

CSCI261 E/F

~~Lecture 2: C++ Fundamentals~~

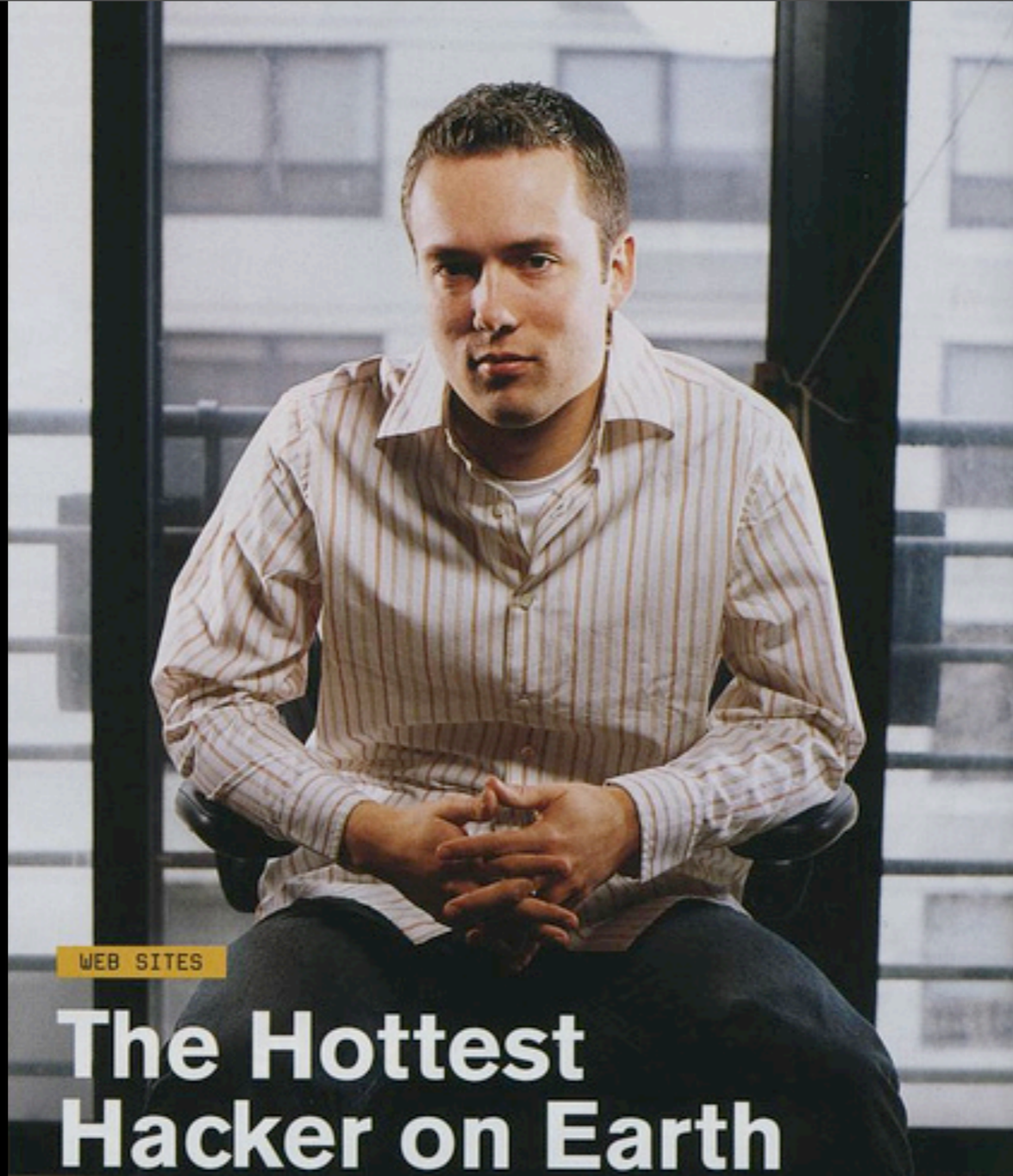
~~August 30, 2010~~

Programming is cool!

Bjarne Stroustrup



This is **not** what I mean by *computer nerd*. Note the white jeans.



WEB SITES

The Hottest Hacker on Earth

David Heinemeier Hansson could be mistaken for a Gap model. The Danish 26-year-old's blog is filled with glam photos of himself, his friends at parties, and his hot girlfriend. But Hansson is actually the first Google-O'Reilly hacker of the year (2005), an über-geeky nod for producing Ruby on Rails.

RoR establishes a simple, open source framework for using the equally simple programming language Ruby. In RoR, commands look like sentences, and limited choices make it tough for Web developers to get lost or tangled up in code. As a partner at 37signals in Chicago, Hansson uses RoR to write software for the popular project-management tools Basecamp and Backpack.

RoR also makes it easy for developers to work with AJAX (short for Asynchronous JavaScript and XML), the technology that lets them do cool stuff like move folders and scroll through maps on a Web page. "It's like a color-by-numbers system," says Derek Sivers, founder of CD Baby, who's rebuilding his entire site with RoR. And that's been Hansson's goal all along – to fundamentally remake the way Web sites are built. As he puts it, "We've already slaughtered a whole herd of holy cows." – **Nicholas Thompson**

(whatever)

Huh? Wha? (review)

- computer system = hardware + software
- programming = describing algorithms to a computer
- abstraction = don't worry about the details (as long as it works)
- we speak english, computers speak binary
 - programming languages bridge the gap

Review

- We compiled and ran a program
- But what *really* happened?

C++ Program Structure

preprocessing directives

```
int main() {  
    variable declarations;  
    statements;  
    return(0);  
}
```

Preprocessing Directives

Things (aka 'libraries') your program will need to use
eg, math functions, input/output, graphics

```
#include <iostream>  
#include <cmath>
```

“Hey computer, my program uses functions in the iostream library and the math library.”

main()

Is special -- all programs start with main.

What does your program do?

Whatever is in the code block following main()

Code Blocks

{ the stuff in between braces }

The guts of your algorithm

```
int main() {  
    /* computer, what should I do with my life? */  
    return(0);  
}
```

Variable Declarations

- Computers are dumb
- You need to tell it ahead of time about the memory you will need
 - Why? Because variables need memory
 - Why? To store values

Types of Variables

- int
- double
- char
- boolean
- string (technically, not a standard type)

...to be continued

Input / Output

aka I/O

```
#include<iostream>
```

cout
aka “standard out”

“the screen”

```
cout << “does he/she like me?” << “or looove me?”;
```

cin

aka “standard in”

“the input prompt on a screen”

```
cin >> answer;
```

“Computer, take what the user types when they hit [enter] and assign it to the variable following the >> symbol”

Homework

- Finish *SolidBeginnings*
- Read Chapter 2.1 - 2.4, 2.7
 - Skip *IO Manipulations* in 2.4
- Complete *MilesToKilometers*