

## CS 61C: Great Ideas in Computer Architecture (Machine Structures) *Cal Cultural Heritage*

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1

### What to Emphasize about Cal culture?

- **Top public university** (*US News 2010*)
- **Top graduate program** in the world?
  - 35/36 departments in top 10
- **University doing the most public good**
  - *Washington Monthly 2009*
- **Faculty Awards?**
  - 8 current Nobel Prize winners (21 all time)
  - 3 Turing Award winners (“Nobel of CS”)
  - 3 Fields Medalists (“Nobel of Math”)
  - 86 in National Academy of Engineering
  - 135 in National Academy of Science
  - 28 “Genius” awards (MacArthur fellows)
  - Source: <http://www.berkeley.edu/about/honors/>

2

### Cal Cultural History: ABCs of Football

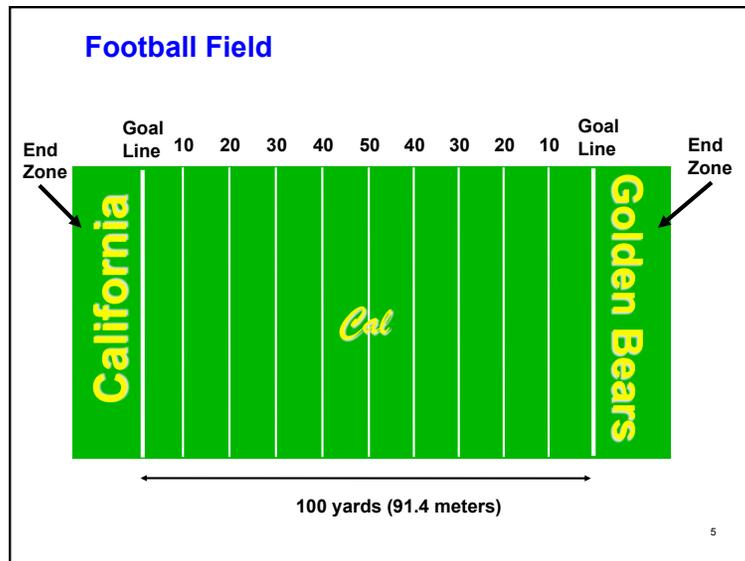
- Started with “soccer” (aka football)
  - 11 on a team, 2 teams, 1 ball, on a field; object is to move ball into “**goal**”; most goals wins. No hands!
- New World changes rules to increase scoring:
  - Make goal bigger! (full width of field)
  - Carry ball with hands
  - Can toss ball to another player backwards or laterally (called a “**lateral**”) anytime and forwards (“**pass**”) sometimes
- How to stop players carrying the ball? Grab them & knock them down by making knee hit the ground (“**tackle**”)
  - In soccer tackle the ball; football tackle the person

3

### ABCs of American Football

- Score by...
  - Moving football into goal (“**cross the goal line**” or “**into the end zone**”) scoring a “**touchdown**” (6 points)
  - Kicking football between 2 poles (“**goal posts**”) scoring a “**field goal**” (worth 3 points, unless after touchdown, then its just 1 point: “**extra point**”)
- Kick ball to other team after score (“**kickoff**”)
  - laterals OK
- Game ends when no time left (four 15 min quarters) and person with ball is stopped
  - Soccer: two 45 min halves, time stops play

4



### The Spectacle of American Football

- Cal's archrival is **Stanford**
  - Stereotype is Private, Elitist, Snobs
  - E.g, Manchester City vs. Manchester United
- Play nearby archrival for last game of season
  - Called “**The Big Game**”: Cal vs. Stanford, winner gets a trophy (“The Axe”) : Oldest rivalry west of Mississippi; 100th in 1997
- American college football is a spectacle
  - School colors (Cal **Blue** & **Gold** v. **Red** & **White**)
  - Nicknames (Golden Bears v. Stanford Cardinal)
  - School mascot (Oski the bear v. a tree(!))
  - Leaders of cheers (“cheerleaders”)

6

### The Spectacle of American Football

- “Bands” (orchestras that march) from both schools at games
- March & Play
  - Before game, at halftime, after game
- Stanford Band more like a drinking club; (Seen the movie “Animal House”?)
  - Plays one song: “All Right Now”
  - Cannot march and play

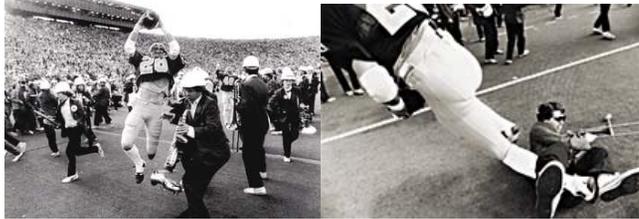
7

### 1982 Big Game: “The Play”

- “Top 20 favorite sports event in 20th century”, *Sports Illustrated*
- “Greatest Football Play of All Time,” *Best Dome Sports Show*
- “...The Play, widely considered the most dramatic ending in college football history,” AP news
- “...widely considered the most famous play in college football history,” *Stanford Magazine* (“The Play” Has own entry in Wikipedia)
- Stanford
  - Quarterback is John Elway, who goes on to be a professional Hall of Fame football player (retired 1999)
  - Possibly greatest quarterback in college history?
    - » In 1982, they had lost 4 games in last minutes
- Stanford has just taken lead with 4 seconds left in game; Cal team captain yells in huddle “Don’t fall with the ball!”; [watch video](#)

8

### Notes About "The Play" (1/3)



"Alright here we go with the kick-off. Harmon will probably try to squib it and he does. Ball comes loose and the Bears have to get out of bounds. Rogers along the sideline, another one... they're still in deep trouble at midfield, they tried to do a couple of....the ball is still loose as they get it to Rogers. They get it back to the 30, they're down to the 20...Oh the band is out on the field!! He's gonna go into the endzone!!! He got into the endzone!! ...

THE BEARS HAVE WON!!! THE BEARS HAVE WON!!! Oh my God, the most amazing, sensational, dramatic, heart rending... exciting thrilling finish in the history of college football!"

- KGO's Joe Starkey

9

### Notes About "The Play" (2/3)

- Cal only had 10 men on the field; last second another came on (170 pound Steve Dunn #3) and makes key 1st block
- **Kevin Moen #26**: 6'1" 190 lb. safety,  
-laterals to Rodgers (and doesn't give up)
- **Richard Rodgers #5**: 6' 200 lb. safety, Cal captain "Don't fall with that ball."  
-laterals to Garner
- **Dwight Garner #43**: 5'9" 185 lb. running back  
-almost tackled, 2 legs & 1 arm pinned, laterals
- **Richard Rodgers #5 (again)**: "Give me the ball!"  
-laterals to Ford

10

### Notes About "The Play" (3/3)

- **Mariet Ford #1**: 5'9", 165 pound wide receiver  
-Smallest player, leg cramps; overhead blind lateral to Moen and blocks 3 players
- **Moen** (again) cuts through Stanford band into end zone (touchdown!), smashes Trombonist
- On field for Stanford: 22 football players, 3 Axe committee members, 3 cheerleaders, 144 Stanford band members (172 for Stanford v. 11 for Cal)  
- "Weakest part of the Stanford defense was the woodwinds." -- Cal Fan
- Cal players + Stanford Trombonist (Gary Tyrrell) hold reunions; Stanford revises history (20-19 on Axe) and still hasn't accepted loss

11

## Thanks to TAs: Andrew Gearhart, Michael Greenbaum, Conor Hughes, and Charles Reiss

- Randy and my busiest semester in a while
- Thanks for being courageous enough to take this experimental version of 61C

12

## The Future for Future Cal Alumni

- What's The Future?
  - New Century, Many New Opportunities:  
Parallelism, Cloud, Statistics + CS, Bio + CS, Society (Health Care, 3<sup>rd</sup> world) + CS
  - Cal heritage as future alumni
    - Hard Working / Can do attitude
    - Never Give Up (“Don’t fall with the ball!”)
- “The best way to predict the future is to invent it” – Alan Kay (inventor of personal computing vision)**

**Future is up to you!**

13