CCIS Low Enrollment

Trends, Challenges, and Solutions

CCIS College of Computer & Information Sciences

PSU PRINCE SULTAN UNIVERSITY جامعة الأمير سلطان

Agenda

- Realities
- Trends
- Challenges
- Solutions

Realities

New Scientific Realities

> We believe that computer science concepts and tools in science form a third, and vital component of enabling a ‘golden triangle’ to be formed with novel mathematical and statistical techniques in science, and scientific computing platforms and application integrated into experimental and theoretical science.

- Towards 2020 Science

New Economic Realities

Impact of Globalization and IT

- Globalization means access to world-wide talent
- IT enables efficient knowledge exchange at high speed

Policy maker focus: Attracting jobs in the new flat land

- Countries have to compete against the global talent pool for jobs
- Developing 21st Century workforce skills through education

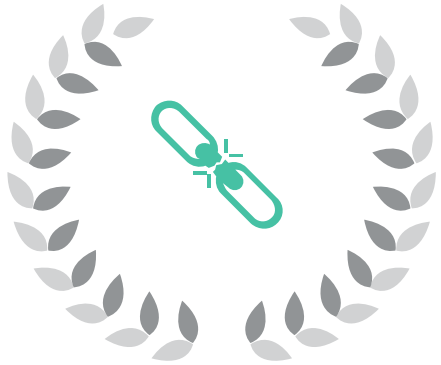
Major reports have argued countries need to depend on an innovation-focused workforce to succeed

The Importance of Transferable Skills

Students who study computer science learn a number of vital skills that can be transferred to any subject area and contribute significantly to their performance as professionals:

Problem solving skills

Problem definition, solution design, implementation, testing, revision
Creativity, perseverance, teamwork



Design skills

Designing and working to specifications

Logic and reasoning

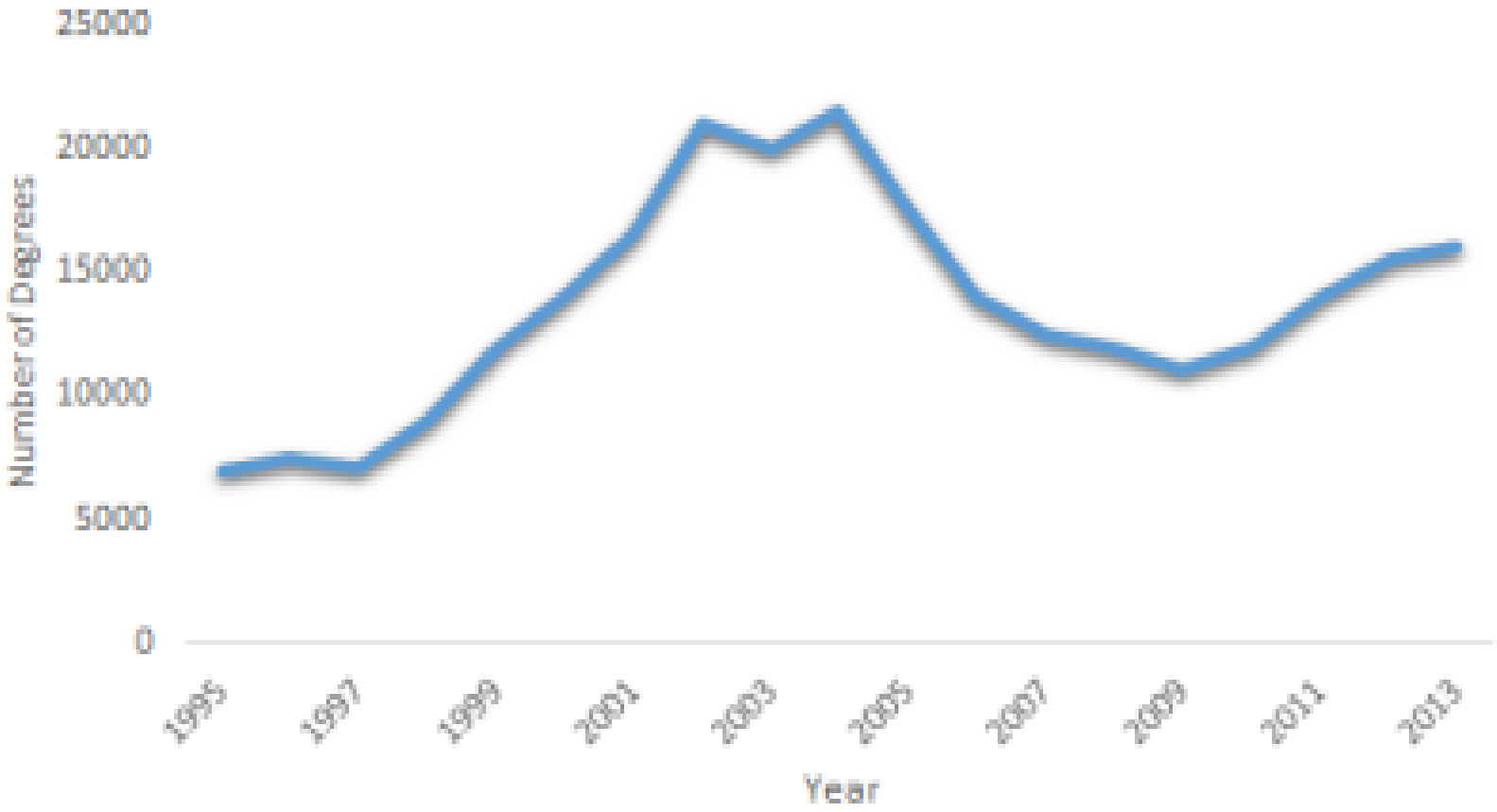
The ability to analyze a problem and break it down into a logical sequence of steps

Computational thinking

Drawing on fundamental concepts in computer science to analyze and solve problems.
Thinking at multiple levels of abstraction

Trends

Trends



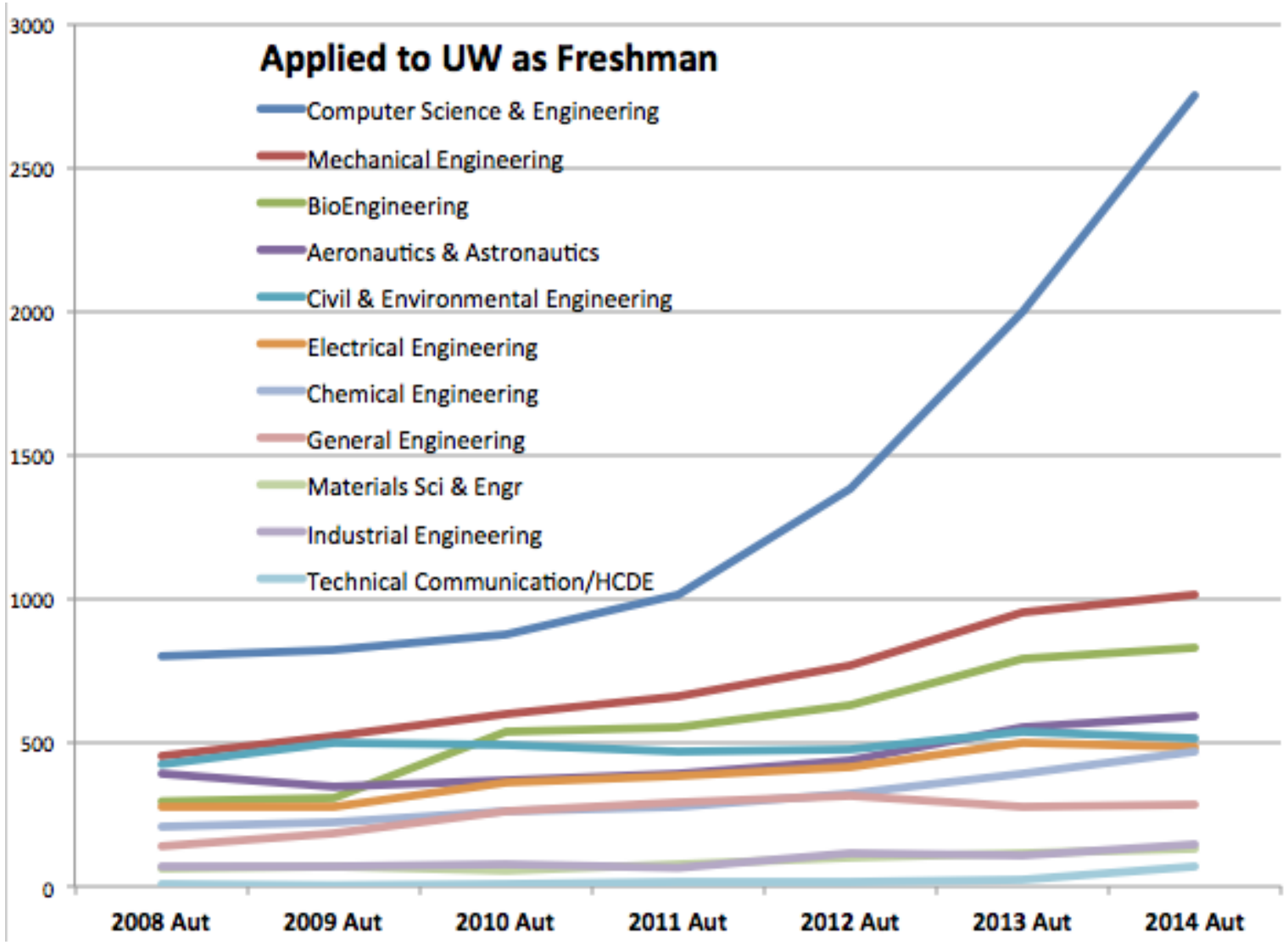
"Explaining the Gap Between Enrollment and Employment in Computer Information Sciences."

Trends

"Factors influencing students decisions to major in a computer-related discipline."

Trends

University of Washington in Seattle



Trends

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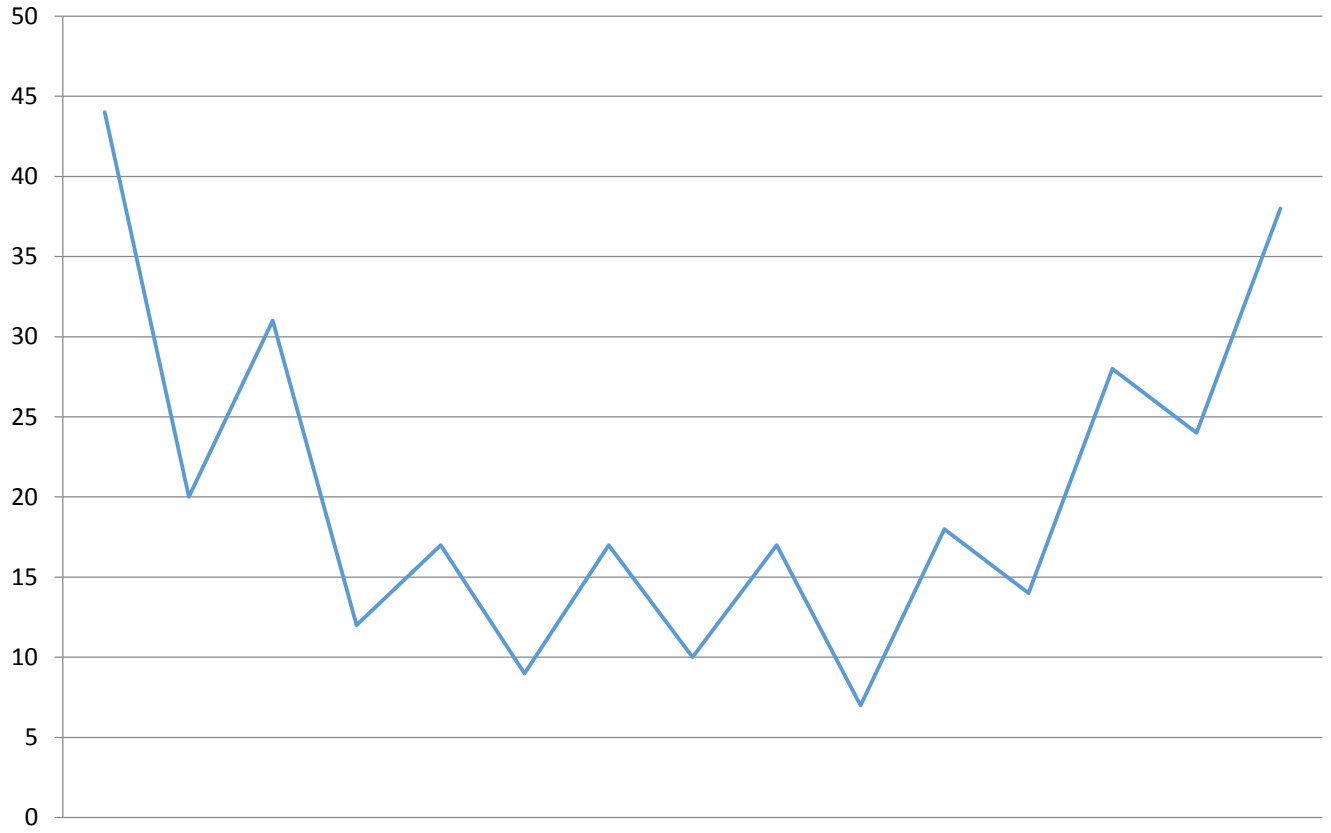


Challenges

Myths


There will be no IT jobs when I graduate
IT salaries are low due to cheaper overseas labor
There are no IT jobs.
IT-Related Educational Degrees Are Worth Less

Challenges

- IT courses are anti-social
- The variety of technology related majors
- Strong emphasis on mathematics
- Competitive rather than collaborative course of study.
- First Programming Course
- Fragmented CS courses designation
- Lack of Understanding of CS


Solutions

Solutions

Make programming cool again

Make CS courses fun

Show the Steak, Not the Slaughterhouse

Accreditation and Recognition

Practices and Research at a Glance

Respond to market demand

CS Awareness Campaign


Solutions 01
Make programming cool again

Why Can't the Introduction of Computer Science be exciting?

Programming – it's always been

- **Hands-on**
- **Interactive**
- **Frustrating!**

What's missing?

- **Not Getting Exciting Results**

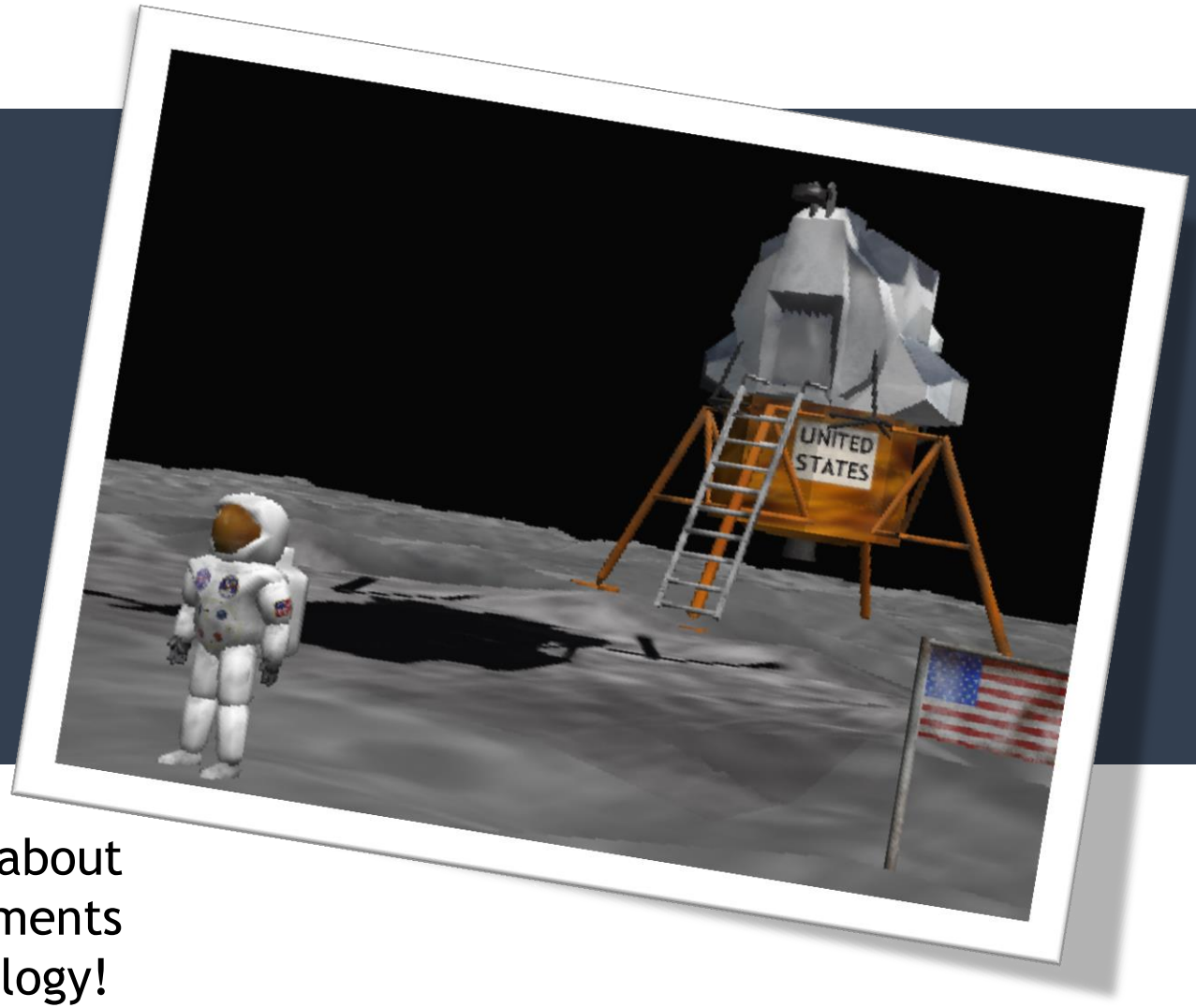
  Easily, right away

- **Not appealing to today's students in which media and technology are a part of their life!**

Bring on Alice Virtual Worlds!

Alice is

- **Hands-on!**
- **Interactive!**
- **Exciting Results right away!**



Alice has the potential to excite students about computer science in the same way that experiments excite students about chemistry, physics and biology!

Alice Programming Language

Create interactive stories or games

Learn programming in an easy way, drag-and-drop your code

Learn computer science concepts:

- Loops, classes, methods, functions, arrays

Developed at Carnegie Mellon University

- Professor Randy Pausch

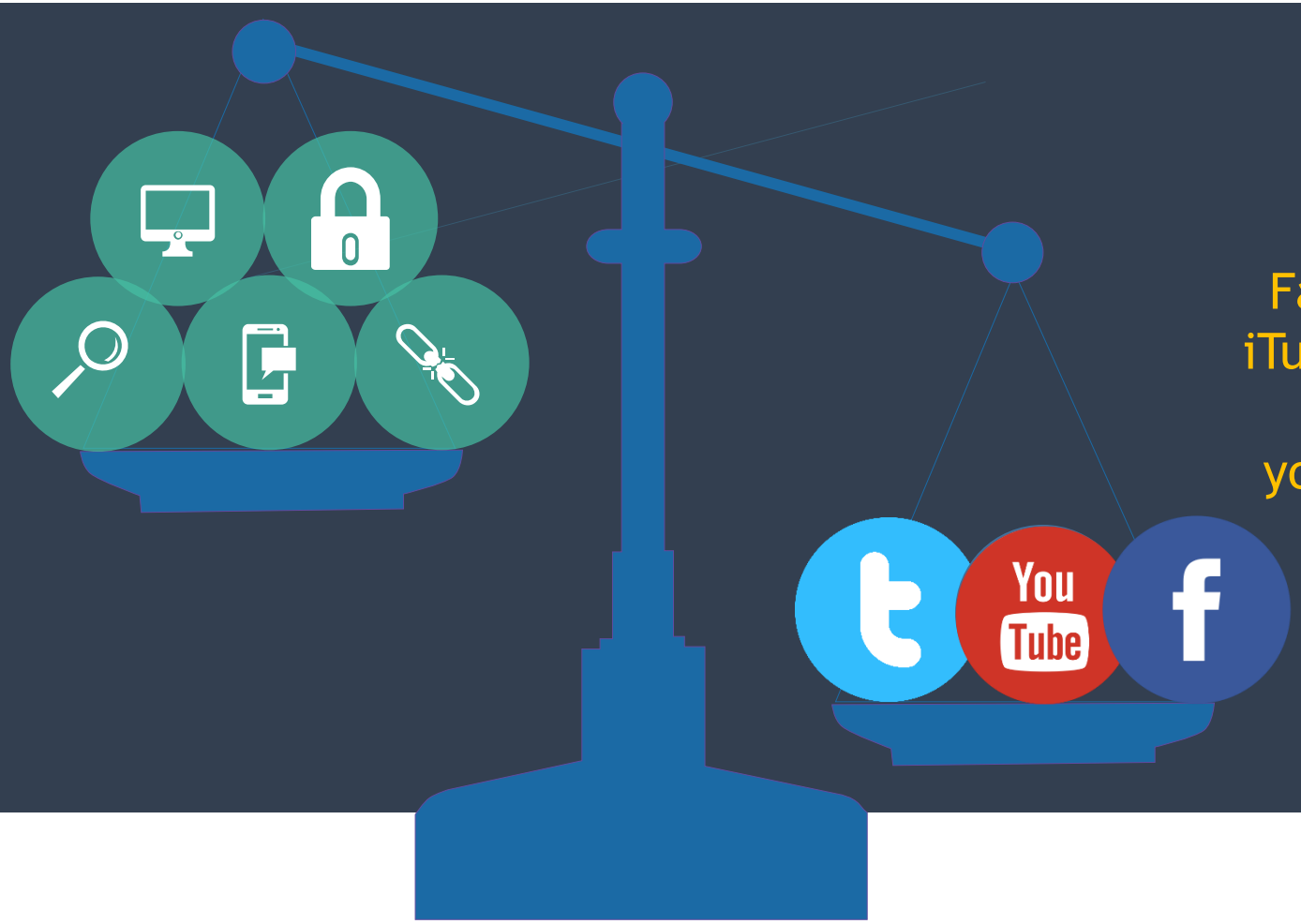
Alice is free: www.alice.org

Solutions 02

Show the Steak, Not the Slaughterhouse

Show the Steak, Not the Slaughterhouse

- No one cares that you architected an event-based interaction model for controlling page-flow.
  - Especially someone who's trying to figure out which major to choose.



Software is responsible for Facebook, Twitter, iTunes, and YouTube; this is what the youth need to hear about.

Solutions 03

Practices & Research at a Glance

Practices and Research at a Glance

- **Undergraduate research is an important aspect in attracting students**
- **Demonstrations of what CS students are capable of doing**
- **Choosing applications that relate to the local needs**

Solutions 04

CS Awareness Campaign

CS Awareness Campaign

- Visible CS Events and Activities
- Robots demonstrations
- Google Developer Group (GDG)
- Hour of Code
- Game Development Expo
- Students Projects Fair

Solutions 05

Make CS courses fun

Make CS Courses Fun

Project-based courses

Learning by Doing

Learning through Cooperation

Project Teams

Working in Pairs

Solutions 06

Accreditation and Recognition

Accreditation and Recognition

- Getting accreditation from a recognized agency is a means of proving high standards for that department.
- Accreditation has long been recognized as a mean of maintaining the highest standards of professionalism.
- How local IT companies are recognizing our graduates?

Solutions 07

Respond to market demand

Respond to market demand

- How market demand and change is feeding the program
- Some departments change the program every 2 years after a deep brainstorming sessions with industry representatives
- Allowing flexibility to students to tailor their program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THANK YOU

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