

## Computer Science Industry Advisory Board Meeting Minutes April 25, 2003

### Board Members Present:

- Bill Ivanich, EchoStar
- Kevin McManus, EDS
- Rita Spear, MSE Technology Applications
- Chris Sherman, MSE Technology Applications
- Peter Sprague, ProClarity
- Tom Jinneman, RightNow Technologies
- Bill Seymour, Zoot Enterprises
- Jim McKenney, Computers Unlimited

### Montana Tech Representatives Present:

- Celia Schahczenski, C.S. Dept. Chair
- Michael Grinder, C.S. Faculty
- Gary Mannix, C.S. Faculty
- Lou Glassy, C.S. Faculty
- Chris Boroni, C.S. Faculty
- Jeff Braun, C.S. Faculty
- Doug Coe, Dean of the College of Math & Sciences
- Nicole Burns, C.S. Administrative Associate

### I. Welcome

Chancellor Frank Gilmore welcomed the board members and stressed the importance of moving forward and the importance of the advice and information that the board gives the C.S. Department.

### II. Introductions

Introductions of all attending the meeting were made. Celia noted that this was the 5th meeting since 1998; a meeting for 1999 was not held. Tom Jinneman, who has recently rejoined the board, attended the first meeting in 1998.

### III. Tech Update

- A. Faculty: Lou Glassy is the newest member of the C.S. faculty. Lou is teaching several of the S.E. courses. Lou also initiated and is co-teaching an experimental Unix Tools one-credit class with some University of Montana C.S. faculty members.
- B. Enrollment: Computer Science majors: 73  
Software Engineering majors: 17  
Software Engineering will have its first graduate, Chris Lazzari, this spring
- C. Newsletter: The first C.S. Department newsletter was sent out around the 2nd week in April. The Department plans on sending a newsletter twice a year. The hope is to have something on Reggie Kwan in the next issue. The biggest thing we have to work on is getting more alumni e-mail addresses; we have 438 alumni but only 60 listed in the newsletter distribution list.
- D. Website: Communication both inside and outside the Department is the main purpose of the website. For example, any changes in curriculum will be posted on the website immediately so that everyone can see those changes.
- E. Accreditation: It was reported last year that the Accrediting Board of Engineering and Technology (ABET) found deficiencies in the C.S. degree. (The S.E. is not yet accredited. We plan to apply for the accreditation of the S.E. degree in 2006.) While the degree program did not lose accreditation, the deficiencies were in the coverage of oral presentations, written communication, and ethics. The Department believes that it has overcome these deficiencies by requiring presentations and papers in appropriate C.S. courses. In addition, relevant ethical topics have been included in some courses. A report will be submitted to ABET in January 2004, arguing that these deficiencies have been eliminated.

#### F. Freshman

**Seminar:** A one-credit Freshman Seminar class was added to both the C.S. and S.E. curricula. Kevin McManus (EDS), Rita Spear (MSE), and Bill Seymour (Zoot) have all presented information to this class, and Lou Glassy gave a talk on the difference between Computer Science and Software Engineering. Jeff Braun will take over the Freshman Seminar next year. Celia would like to see more group work in the class.

#### G. Undergraduate

**Research:** MT Tech has a strong undergraduate research program. Last year 53 students worked on 38 research projects. These students propose, research, and present their findings on a chosen topic. They receive \$1,000 for the year; faculty advisors receive \$200. Faculty described research projects that they are overseeing:

**Gary Mannix:** A student in Health Care Informatics is studying the flow of data in a hospital and creating a working database model.

**Lou Glassy:** Two Software Engineering students and one Computer Science student are working on investigating Algorithms in Multi-media.

**IV. Industry Update:** Lou Glassy asked the board members to discuss new trends in industry and software development.

**C. Sherman, E2S:** He works with software development and uses extreme programming. Open-ended architecture works best in his company. Generic modules are used which allows workers to turn out customer requests for clients within a week. The requests with most importance are those with high priority, such as audits.

**B. Ivanich, EchoStar:** Bill conducts research and design for Dish Network receivers. They tackle the bugs in new products in a limited amount of time. EchoStar has gone offshore for maintenance because they couldn't find anybody to do this work in the U.S.

**J. McKenney, Computers Unlimited:** Jim commented that he and his company are not sold on extreme programming. Computers Unlimited also uses a base architecture. He emphasized the need to mix employees with different knowledge as a training tool. His company is too small to consider off-shore at this time.

**B. Seymour, Zoot:** Most of Zoot's customers are creditors. The company has a core system of interfaces, which is fairly static. Object-oriented programming is still remote for Zoot. Zoot is responsible for quality assurance, testing is customer's responsibility, and then the product is produced. Zoot uses teams of programmers for larger projects.

**T. Jinneman, RightNow:** RightNow Technologies is on the I.T. side of technology. Code is procedural and informal. The business is customer driven.

**K. McManus, EDS:** EDS is a large global company with a broad client base. The methodologies are driven by client requests. EDS is focused on CMM level and also has a base architecture or solid foundation. Object-oriented analysis and design is something that needs to be in the curriculum. EDS is using off-shore programming and their call centers are also off-shore.

**P. Sprague, ProClarity:** ProClarity produces a series of client applications based on COM. The company's client base is large corporations and federal contracts (VA, World Bank, Revlon). The data warehouse needs to be able to shift from French to English, English to Chinese, etc. As ProClarity went into large corporations, they went into a MS Waterfall system. Four groups use SCRUM. Peter's group is using a formal XP, which allows the response time to be 3 ½ weeks or 30 days. Off-shore programming is being used for manual coding. Commodity positions go across sea; skilled positions stay in the U.S.

#### Discussion:

- **Offshore Programming:** It seems like CEOs are doing this because it's cheaper. Many expressed concerns with this in relation to the U.S. defense, economy, etc. Chris Sherman has experienced bad results with offshore.
- **Mobile Computing** is the way of the future (PDA, etc.). Schools and government agencies want wireless options.
- Companies are buying programs instead of writing it themselves. Students need to know how to use programs in addition to writing it. Companies do not see the need to "re-invent the wheel."
- **Networking** is now broken into two sections: a section for business students taught by Gary and a section for Computer Science students taught by Lou.
- It is important to balance theory and application in our classes.

- Team vs. Individual Programming: Pairing in academic setting can be disastrous. Jim McKenney sees a need for team programming, but realizes the complications of it in an academic setting.

#### V. Career Services: Stacey Aguirre

Career Services is the job connection to students. Services are very flexible for employers. Students register with Career Services and then the students all have an electronic file. Employers can post jobs, and Career Services will collect resumes or have the students send their resumes directly to the employer. Career Services can also set up telephone or video-conference interviews.

Stacey mentioned to board members that C.S. students are panicking about getting a job and requested any ideas the members might have about expanding job options. Members stressed the importance of students applying for a wide variety of jobs. Students should seek out jobs on their own. While many of the larger companies are not hiring, smaller companies are hiring. These might be companies of which the students have not heard. There is a general perception that the "dot coms" have all gone bankrupt. The students need to be made aware that this is not the case.

#### VI. Recruitment: Tony Campeau

- MT Tech had the largest incoming class last year and this year is about the same with 1,100.
- MT Tech also has one of the fastest growing rates of tuition in the nation
- Montana has a rapid decline in high school graduates
- Computer Science numbers have gone down because students have the perception that there are no jobs in the C.S. industry
- The Computer Science Department has taken an active role in recruitment by personally calling perspective students
- Ideas about recruiting process from board members:
  - make sure letters say something to the parents (i.e. mention scholarships)
  - recruit electronically
  - alumni can give talks to people about Tech

#### VII. Outreach:

A. The faculty wanted to discuss putting names/pictures of IAB members on the website. Members agreed that this is a good idea, but we need to use the C.S. e-mail account so that we can monitor who is asking, who responds, and update changed e-mail addresses. When a student asks to contact a board member, the C.S. Department can then forward the e-mail to the member and also thank the student for his or her interest and ask if he or she would like more information about Tech. These ideas will be put forward to the entire IAB board via e-mail.

B. The faculty wanted to discuss the \$20.00 for 20 years campaign that Rajeev (HP) suggested last year. The C.S. Department would like to establish a scholarship fund for in-coming freshmen. The question "How do we market the 20 for 20 campaign?" was directed towards Dorothy Czehura from the Foundation office. Dorothy said that before the department asks for any money a solid relationship and frequent communication needs to be established. She then addressed the fact that the C.S. Department has 438 graduates, but only 60 of them received the newsletter. It was suggested that the faculty and alumni could call past graduates and ask for e-mail addresses and \$20.00. Dorothy said that after a relationship has been established, the department can eventually ask for money, but when they do, make sure that they tell them specifically where it will go. She also suggested that the department never ask for money through the newsletter. Peter (ProClarity) suggested that willing IAB members call alumni who graduated with them. The Department will develop a goal and solicitation plan and present this to the board via e-mail.

#### VIII. Curricular Issues -

A. Michael Grinder (C.S. faculty member) addressed problems of introducing students to programming:

Michael explained to the board members that it is difficult to teach students new to programming using Java. Michael showed how to write a "Hello World" program in three languages. He argued that Java requires considerable hand waving. He also said that students do not seem to be as skilled programmers when they started with objects first. Michael wants to change to a different programming language such as Pascal. This would allow students to learn procedural programming before moving into object orientation. It would also expose the students to a language that is not C based.

Discussion: One board member expressed concerns about lowering standards. Someone mentioned that both MSU and U of M are using Java. Another member was also concerned that Java would be totally taken out of the curriculum, which would not be wise because Java is one of the most popular programming languages today. Other members felt that beginning with procedural programming and moving to OO would be fine, as long as the curriculum is sure to cover OO. Overall the board was mixed with some strongly pre-object first and others comfortable with procedural first.

## B. New Courses:

Lou explained that the Software Engineering program has 17 majors right now, but he hopes that the program will grow when it gets accredited. For the first time the courses "Software Requirements and Specification" and "Human/Computer Interaction" are being taught. Next year "Principles of Software Architecture and Design" will be taught.

While reviewing the current curriculum, the IAB questioned the Mining 0101 course. They regret that the course "Operating Systems" is not in the curricula. They strongly recommend that Mining 0101 be replaced by Operating Systems in the S.E. curriculum.

## IX. Panel discussion: "Reflection of Your College Years"

Six students attended the panel discussion and asked questions about internships and how to keep current in Computer Science. Kevin McManus asked everyone to explain why they were pursuing a career in C.S.

Respectfully submitted,  
Nicole Burns