

Work in Progress - An Online Support System for Women in Computer Science

Sriram Mohan and Archana Chidanandan

Rose-Hulman Institute of Technology, mohan@rose-hulman.edu, chidanandan@rose-hulman.edu

Abstract – In this work, we propose the creation of an online social network with the following objectives: (a) provide a platform for our female students to interact with our alumnae, (b) provide a platform for high school students in the Indiana neighborhood to interact with our female students and alumnae. This social network will facilitate a support system for our current students, our alumnae, and young women who are interested in pursuing careers in Computer Science. In the long term, we anticipate that the interactions made possible by the social network will be extended to encompass other educational institutions.

Index Terms – Computer Science, Outreach, Social Network & Support Systems

WHY?

The Computer Science and Software Engineering (CSSE) department at Rose-Hulman Institute of Technology (RHIT) has 13 female students - 7 Computer Science (CS), 6 Software Engineering (SE), which represents a mere 7.5% of the students with declared majors in the department. Given such small numbers, we believe that it is important to establish a support network for these young women to help them adapt to their unique circumstances and succeed in their discipline. In [1], the authors use the terms “Multiple Mentoring”, “Peer Mentoring” and demonstrate that young women in the STEM fields need more than one mentor, with each providing them a different perspective. While our faculty play an active role in mentoring, we believe our alumnae – who are in the unique position to truly appreciate the interesting challenges faced by these young women - would be a rich resource to tap into

In [2], the authors performed a study that showed that while young women in high school saw themselves in careers that included mathematics, science, technology, and business, university level female students did not include these areas in their choices. Finally, in [3], the authors describe the importance of providing high school students (including females) with access to social networks and communities that are involved in the computing fields to increase and especially retain their interest in science and technology. We believe that one way to do this would be through interaction with female students in colleges and other higher educational institutions who are heading towards careers in science and technology. Our female

students are keen to engage middle-school and high-school female students in activities that will expose them to the computing field and the exciting opportunities that the field offers. However, given their small numbers and schedules, it is often difficult to coordinate with the local schools and maintain the relationships fostered during these visits. To address this need and to increase mentoring/mentee opportunities for our own female students, we plan to establish a social network that will serve as a platform that enables interactions between our alumnae, our current female students and high-school female students.

WHAT?

We propose the creation of an **online social network** with the following objectives:

- Provide a platform for our female students to interact with our alumnae. The social network will provide a place for our students to communicate with each other as well as with the alumnae spread out across the country and the world. The students can get valuable advice, input, and feedback about gender-related issues and discipline-related issues. We envision that the alumnae will also benefit from interactions with each other and the students.
- Provide a platform for high school students in the Indiana neighborhood to interact with our female students and alumnae. These interactions will expose the young girls to various aspects of the discipline and provide direct access to individuals that are currently preparing for a career in the discipline and also to those that are already entrenched in the discipline.

We are inspired by the theme - “**Make numbers matter**”, as proscribed in NCWIT Best Practices [4]. Further, we envision that this support system can be extended to other educational institutions - similar to the notion of a “Network” in existing social networks such as Facebook.

After discussions with our students, young alumnae, high school students and other stakeholders, we have gathered the following initial list of features that would be appropriate for the social network:

- Forum for members to post questions/concerns, including anonymous discussions
- Links to information on how to prepare (a) as a high-school student to get admitted to an undergraduate program (b) as an undergraduate student interested in graduate school or a career in the industry

- Links to information that negate stereotypes about the discipline
- Facilitate direct interaction between members if desired
- Create Mentor – Protégé pairs on the behest of interested students

How?

I. Implementation

We are currently in the process of finalizing the features that will be supported by our social network and establishing an architectural and database design for the same. The implementation of the software for the social network is possible in the following ways:

- Partnership with the student team driven industry incubator at RHIT - RHIT Ventures
- Employ our students and/or assign parts of the implementation to our junior and senior capstone projects.

II. Awareness

The success of this social network will greatly depend on the extent of awareness and popularity of the network. To this end, we intend to:

- Contact high school counselors in Indiana in coordination with the RHIT admissions office.
- Organize a day of activities at RHIT for school girls in the local area with RHIT female students serving as counselors. This event will include activities such as:
 - Assembling a computer
 - Learning to program using Scratch or Alice
 - Building Web pages
 - Working with Tablet PCs and other such technologies
- Use road shows similar to JustBe [3]
- Involve CSSE students by having them publicize the social network in their respective schools.
- Coordinate with RHIT Outreach efforts such as Explore Engineering and Society of Women Engineers.

We will invite all our current female CSSE students and our alumnae to become members of the social network.

III. Evaluation

We will assess the effect of our publicity initiatives by conducting evaluations at schools that we visit /distribute brochures. We will collect feedback from the students who participate in the event at RHIT . We will devise techniques to measure the success of the social network using metrics such as enrollment, participation and usage and the ability to create a viral effect.

When users register to use the social network, they can respond to a pre-registration survey which will determine their expectations from participation in the social network. We also plan on measuring the progress of our efforts periodically with formative evaluations during the

design and implementation of the social network and with a summative evaluation at the end of the year.

TABLE I lists the current and expected status of planned activities at the time of presentation.

TABLE I
CURRENT AND EXPECTED STATUS AT TIME OF PRESENTATION

Action Item	Current	Expected
Software Construction		
Requirements	Initial List	Finalized
Design	Initial Framework	Finalized
Implementation	Yet to Begin	Strategy Identified and Begin Work
Awareness		
Contact High school counselors	Completed	Completed
A day at Rose	Mini Event Planned for April 2008	Completed Mini Event, organize one in October 2008
Road shows/Publicity Brochures	Developed and Presenting in Local Schools	Same as current
Evaluation		
	Strategy Finalized	Complete Initial Evaluation of Awareness initiatives

CONCLUSION

We propose the creation of an online social network targeted at women interested in studying Computer Science, women currently studying Computer Science and practicing professionals in Computer Science to enable interactions between the three target groups. We anticipate that this support system will help drive enrollment, increase retention, provide networking opportunities and help provide a support system for women in Computer Science. In the long term, we anticipate that this model of interactions made possible by the social network can be extended and implemented at other educational institutions.

REFERENCES

- [1] N. Chesler and M. Chesler, "Gender-Informed Mentoring Strategies for Women Engineering Scholars - On Establishing a Caring Community," *Journal of Engineering Education*, January 2002, pp. 49-55.
- [2] H.M. Lips, "The Gender Gap in Possible Selves: Divergence of Academic Self-Views Among High School and University Students," *Sex Roles*, 50(5-6), pp. 357-371.
- [3] J. Goode, R. Estrella, and J. Margolis, "Lost in Translation: Gender and High School Computer Science", *Women and Information Technology, Research on Underrepresentation*, edited by J. M. McGrath and W. Aspray, pp. 89-114, The MIT Press.
- [4] Mentor Net – An Example of Electronic Monitoring http://www.ncwit.org/pdf/MentorNet_ExampleEffectiveElectronicMonitoring_Practice.pdf
- [5] JustBe – An interactive Experience - <http://www.cs.indiana.edu/cgi-pub/wic/outreach/index.php>