IPRO 321

Increasing Computer Awareness in High Schools and Colleges

Statement of the Problem

- Debunking myths and misconceptions
  - CS = ”Hacking”
  - CS is not important
  - CS is all about programming
- Lack of interest in CS
- Theorized causes of decline
- Lower minority and female enrollment
- Non-existing CS curricula in Chicago schools
- Social implications - globalization

The Team

- **Curricula**
  - Sergio Aguilar
  - William Foret
  - Christos Mitillos
  - Jianqi Xing
- **Research**
  - Sergio Aguilar
  - Saad Ahsan
  - Qiaoqiao Chen
  - Jason Chin
- **Outreach**
  - Saad Ahsan
  - Jason Chin
  - Qiaoqiao Chen
  - Herbert Edwards
  - Eddie Martinez
  - Herbert Edwards
  - William Foret
  - Eddie Martinez
  - Christos Mitillos
  - Jianqi Xing

Objectives/Goals

- Produce simple curricula that can be easily incorporated with a variety of academic disciplines.
- Market the idea to educators.
- Market the idea to students.

Progress Toward Goals

- **Defining CS**
- **Curricula**
  - **Checkers**
  - **Mp3**
  - **Traffic lights**
- **Outreach**
- **Research**
  - **Problems and solutions**

Major Obstacles

- Clearly identifying the problem
- Identifying which method is most effective
- Broad variations in existing CS curricula
- Ethical
  - Students
    - ACM
    - IRB
  - Research References

Challenges That Lie Ahead

- Organizing a universal CS curriculum
  - Easy incorporation
  - Teacher friendly
- Establishing a connection with schools
- Setting up an effective outreach program
  - Contagious

Questions or Suggestions

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References - Trends

- Computer and Internet use by children and adolescents in 2001, Statistical Analysis Report
- A timeline of teens and technology
- Research into Computer-related Programs in Chicagoland Highschools

References - AI

- Checkers is solved
- DeepBlue chess
- Computational thinking skills-preparing our students…
- Animations to assist learning some key computer science topics

References

- http://arstechnica.com/old/content/2008/12/acm-wants-computer-science-in-on-obamas-k-12-education-plan.ars
- Outreach examples

References

- Center for computational thinking: http://www.cs.cmu.edu/~CompThink/probes.html
- Computer science unplugged: http://csunplugged.org/
- Ambleweb's numeracy page: http://www.amblesideprimary.com/ambleweb/numeracy.htm