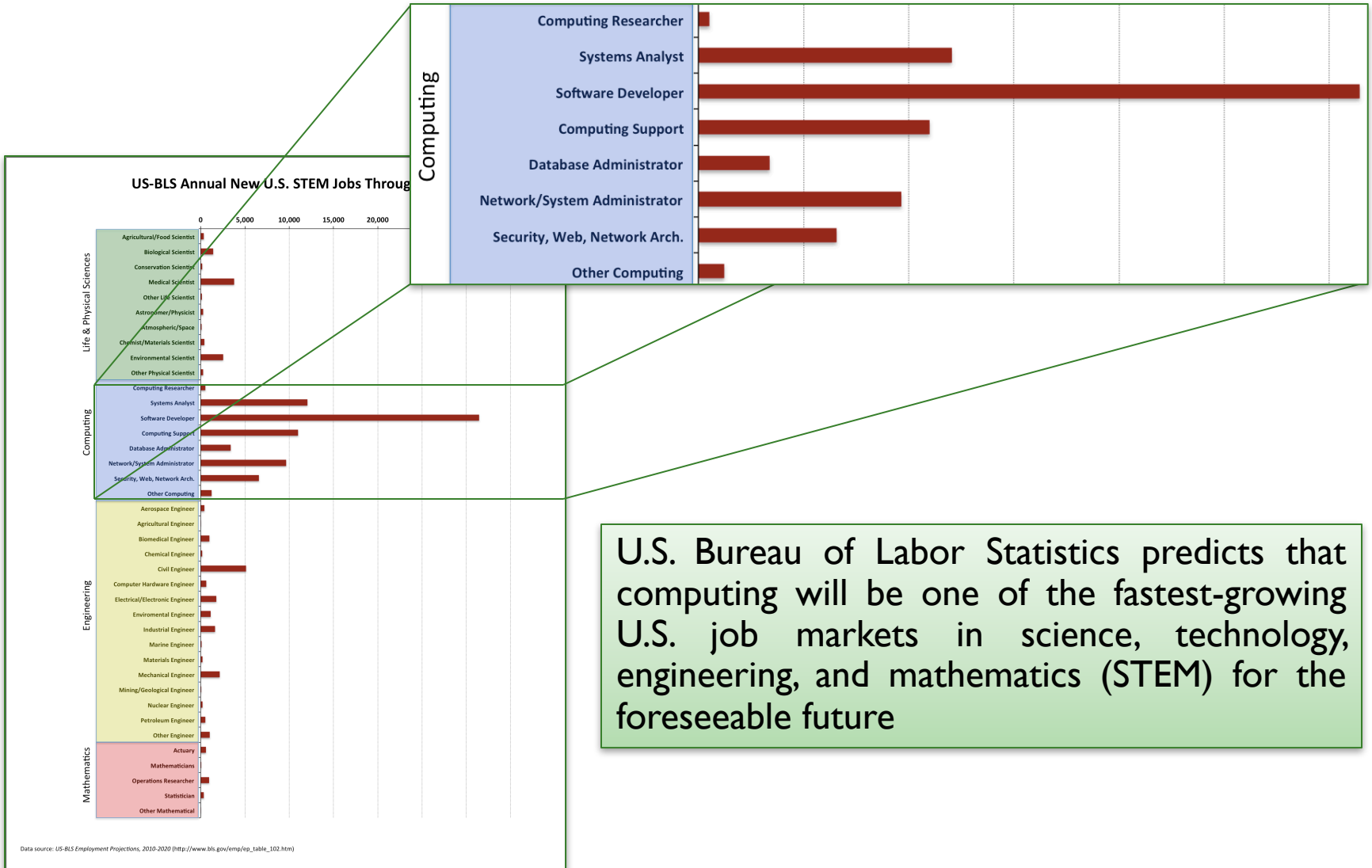
Blueprint for Business



Excelerate

AngelPad

Software Job Market



U.S. Bureau of Labor Statistics predicts that computing will be one of the fastest-growing U.S. job markets in science, technology, engineering, and mathematics (STEM) for the foreseeable future

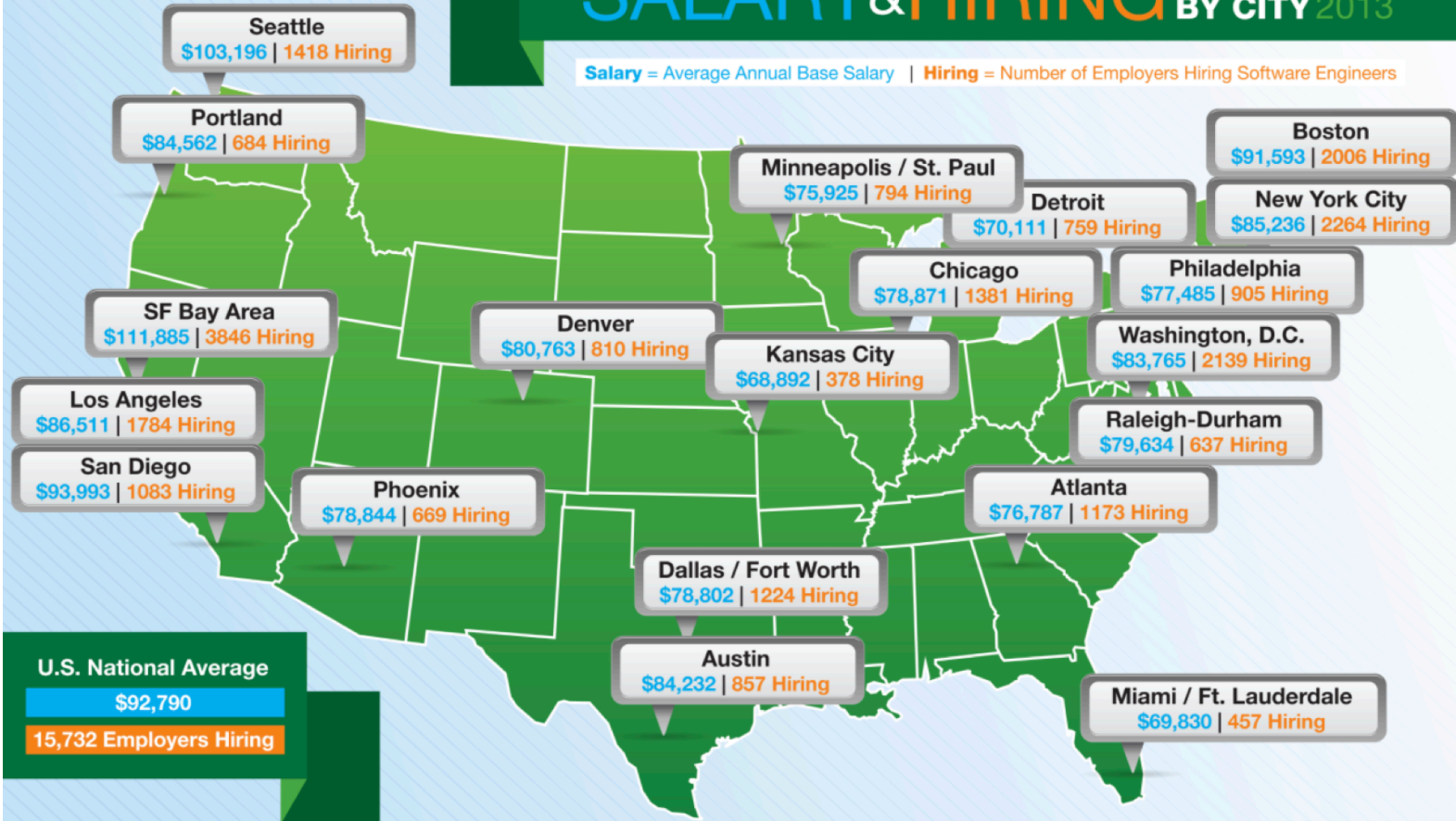
Data source: US-BLS Employment Projections, 2010-2020 (http://www.bls.gov/emp/ep_table_102.htm)

Software Job Market



SOFTWARE ENGINEER SALARY & HIRING COMPARISON BY CITY 2013

Salary = Average Annual Base Salary | Hiring = Number of Employers Hiring Software Engineers



Average annual base salaries based on at least 150 software engineer salary reports per U.S. metro, while U.S. average annual base salary based on more than 33,000 software engineer salary reports nationally, respectively, between 10/1/12 – 9/30/13. Metro & national hiring data based on number of employers with at least one software engineer job listing posted on Glassdoor as of 10/7/13.

Fun Place to Work



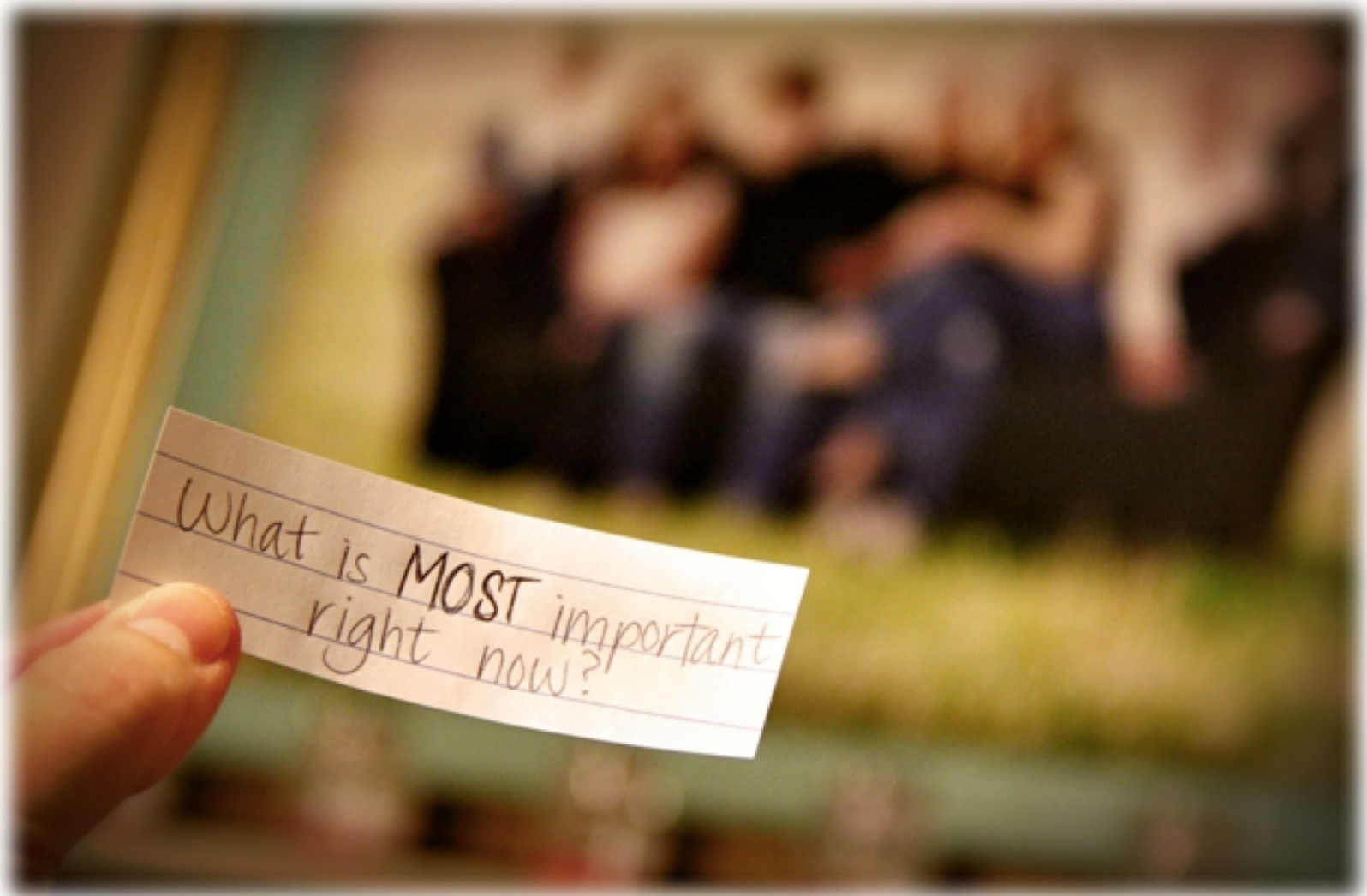
What is SE?



Basic Definitions of SE

- ◆ “Software engineering is a discipline whose aim is the production of **fault-free** software, delivered **on time** and **within budget**, which **satisfies the users needs.**” – [Schach]
- ◆ “ (1) The application of a systematic, disciplined, quantifiable approach to the development, operation, and maintenance of software; that is, the application of engineering to software. (2) The study of approaches as in (1).” [IEEE Computer Society]

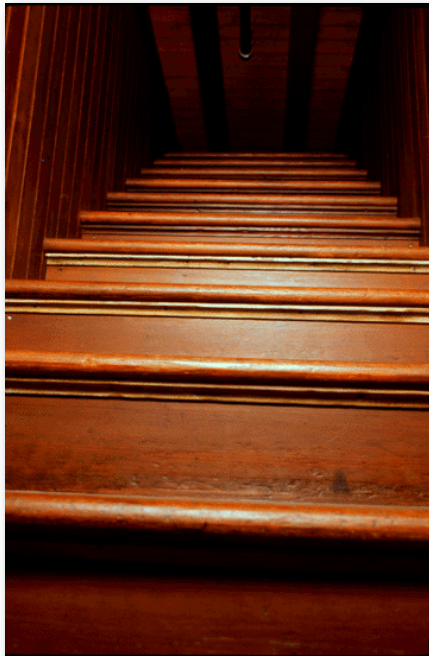
Why is SE so important?



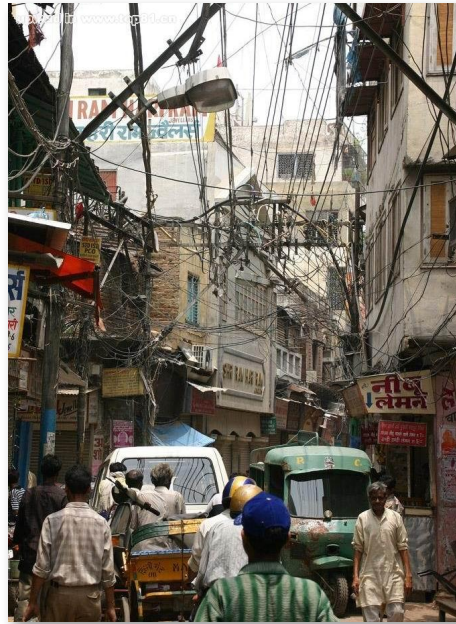
Poor Engineering Leads to Ad-hoc Structures



- ◆ Winchester Mystery House
 - ◆ The result of continuous building without any thought toward design
- ◆ Result:
 - ◆ Stairs leading to ceiling
 - ◆ Windows in the middle of room
 - ◆ Doors opening to wall
 - ◆ Non-intuitive floor plan

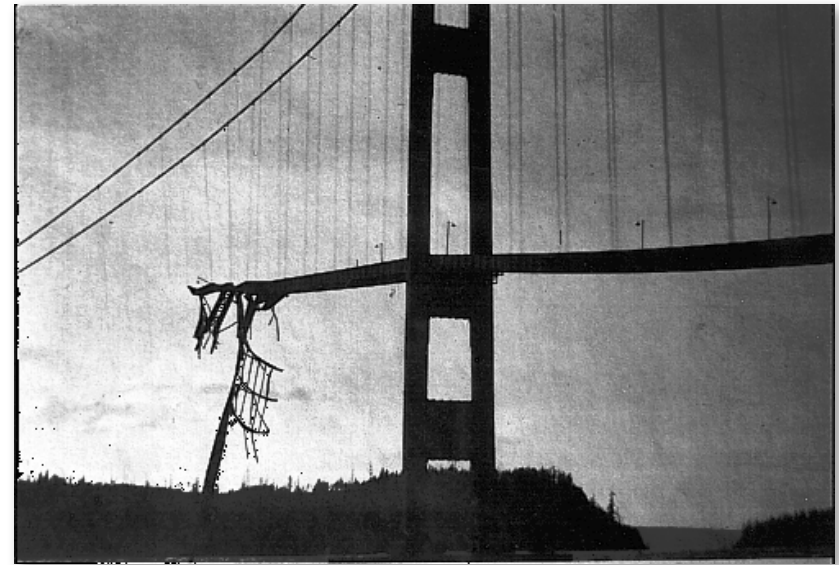
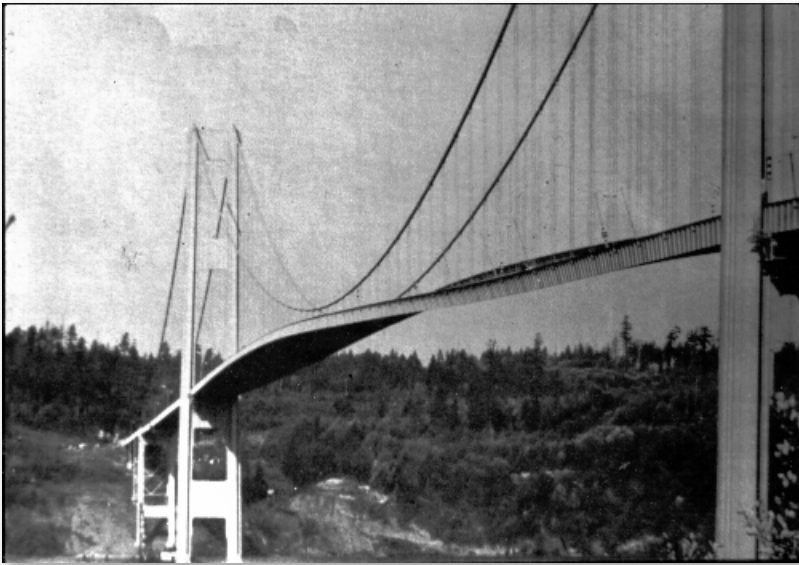


Poor Engineering Leads to Ad-hoc Structures



- ◆ The result of continuous building without any thought toward design
- ◆ Problems:
 - ◆ How would you maintain this if something went wrong?
 - ◆ How would you extend this to add more connections or features?

Poor Engineering Has Disastrous Consequences



Tacoma Narrows Bridge (July 1, 1940)

Aerodynamic phenomena in suspension bridges were not adequately understood in the profession nor had they been addressed in this design. New research was necessary to **understand and predict** these forces.

The remains, located on the bottom of the Sound, are a permanent record of man's capacity to build structures **without fully understanding the implications of the design.**



Poor Engineering Has Disastrous Consequences



\$7 Billion Fire Works – One Bug, One Crash

On 4 June 1996, the maiden flight of the Ariane 5 launcher ended in a failure. Only about 40 seconds after initiation of the flight sequence, at an altitude of about 3700 m, the launcher veered off its flight path, broke up and exploded.

The failure of the Ariane 501 was caused by the complete loss of guidance and attitude information 37 seconds after start of the main engine ignition sequence (30 seconds after lift-off). This loss of information was due to specification and design errors in the software of the inertial reference system.

Poor Engineering Has Disastrous Consequences



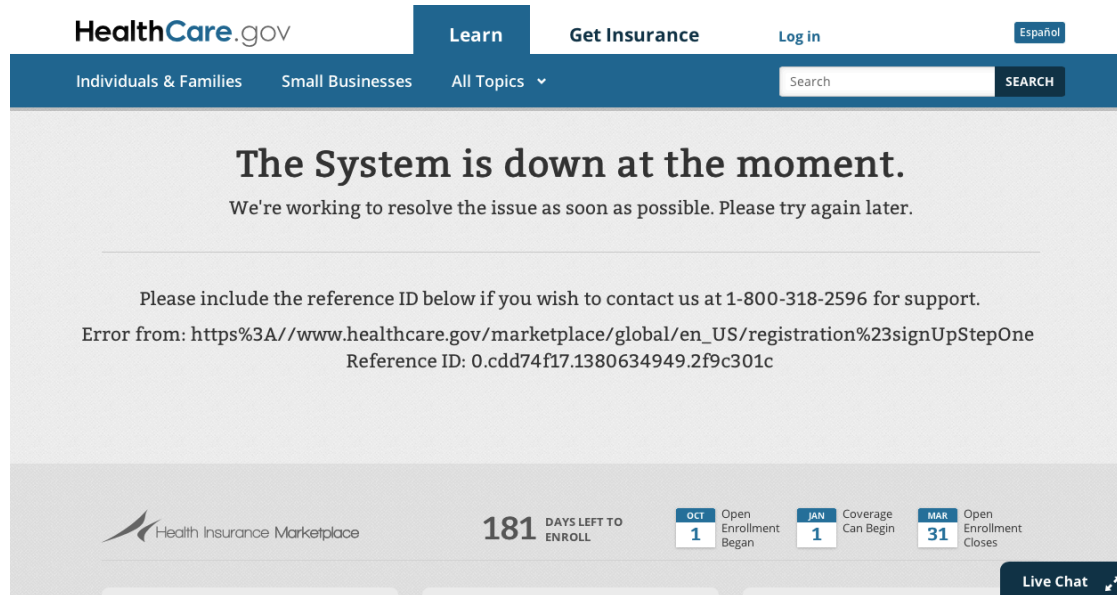
\$7 Billion Fire Works – One Bug, One Crash

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“The internal SRI software exception was caused during execution of a data conversion from 64-bit floating point to 16-bit signed integer value. The floating point number which was converted had a value greater than what could be represented by a 16-bit signed integer. This resulted in an Operand Error. The data conversion instructions (in Ada code) were not protected from causing an Operand Error, although other conversions of comparable variables in the same place in the code were protected.”

healthcare.gov



- ◆ Estimates that the overall cost for building the website had reached over \$500 million by October 2013
- ◆ Only 1% of people managed to successfully enroll with the site in its first week of operation
- ◆ "There's no sugar coating: the website has been too slow, people have been getting stuck during the application process and I think it's fair to say that nobody's more frustrated by that than I am."

What's SE in Practice?



A Typical Software Development Cycle



2011/9 Kindle Fire



2012/9 Kindle Fire HD



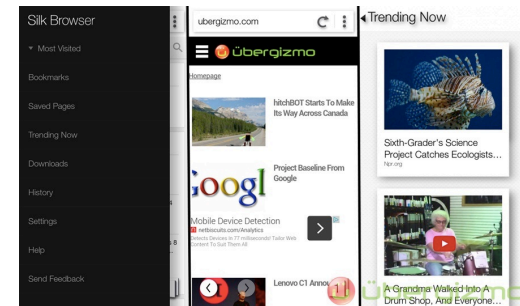
2014/6 Fire Phone



Silk Browser 1.0



Silk Browser 2.0



Silk Browser 3.0

Collect the Requirements



- Make it faster
- Private browsing mode
- Reading mode
- Trending web pages
- Easy to share/save pages
- Cooler UI
-



Prioritize and Finalize the Features



Team Meeting (Business)

- Make it faster
- Reading mode
- Trending web pages
- ~~Easy to share/save pages~~
- Cooler UI
- Private browsing mode
-

TO DO		DATE:		
		FINISH BY:		
		TOPIC:		
No.	TASKS	DONE	ERRANDS	DONE
01				
02				
03				
04				
05				
06				
07				
08				
09				
10				
No.	CORRESPONDENCE	DONE	NOTES	DONE
01				
02				
03				
04				
05				
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08				
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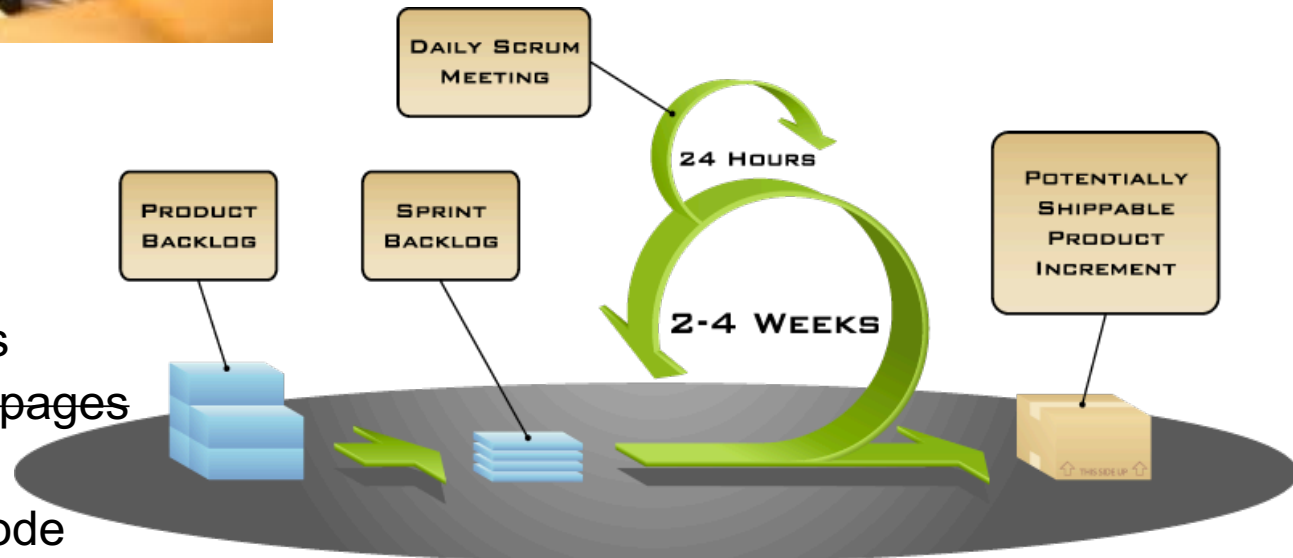
"Make a list—you'll feel better." ALL DONE

Dev Planning Meeting

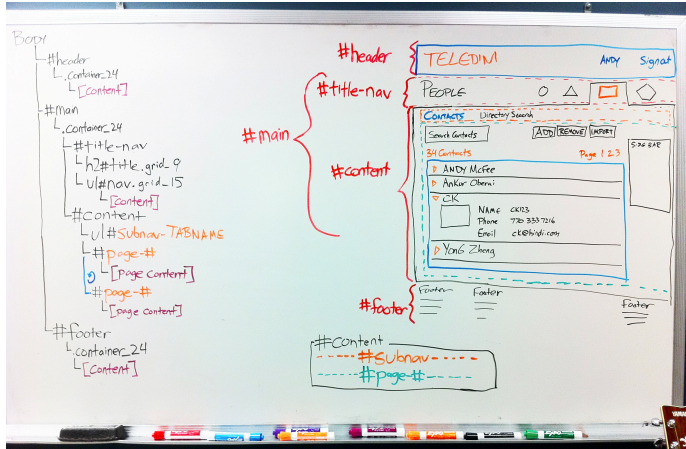


Agile Development

- Make it faster
- Reading mode
- Trending web pages
- ~~Easy to share/save pages~~
- Cooler UI
- Private browsing mode
-



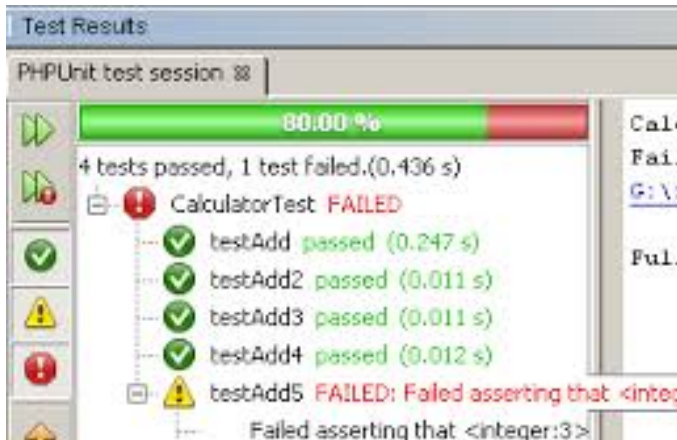
Make the Code Change



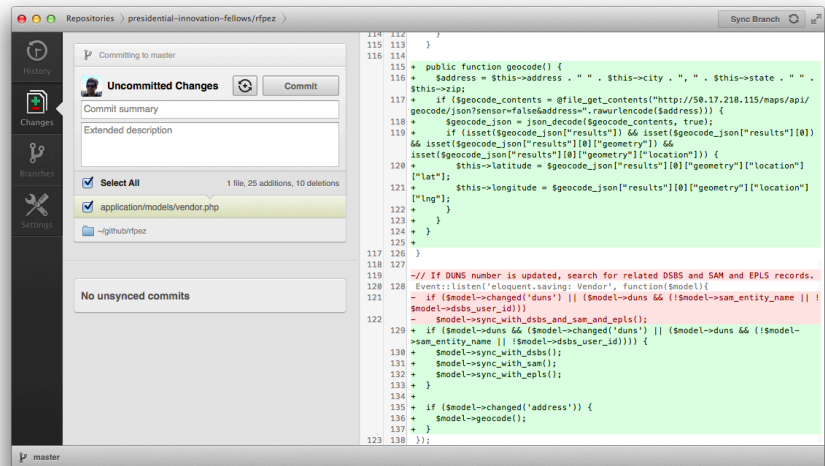
- Design



- Implementation

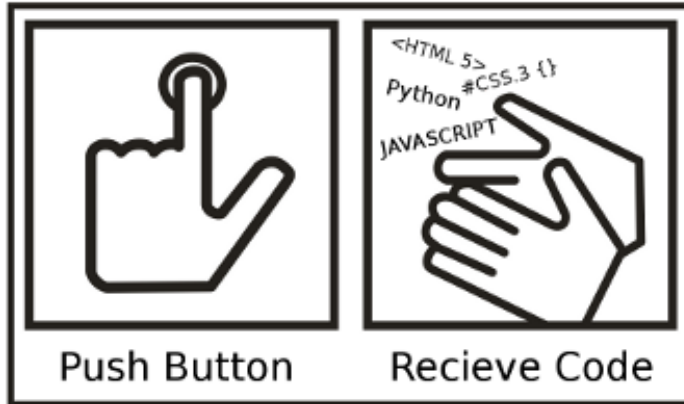


- Testing



- Code Review

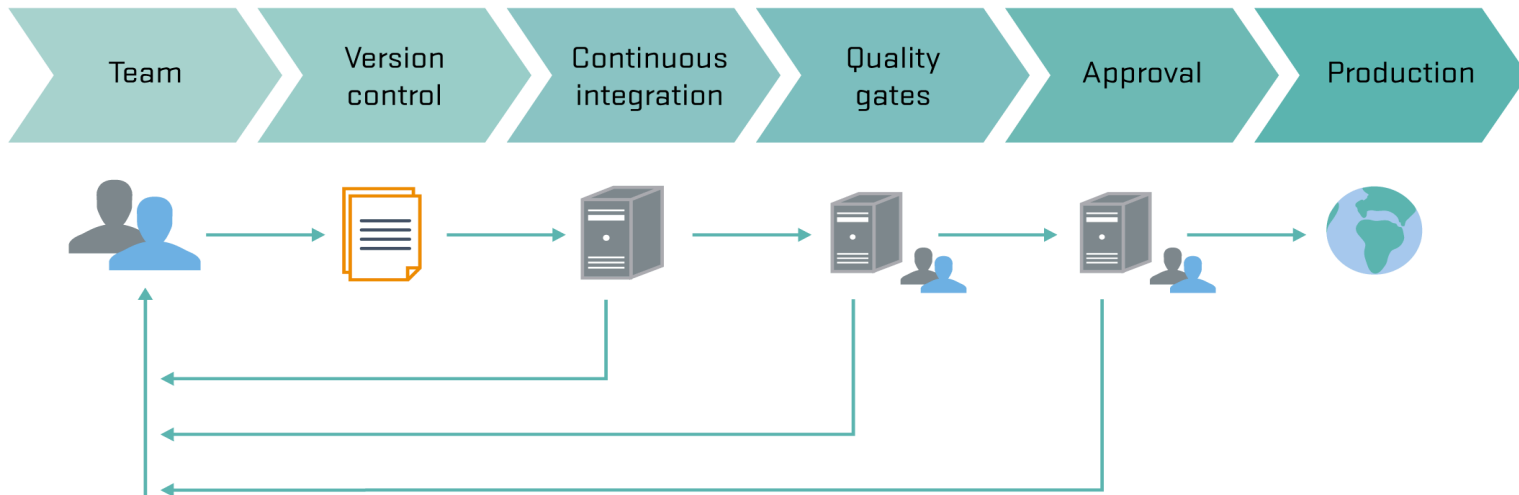
Make the Change Available to Customers



- Push the Change



- Build & Deploy



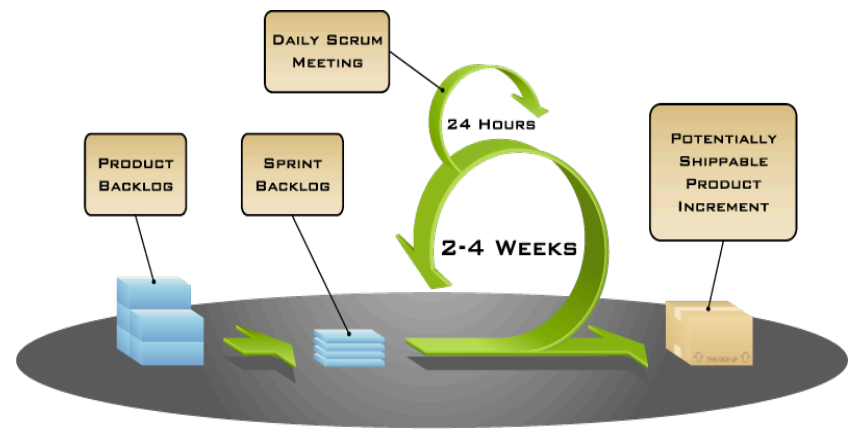
Track the Development Progress



- Daily Scrum



- Sprint Meeting



Product Release



No Ending – A Lot More To Do

- Monitoring



- Maintenance



- Bug Fixes



- Next Release



About CS480



The Syllabus

Goals

- ◆ Be ready for a Software Engineer
 - ◆ Learn the right skills
 - ◆ Gain practical experiences
 - ◆ Help you get the job

Your Resume

Emily Ima Dancer

Campus Address: 646-111-9999
First Campus Center Box 9999
Princeton, NJ 08544

Permanent Address: edancer@princeton.edu
215 East 95th Street, Apt 12
New York, NY 10029

EDUCATION Princeton University, Princeton, NJ June 2015
A.B. in Art and Archaeology, Certificate in Dance
GPA: 3.0
Coursework includes Modern Repertory and Choreography; Topics in Dance History, Criticism, and Aesthetics; The Russian Avant-Garde; Behind the Scenes of the University Art Museum

Sorbonne University of Paris, Paris, France Summer 2012
Six week summer study abroad in intermediate French

EXPERIENCE The Daily Meal, online food blog, New York, NY Jan. 2012 - Present
Editorial Intern
• Gather research on topics ranging from nutrition to cooking tips and pitch story ideas in regard to the college student demographic to editor
• Contribute to online stories to
• Post daily responses to Campus
• Utilize social media such as Twitter students for the Campus Eats

Quirk Gallery, Brooklyn, NY
Gallery Shop Intern
• Researched, wrote, and design
• Streamlined Gallery Shop for I
• Performed administrative and

Princeton University Bridge Year Volunteer
• Selected for freshman year residency as well as developing
• Experience provided an unique

New York International Ballet Co Summer Counselor (Live in post)
• Directed dancers' daily schedule
• Ensured fairness in cooperation
• Coordinated daily delivery of
• Communicated with judges at

CAMPUS ACTIVITIES The Review Staff Writer for On the Town Section
• Contribute to weekly stories on

Program in Dance Selected Performer
• Performed solo in Susan Marx

HONORS Princeton University: Outstanding High School Member of the Nats

SKILLS Proficient in Microsoft Word, Excel Spanish: Proficient in French

CAREER SERVICES AT PRINCETON UNIVERSITY

RESUME

Jane M. D

1100 N. Morgan St
Rushville, Indiana
cell: (555) 555-5555
email: jdoe@school

Career Objective

To teach choral or general music to K-12 students, computers, musical theater, show choir and jazz

Educational Preparation

2007 B.M.E.; University of Illinois
Major in music education (GPA 3.42)

2000 Diploma; Huge High School, San Antonio, TX

Teaching Experience

Spring 2007 Indiana High School Student teacher
All levels choir grades 8-12

2004 - 2006 Volunteer Teaching Assistant
Rushville University Lab School
Beginning chorus; Moved Glee Club

Honors and Awards

2005 - 2007 Lila Belle Pitts Scholarship Recipient
Dean's List University of Rush County
2003 Outstanding Sophomore Musician
2002 Semifinalist at the Midwest NATS Competition

Performance Background

2005 - 2007 Soprano, University of Rush County
Mixed Chorus (2003-2007)
Concert Choir (2004)
Opera Workshop (2006)
Chamber Singers (2003-2004)

Placement file with references available from University of Rush County Student Services.

LORI MANSON

1234 South Overview Drive, San Ramon, California 94583, Phone (510) 555-1234

OBJECTIVE A challenging teaching position utilizing creativity and a true desire to educate

EXPERIENCE **TEACHER/CENTER SUPERVISOR** Oct. 1990 - Dec. 1999
Turtle Mountain Head Start, Belcourt, North Dakota
• Manage six center employees and evaluate job performance through biannual reviews.
• Complete comprehensive monthly reports to reflect inventory control, accounts payable/receivable, and adherence to federal health and safety regulations.

Languages and Skills:

- Java, C++
- Windows
- Microsoft Office

ACHIEVEMENTS

University of Illinois
Major in music education (GPA 3.42)

Diploma; Huge High School, San Antonio, TX

Bureau of

North Dakota
Who's Who
President

Collaborated with the store merchandiser creating displays to attract clientele
Use my trend awareness to assist customers in their shopping experience
Thoroughly scan every piece of merchandise for inventory control
Process shipment to increase my product knowledge

PLANT BEACH

Sp Consultant
• Sell retail and memberships to meet company sales goals
• Build organizational skills by single-handedly running all operating procedures
• Communicate with clients to fulfill their wants and needs
• Attend promotional events to market our services
• Handle cash and deposits during opening and closing
• Received employee of the month award twice

HEARTBREAKER

Sales Associate
• Stocked sales floor with fast fashion inventory
• Marked down items allowing no to be successful merchandise in a retail market
• Offered advice and assistance to each guest

VICTORIA'S SECRET

Fashion Representative
• Applied my leadership skills by assisting in the training of coworkers
• Set up mannequins and displays in order to entice former customers
• Provided superior customer service by helping with customer decisions
• Took seasonal inventory

VOLUNTEER EXPERIENCE:

TARGET CORPORATION
Brand Ambassador
• Represented Persico Marketing and Target Inc. at a college event
• Engaged University of Minnesota freshmen in the Target brand experience

Richard Green

Apt. 4 Main Street, Canton, NY 13111
(515) 555-5555 • green@canton.edu

EDUCATION AAS, Air Conditioning Engineering Technology May 2004
SUNY Canton

AS, Manufacturing Technology May 1987
New York Community College

Certificate, Machine Trades June 1985
SUNY Tompkins

Computer Training
Microsoft Word/Excel/PowerPoint/Access

XX MARTIN LUTHER KING BLVD., APT. B-21 • CHAPEL HILL, NC 27514
PHONE: 919.123.4567 • E-MAIL: email@email.unc.edu

NAME WITHHELD

EDUCATION

University of North Carolina at Chapel Hill
School of Journalism and Mass Communication

August 2004 to Present
GPA of 3.1
Bachelor of Arts - forthcoming in May 2008

Relevant Coursework

• Advertising Copy and Communication
• Advertising Media
• Concepts of Marketing
• Principles of Advertising
• Sports Marketing and Advertising

• News Writing
• Process and Effects of Mass Communication
• Professional Problems and Ethics
• Current Issues in Mass Communication
• Introduction to Mass Communication Law

PROFESSIONAL CAPABILITIES

Trade Skills

• Media Planning and Research
• Copy Testing
• Layout
• Promotional Techniques (Sponsorships and Merchandising)

• Message Construction and Dissemination
• Computer Analysis
• Laws re: Advertising and Broadcast Regulation, Privacy, Label, and Journalistic Privilege

Marketing & Advertising Careers

• Marketing Copy
• Newspaper/Magazine Articles
• Ad Copy
• Press Releases

Software Proficiency

• MS Word, PowerPoint, Excel, Publisher
• Adobe Photoshop
• Data Analysis Program

Style Guides

• AP Style Guide
• Chicago Manual of Style
• MLA Style Guide

WORK EXPERIENCE

Children's Service Provider - October 2006 to February 2007; February 2007 to Present
Private Families, Chapel Hill, NC

• Partnered with Balf and Healey families to take responsibility for safety and development of children
• Designed and implemented an after-school routine for the Balf children (ages 10, five, and three) to manage chores, homework, and extracurricular activities
• Provided an atmosphere of security for the Healey children (a toddler and infant twins)
• Empowered all children, in age-appropriate ways, to take ownership and responsibility for their actions
• Regularly worked 15 to 20 hours/week, while in school full-time

Camp Counselor - May to August 2005; May to August 2006
YMCA Camp Kerr, Wakefield, NC

• Created a reward program to promote campers' healthy eating habits
• Designed weekly bulletin board, handled registration paperwork, and completed daily incident and discipline reports
• Modified camp values of flexibility, loyalty, and teamwork
• Provided end-of-week updates for parents of each of the 25 campers
• Supported a special-needs camper (Fragile X Syndrome is marked by autistic tendencies and developmental delays); learned sign language to facilitate communication
• Interfaced with camp director, branch director, and social services to report a case of child abuse
• worked 40 hours/week

Hands-on Experience

SE Practice

Requirements Analysis

Design

Coding

Version Control

Code Review

Build

Deployment

Maintenance



HTML & CSS



Jenkins



Your Resume

The image displays a collage of various resume templates and logos for programming languages and frameworks. The resumes are for Emily Ima Dancer, Lori Manson, Richard Green, Jane M. Doe, and John Doe. The logos include Git, Spring, JS, jQuery, FreeMarker, and Amazon Web Services. A central text box lists languages and skills: Java, C++, HTML/CSS, JavaScript, JQuery, AngularJS, Freemarker, Git/GitHub, Maven, JUnit, Amazon Web Services (AWS), and Jenkins.

Emily Ima Dancer
Campus Address: 646-111-9999
Permanent Address: 215 East 95th Street, Apt 3Z
New York, NY 10029

LORI MANSON
1234 South Overview Drive, San Ramon, California 94583, Phone (510) 555-1234

Richard Green
Apt. 4 Main Street, Canton, NY 11111
(315) 555-5555 • green@canton.edu

Jane M. Doe
1100 N. Morgan Street
Rushville, Indiana
cell: (355) 555 - 5555
email: jdoe@school.edu

John Doe
Full Address • City, State, ZIP • Phone Number • E-mail

Logos and Text:
git, spring, JS, jQuery, write less, do more, FreeMarker, amazon web services, Jenkins

Resume Content:
EDUCATION: Princeton University, Princeton, NJ
A.B. in Art and Archaeology, Certificate in Dance
Coursework includes: Modern Repertory and Choreography; Topics in Dance History, Criticism, and Aesthetics; The Ballet Avant-Garde Behind the Scenes of the University Art Museum
June 2015
GPA: 3.0

EXPERIENCE: The Daily Meal
Editorial Intern
• Gather research on topics ranging from nutrition to cooking tips and pitch story ideas in regular e-mails to student demographic to readers.
• Contribute to online stories to
• Post daily responses to Campus
• Utilize social media such as Twitter and Facebook to promote the Campus Eat!

EDUCATIONAL PREPARATION
2007
B.M.E.; University of Rush County
Majoried in music education (GPA 3.52)
Anticipated graduation May, 2007

UNIVERSITY OF ILLINOIS
Majoried in music education (GPA 3.42)
Diploma; Hugo Award

INDIANA HIGH SCHOOL
Student teacher
All levels choir; grades 8-12

TEACHING EXPERIENCE
2004 - 2006
Volunteer Teaching Assistant
Rushville University Lab School
Beginning chorus; Mixed Glee Club

Honors and Awards
2005 - 2007
Lila Balle Pittz Scholarship Recipient

PROFESSIONAL CAPABILITIES:
• Message Construction and Dissemination
• Computer Analysis
• Laws re: Advertising and Broadcast Regulation, Privacy, Libel, and Journalistic Privilege

Software Proficiency
• MS Word, PowerPoint, Excel, Publisher
• Adobe Photoshop
• Data Analysis Program

Style Guides
• AP Style Guide
• Chicago Manual of Style
• MLA Style Guide

WORK EXPERIENCE:
Chilcote Service Provider - October 2006 to February 2007; February 2007 to Present
Private Families, Chapel Hill, NC
• Supervised with adult and infant twins to take responsibility for safety and development of children (ages 10, five, and three) to manage and infant twins) and responsibility for their actions
• Completed daily incident and discipline reports
• Assisted with artistic tendencies and developmental report a case of child abuse
• Worked 40 hours/week

Languages and Skills:

- Java, C++, HTML/CSS, JavaScript, JQuery, AngularJS, Freemarker
- Git/GitHub, Maven, JUnit, Amazon Web Services (AWS), Jenkins

Course Project – Things to Know

- ◆ Java (**Recommended**)
- ◆ Web Services (Helpful to know)
 - ◆ HTTP
 - ◆ Java Servlet
 - ◆ Spring Framework
 - ◆ <http://spring.io/>
 - ◆ Spring Boot
 - ◆ <http://projects.spring.io/spring-boot/>
- ◆ MOOC Course
 - ◆ Programming Cloud Services for Android Handheld Systems
 - ◆ <https://class.coursera.org/mobilecloud-001>

TODO

- ◆ Form a team ASAP!
- ◆ Think about a cool project idea