

**ANNUAL REPORT OF THE  
ACM COMMITTEE ON WOMEN IN COMPUTING (ACM-W)**



**JULY 2001 - JUNE 2002**

**SUBMITTED BY ACM-W CHAIRS:  
DRS. DENISE GÜRER AND TRACY CAMP**

## Highlights

The past year (2001-02) has been a very active successful year for ACM-W. The following highlights give a very brief description of the key events and accomplishments for ACM-W this year. More detail can be found in the text of the full report.

### New ACM-W Programs and Projects

- ACM-W is pleased to welcome five new members to ACM-W. Maria Klawe (ACM President, Princeton) became an ACM-W Advisor. Two new members are working towards encouraging girls into computing at the high school level: Suzy Hoffman (Sanford School) and Amy Wu (Homestead High School). Two new members have joined the Ambassador Program: Reyyan Ayfer (Bilkent University) representing Turkey and M. Suriya (Annanalai University) representing India.
- Three new ACM-W Student Chapters were formed at Penn State University, Southern Polytechnic State University, and Utah State University.
- ACM-W is starting a new program for ACM-W High School Chapters, led by Suzy Hoffman.
- ACM-W is supporting a website called Computer Girl, aimed specifically at young women in high school, led by Amy Wu (<http://www.computergirl.us/>)

### Key Accomplishments and Notable Events

- The SIGCSE Inroads Special Issue on women in computing was completed (guest editor Tracy Camp, ACM-W Co-Chair). Funding from many sources helped to widely distribute the issue (ACM Executive Committee, SIGCSE, ACM-W, the SIG Project Fund, SIGDA, and NSF). ACM-W members were authors for 18 articles in this special issue.
- The ACM-W sponsored website, TAP, was the winner of the Science Site of the Day Award for August 2, 2002.
- ACM-W member Anita Borg was awarded the Heinz Award for Technology, the Economy and Employment. She was chosen for her tireless, tenacious, visionary and inspirational role in attracting women to the computer industry, and for creating and sustaining innovative programs for women in computer science. See <http://www.iwt.org/news/pressreleases/heinzaward1.htm>
- ACM-W member Barbara Simons was awarded Outstanding Contribution to ACM Award. She was chosen for her nearly two decades of outstanding work with respect to computing and public policy, including service as President and Secretary of ACM, chair of ACM's Committee on Scientific Freedom and Human Rights, and founding chair and subsequent co-chair of ACM's U.S. Public Policy Committee, providing a forceful, effective voice for ACM and the computing community. See <http://www.acm.org/awards/ocaward.html>
- The final report was submitted for the NSF funded project "Scholarship and Travel Grants for the Grace Hopper Celebration of Women in Computing 2000".

- The final report was submitted for the NSF funded project “Investigating the Incredible Shrinking Pipeline for Women in Computer Science” and made available via the ACM-W website.
- The women in computing resource database was upgraded to allow for authors to edit and input new entries. The database is available via the ACM-W website.
- ACM-W has a strong presence at the Grace Hopper Celebration on Women in Computing this year (GHC 2002). ACM-W members are leading and participating in 12 presentations (panels, papers, and workshops), Anita Borg is GHC founder and is on the Steering Committee, Tracy Camp is the Technical Papers Chair, Ursula Martin is General Chair for the Senior Women’s Summit, and Denise Gürer is on the Scholarship Committee. In addition, ACM- W is holding a meeting at GHC, will have a booth advertising ACM-W and ACM, and will have an ACM-W Chapter gathering.

## FULL REPORT

### 1. Basic ACM-W Information

#### 1.1 Committee Members

##### Co-Chairs

- Tracy Camp (Colorado School of Mines, Associate Professor)
- Denise Gürer (EMD Consulting, ACM Council Member)

##### Advisory Committee

- Anita Borg (Institute for Women and Technology, CEO and Founder)
- Maria Klawe (Dean of Engineering and Applied Science at Princeton, ACM President)
- Barbara Simons (Founder and Co-Chair ACM's US Public Policy Committee (USACM), Consulting Professor at Stanford)
- Caroline Wardle (National Science Foundation, Senior Science Advisor CISE/EIA)

##### Working Committee

- Paula Gabbert (Furman University, Associate Professor)
- Suzanne Hoffmann (Sanford School, Director of Technology)
- Kathy Kleiman (McLeod, Watkinson, & Miller, Attorney at Law)
- Teri Perl (Math Science Network, President)
- Ellen Spertus (Mills College, Assistant Professor)
- Betty Toole (Author & Computer Science Historian)
- Gloria Townsend (DePauw University, Chair Computer Science Department)
- Amy Wu (Homestead High School, Senior)

##### Ambassador Program

- Jehan Ara (Enabling Technologies, CEO – Pakistan)
- Reyyan Ayfer (Bilkent University, Chair Department of Computer Technology and Programming – Turkey)
- Anne Condon (University of British Columbia, Professor – Canada)
- Annemieke Craig (Victoria University of Technology, Professor – Australia)
- Vashti Galpin (University of the Witwatersrand, Professor – South Africa)
- Ursula Martin (University of St. Andrew, Professor – United Kingdom)
- Veronika Oechtering (Universitat Bremen, Professor – Germany)
- M. Suriya (Annanalai University, Head University Librarian and Lecturer – India)

##### Student Interns

- Sheetal Amin (University of Scranton, ACM Student Chapter President)
- Renee Puchalski (University of Scranton, ACM Student Chapter Vice President)

## **1.2 Purpose**

The mission of ACM-W is to engage in activities and projects that aim to improve the working and learning environments for women in computer science (CS). This includes promoting activities that result in more equal representation of women in CS such as mentoring or role modeling, monitoring the status of women in industrial and academic computing, providing historical information about women's accomplishments and roles in CS, and serving as a repository of information about programs, documents and policies of concern to women in CS. ACM-W is interested in encouraging women to pursue CS as a career all along the pipeline from K-12 to professional.

## **1.3 Committee Organization**

ACM-W is composed of two co-chairs, a working committee, an advisory committee, an ambassador program, and student interns. The advisory committee serves the role of providing advice and suggestions to the chairs and the committee as a whole, the working committee consists of ACM-W project leaders, the ambassador program consists of ACM-W ambassadors from non-U.S. countries, and the student interns are hired by ACM-W to work on various ACM-W projects. Currently ACM-W's internal organizational goal is to remain efficient and effective. Thus the advisory committee is purposely small and a requirement for membership on the working committee is to be a leader of an ACM-W sponsored project. This ensures that all members are productive and actively contributing to the mission and goals of ACM-W.

## **1.4 Committee Meetings**

Most of ACM-W activities are managed via email and telephone. However, ACM-W attempts to meet in person at least once a year. The next meeting of ACM-W will occur at the Grace Hopper Celebration of Women in Computing in Vancouver, British Columbia, Canada on October 11, 2002.

# **2. ACM-W Programs**

The following is a description of ACM-W programs. These are distinguished from ACM-W projects (see section 3) in that they are permanent and are funded primarily by ACM. Projects, on the other hand, are temporary (even though they may last many years) and are typically funded from sources outside of ACM.

## **2.1 ACM-W Ambassador Program**

**Program Leader:** Denise Gürer

### **Description**

ACM-W has taken steps to build an international scope on women in computing via its Ambassador Program. This program, started in the 1999-2000 fiscal year, identifies one to two ACM-member computer scientists in a targeted country to become ACM-W Ambassadors. Initially the ambassadors' duties are to provide ACMW with information on programs, conferences, organizations, and people that are involved in solving the issues related to women in computing in their country. This is accomplished with a web site for each country accessed through ACM-W's main website. ACM-W's goals are to sponsor international programs and other activities such as international workshops or

reports, thus giving ACM-W a strong international presence and ability to impact computing worldwide.

There are currently eight ambassadors representing eight countries: Australia, Canada, Germany, India, Pakistan, South Africa, Turkey, and the United Kingdom. There are five websites up and running, accessible through the ACM-W website. These sites include a wealth of information such as programs on women in technology, conferences on women in technology, references on women in computing publications, statistics on women in computing in that country, and women in the history of computing. Much of the work on the sites was performed by students, managed by the ACM-W ambassador, and funded through ACM-W.

### **Recent Accomplishments**

- The Australian Women in Computing site (<http://www.deakin.edu.au/mis/awic/main.html>) went online this year. It was created by two students (Heri Pudji Atmiko and Siham Elbob) at Deakin University, Australia.
- The Pakistan website went online this year (<http://www.wiredet.com/acmw/>)
- A conference on women in information technology in India was organized by ACM-W ambassador M. Suriya. Held August 29-30, it was the first annual conference on Women in Information Technology (WIT).
- Built a central website that contains a world map and links to all the ACM-W ambassador countries. This is accessible through the main ACM-W website.

### **Current Work**

- Constructing websites for Turkey, India, and Germany.

## **2.2 ACM-W Student Chapters**

**Program Leader:** Paula Gabbert

### **Description**

In the 1999-2000 fiscal year, ACM-W created a program for initiating and supporting ACM-W chapters in colleges and universities worldwide. The goal of the chapters is to recruit and retain women students in undergraduate and graduate computing programs. The chapters provide a variety of activities to educate women about the opportunities in the field of computing, engage women students in exciting computing activities, connect students with women leaders in the field, encourage students to promote the field of computing to young girls, and promote the activities of ACM. For those many institutions that already offer informal mentoring programs with similar goals and activities, formalizing these groups into ACM-W chapters can provide additional resources and networking opportunities.

ACM-W in coordination with the ACM Local Activities Coordinator, Fran Sinart, developed an ACM-W Chapter start up kit to help institutions begin their own chapter. Membership is open to *all* students and faculty interested in the recruitment and retention of women in the field. Although the goals and objectives for all chapters are similar, the activities for each chapter are suited to the individual institution. Activities may include

inviting speakers from academia and industry to speak on their work or on the subject of women in computing, coordinating career fairs with women in computing, organizing informal gatherings of students, faculty, and/or industry leaders, coordinating mentoring programs for undergraduate and graduate students, assisting with computer camps for K-12 girls, and/or providing information sessions during registration. In addition, the chapters are being asked to develop websites to display chapter activities and to provide additional resources available through the ACM-W and other organizations promoting women in computing. ACM-W is currently exploring ways to expand this program to universities outside of the United States.

There are currently seven ACM-W Chapters: Furman University, Penn State University, Southern Polytechnic State University, Texas A&M University, Utah State University, the University of South Alabama, and a central Indiana regional chapter (a combination of DePauw University, Butler University, and Rose-Hulman Institute of Technology).

#### **Recent Accomplishments**

- Three new ACM-W Student Chapters were launched at Penn State University, Southern Polytechnic State University, and Utah State University.
- ACM-W Chapters have invited female CS speakers, found the resources to send students to the Grace Hopper Celebration on Women in Computing 2002, developed mentoring programs, maintained online biographies of female CS alumnae, and conducted social gatherings for women in CS at their institutions.
- A website was built for ACM-W Chapters that advertises and describes ACM-W Chapters and displays current chapters and their activities. This is accessible through the ACM-W website. In addition, the internal ACM-W site, accessible by chapter officers, contains forms and submission capabilities to expedite the submission of their financial and status annual reports.
- A panel is being held at GHC 2002 with Paula Gabbert (the moderator), Nancy M. Amato, Sharon N. Vest, and Gloria Townsend, entitled “ACM-W Chapters: Recruiting and Retaining Female Students”.
- A gathering for ACM-W Chapter members will occur at the GHC 2002.
- Information and advertisement for ACM-W Chapters will take place at the ACM-W booth at GHC.

#### **Current Work**

- Initiating contacts to develop ACM-W Chapters in non-US countries.
- Working with the Association for Women in Computing (AWC) to coordinate efforts on student chapters.

### **2.3 ACM-W High School Chapters**

**Program Leader:** Suzanne Hoffmann

#### **Description**

High school ACM-W Chapters are similar to ACM-W Student Chapters but with a focus on young women in high school. Many young women opt out of computer science for reasons that are not related to their interest and capabilities. There is a need to reach this

group. The goal of the high school chapters is to cultivate an interest in pursuing computer science as a career for women students at the high school level. The chapters will provide a variety of activities to educate women about the opportunities in the field of computing, engage women students in exciting computing activities, connect students with women leaders in the field, and promote the activities of ACM.

#### **Recent Accomplishments**

- Working to create bylaws. The ACM-W Student Chapter bylaws are being updated with the goal of having one set of bylaws work for both types of chapters (university and high school).
- Created a website on the history of women in computing. This has not gone public yet.

#### **Current Work**

- Working on submitting a paper to NECC 2003.

### **2.4 ACM-W Web Site**

**Program Leader:** Denise Gürer

#### **Description**

A website for ACM-W is maintained at <http://www.acm.org/women/> or <http://women.acm.org>. The site contains information on ACM-W (e.g., announcements, current ACM-W projects, press releases), links to other interesting websites related to women in computing, and information on related issues. ACM-W project information is displayed, such as statistics and results. Recently, an online database has been added that contains references to research and programs on women in computing. Note that care is taken *not* to duplicate efforts or information that can be found on other ACM-W websites such as TAP and ComputerGirl. ACM-W typically hires students to develop and maintain the site through the ACM-W Internship Program.

#### **Recent Accomplishments**

- Created a site for the ACM-W Ambassador Program which contains a world map and links to each ambassador's website on women in computing in their country.
- Created online biographies of each ACM-W member. These include a photo, contact information, background, and references for publications on women in computing issues.
- Created a site for the ACM-W Chapters. This site explains and provides forms for starting a chapter. It also contains information on Chapter activities.
- Created an internal ACM-W website. This site is for ACM-W members and ACM-W Chapter members and contains internal forms for reports, the annual ACM-W reports, and other internal ACM-W information.
- Maintained website by keeping up to date with ongoing events and references.
- Added a database that was a result of the shrinking pipeline project.

- Revamped the homepage slightly to emphasize the ACM-W news and other news on women in computing.

#### **Current Work**

- Working to provide a non-frames and non-graphical site for those with older browsers or low baud rates.
- Working on getting the ACM-W Chapters to provide their own websites that we can link to. These would contain information about their local activities and other local information about women in computing.

### **2.5 ACM-W Internship Program**

**Program Leader:** Denise Gürer

#### **Description**

ACM-W has an internship program where undergraduate students are sought out and hired part time for a semester at a time. Students can apply to ACM-W and the successful candidates become interns. ACM-W members monitor the interns and the Co-Chairs monitor the Internship Program. The interns provide a valuable service to ACM-W and ACM, while at the same time gain professional experience and a working knowledge of ACM.

#### **Recent Accomplishments**

- Hired students to work on ACM-W website.

#### **Current Work**

- Currently a student intern is working on the ACM-W website and ACM-W database on resources about women in computing.

## **3. ACM-W Projects**

The following projects are sponsored projects of ACM-W (in alphabetical order).

### **3.1 The Ada Project (TAP)**

**Project Leader:** Ellen Spertus

**Project URL:** <http://tap.mills.edu/>

**Starting Date:** July 1994

**Status:** Active

#### **Description**

The Ada Project (TAP) - named in honor of Ada Lovelace - is designed to serve as an online clearinghouse for information and resources related to women in computing. The site includes pertinent information on conferences, projects, discussion groups, organizations, fellowships, and positions. Wherever possible, TAP includes links to existing on-line papers and informational sites, rather than duplicating information locally.

### **Recent Accomplishments**

- TAP was the winner of the Science Site Of The Day Award for August 2, 2002. See [www.sciencesiteoftheday.com](http://www.sciencesiteoftheday.com)
- The site has been maintained and kept up to date with information relating to women in computing. Current featured links are a link to ComputerGirl (ACM-W's new project) and a link to the Grace Hopper Celebration on Women in Computing 2002 conference.

### **Current Work**

- Continued maintenance of the site.

### **3.2 Coalition for Women in Computing**

**Project Leaders:** Gloria Townsend, Tracy Camp, and Denise Gürer

**Starting Date:** Fall 1999

**Status:** Active

#### **Description**

Many programs that focus on women in computing/technology have the same overall goals. These groups should not work separately but should collaborate and join forces towards the ultimate goal of increasing the numbers of women in computing and providing an egalitarian and equal work environment. To this end, a coalition for women in computing was formed with representatives from organizations that are active in women in computing. Currently the coalition is being led by CRA-W (with Leah Jamieson as Chair) and includes members from CRA, ACM, IEEE-CS, AAI, SIAM, USENIX, IWT, WEPAN, and NSF. The idea is to create a common voice that can have a greater impact than that of the individual organizations.

A summit was held in Denver, CO, September 15-16 1999. Representatives attended from: ACM, CRA, IEEE-CS, AAI, SIAM, USENIX, IWT, WEPAN with regrets from NSF. A compendium of current projects was created and posted by ACM-W (Tracy Camp). This was put into a matrix form so the coalition could determine likely areas for collaboration and areas that are not yet covered by a program.

A conference call was held Sept. 21 to discuss next steps. It was decided to focus on two areas, 1) develop a brochure that includes key information on all the participating organizations, and 2) build a website that acts as a portal to the participating women in technology programs. CRA-W has taken leadership of managing the completion of this work.

### **Recent Accomplishments**

- Nothing has happened this past year.

### **Current Work**

- The issues may be readdressed at the GHC 2002 Summit of Women Leaders in Computing.

### **3.3 ComputerGirl Website**

**Project Leader:** Amy Wu

**Project URL:** <http://www.computergirl.us>

**Starting Date:** July 2002

**Status:** Active

### **Description**

High school is a critical point in the pipeline where we lose many young women, in most cases due to misinformation or misperceptions about computer science. ACM-W wishes to reach out to this crucial group and one method is through the ComputerGirl website. This is a website that uniquely focuses on high school students and their interests.

The purpose of ComputerGirl is to encourage high school students to major in computer science or at least acquire crucial computing knowledge and skills, to serve as a window for experts to communicate research and advice, and to share important resources and information. ComputerGirl also encourages students to take computer courses while in high school and to continue in this vein when they move on to higher education.

### **Recent Accomplishments**

- The site contains around 175 role models
- The site links to almost 150 web sites, statistics, job categories, articles, scholarships, and mentors
- More than 150 e-mails were sent inviting experts, role models, and CS students to support the site by posting answers, advice, and encouragement.

### **Current Work**

- Advertise the site among high school students.
- Continue to add more resources, role models, and information.
- Contact various organizations and companies to get free online training courses. If more women acquire computing skills, their confidence and interest in CS will increase, and hopefully encourage them to choose CS as a major.

## **3.4 Documentary on Ada Lovelace**

**Project Leader:** Betty Toole

**Project URL:** <http://www.well.com/user/adatoole/>

**Starting Date:** October 1999

**Status:** Inactive

### **Description**

The fascinating and very human story behind Ada Lovelace's landmark 1843 article on computer programming and her collaboration with Charles Babbage is a wonderful allegory on the creative process and the value of individual perseverance. This project is to develop a documentary film and an accompanying educational package (book, web site, and CD-ROM) that tells the story of this collaboration. In addition to creating a film of broad interest, our hope is that teachers can use this combined package to highlight the collaborative, creative, and critical thinking skills that are vital for the success of today's young people.

## Current Work

- Work will continue when funded is acquired.

### 3.5 ENIAC Programmers Oral Histories

**Project Leader:** Kathryn A. Kleiman

**Starting Date:** 1995

**Status:** Active

#### Description

This project is documenting the history of the first modern computer programmers of the world's first electronic general purpose computing machine (the ENIAC). These programmers are: Kay Mauchley Antonelli, Jean Jennings Bartik, Frances E. Snyder Holberton, Marlyn Wescoff Meltzer, Frances Bilas Spence, and Ruth Lichterman Teitelbaum.

Due to the success of the project, the ENIAC Programmers have received much overdue recognition for their pioneering work, including induction into its Hall of Fame by Women in Technology International (see <http://www.witi.com/Center/Museum/Hall/97/eniac.html>). Over the last few years, Kay Antonelli and Jean Bartik have gathered numerous accolades, with Antonelli being honored in her home country of Ireland as a pioneer and Bartik being made the 2002 keynote speaker at her university alma mater and having its new computer museum named in her honor. Both women describe as a high point among their recent honors the keynote speech they were invited to give at ACM's 2000 Awards Banquet in San Francisco.

There were other tangible results resulting from the ongoing work on this project. The ENIAC Programmers were invited to the ENIAC's 50<sup>th</sup> Anniversary Dinner on February 14, 1996. It was an event for which most of them were originally not on the invitation list due to their lack of inclusion in the written and published histories. This project leader worked closely with Wall Street Journal reporter Thomas Petzinger to produce two high profile articles about the ENIAC Programmers for his Marketplace column (November 7 and 14, 1996). A grant was awarded from the Kapor Family Foundation to fund six months of original research in the Library of Congress and the filming and editing of the oral histories for each of the Programmers. Working with award-winning PBS producer David Roland, 19 hours of broadcast-quality and historically unique footage of the ENIAC Programmers telling their life histories was recorded. Finally, a high quality 10-minute film was produced that told the ENIAC Programmers story for the first time with funding from the ACM SIG Discretionary Fund. This continues to be used as an educational and fundraising piece.

Over the past year, Frances "Betty" Holberton passed away and received prominent obituaries in papers including the New York Times, Washington Post and San Jose Mercury news. These obituaries (noting Holberton's outstanding contributions over forty years of pioneering programming work) were based largely on the biography written by the project leader, Kathy Kleiman.

### **Recent Accomplishments**

- Prepared a comprehensive and extensive biography of Frances E. Holberton which was relied upon heavily in obituaries around the country in 2001.
- Continued to provide information and expertise as requested to reporters and historians interested in the ENIAC and early programming period.

### **Current Work**

- Seeking funding to produce a full-length, broadcast quality documentary on the ENIAC Programmers. Seeking further funding to provide the documentary, after initial viewing, to schools free of charge and accompanied by useful teaching materials.
- Working with a senior technology reporter on development of a book proposal.
- Continuing to seek correction of inaccuracies about the ENIAC Programmers in historical records.

### **3.6 Grace Hopper Celebration 2000 Scholarships**

**Project Leaders:** Denise Gürer and Tracy Camp

**Starting Date:** Fall 1999

**Status:** Complete

#### **Description**

In this NSF-funded project, ACM-W led the effort to assign and distribute scholarships for attending the Grace Hopper Celebration of Women in Computing (GHC). Recipients are people in computing and related fields who have an abiding interest in computer science and women in computing and who otherwise would not be able to attend. The grants are awarded to advanced undergraduates, graduate students, and people early in their professional careers. 140 scholarships were given out through funding received from NSF, Intel, Usenix, and AAI.

#### **Recent Accomplishments**

- Surveys from scholarship recipients were processed and the final report was written and submitted to NSF.

### **3.7 Investigating the Incredible Shrinking Pipeline for Women in Computer Science**

**Project Leaders:** Denise Gürer and Tracy Camp

**Project URL:** <http://www.acm.org/women>

**Starting Date:** January 1999

**Status:** Completed

#### **Description**

During the last decade, considerable research has been undertaken to understand the reasons behind the existence of the incredible shrinking pipeline and in some cases to take action to increase the numbers of women in computing. However, there has not been a central focus to bring all this research together and thus help provide a coherent direction for future work. Through the work of this NSF funded project, we have taken a first step towards this goal.

The end results of this project achieved three outcomes:

- Provided a public repository (the ACM-W database) and central focal point for information and research pertaining to women in computing,
- Raised the consciousness of the computing community through the web site and dissemination of the final report, and
- Suggested directions to move towards to help increase the numbers of women in computing and make computer science environments more women friendly (contained in the final report).

#### **Recent Accomplishments**

- Wrote the final report and submitted it to NSF. The report is available through the ACM-W website.
- Upgraded the database so authors could edit and input their references.

### **3.8 Leveling the CS1 Playing Field**

**Project Leader:** Gloria Childress Townsend

**Starting Date:** July 2000

**Status:** Active

#### **Description**

Many female undergraduates know so little about the nature of computer science (CS) that they are reluctant to enroll in their institution's introductory CS course. Those that do enroll in an introductory CS course find that their male counterparts have more computing experience: from high school courses, informal programming experimentation, or both. Due to their small numbers and minimal experience with computers, female students frequently feel more frustration with early technical difficulties than male students, as they participate in initial laboratory sessions. In order to address these issues, this project is providing women with a "head start" experience. This experience occurs before a female student enrolls in an introductory CS class and will create a more level playing field for when they do later enroll in the CS classes. After the "head start" experience is implemented at a few initial universities, a model will be created to ease the process that others can use to help level the playing field across the nation.

#### **Recent Accomplishments**

- Produced a brochure and authored web pages to help increase recruitment and retention of women at DePauw University in computer science.
- Wrote to all first year women encouraging them to try the introductory computer science course (CS1) for the Fall 2002. Also sent them the brochure on CS as a career.
- Taught a course on the Digital Divide which included material on the gender divide.

- Added the Rose-Hulman Institute of Technology, Butler University, and Indiana University to the program.
- Resubmitted NSF proposal for funding this program.

#### **Current Work**

- Continuing work to obtain funding for leveling the CS1 playing field.
- Maintaining the website on Supporting Women in Computing.

### **3.9 Mentoring Toolkit**

**Project Leader:** None

**Starting Date:** 2002

**Status:** Activating

#### **Description**

Many institutions are concerned about the declining numbers of women in computer science and wish to take action to help reverse this trend. Mentoring and role model programs have been shown to help the recruiting and retention rates of women in computer science. This project has the goal of cobbling together a toolkit that can assist institutions in developing their own mentoring and role modeling programs. The toolkits will be made available via ACM-W's website and will be part of the ACM-W Chapter start up kits.

Mentoring is defined traditionally as a supportive relationship, sustained over a period of time, between a more experienced person (the mentor) and a less experienced person (the mentee). Another proven method to increase the numbers of women in computing is through role models. Women role models demonstrate the presence, the participation, and the continuing prospects of women in the CS fields. When young women think about computing as a career choice, the presence of successful women in CS is an encouraging signal. Not only do senior women scientists serve as role models in terms of scientific excellence; but young women also appreciate models of balancing a CS career with family and other aspects of life.

This project will first determine what tools are currently available and attempt to compile those into a first toolkit. Next, nonexistent but needed components will be identified. Funding will be obtained and those components will be developed and added to the toolkit. Potential collaboration with other women in technology programs will be investigated.

#### **Current Work**

- Attempting to identify a leader for this project.

### **3.10 Monitoring the Status of Women in Computer Science**

**Project Leader:** Tracy Camp

**Project URL:** <http://www.acm.org/women/>

[http://www.mines.edu/fs\\_home/tcamp/cacm/paper.html](http://www.mines.edu/fs_home/tcamp/cacm/paper.html)

**Starting Date:** May 1994

**Status:** Active

**Description:** The trend of decreasing numbers of women enrolled in higher education across the United States was studied, analyzed, and reported. Current data shows that women now represent approximately 17% of the physicists and engineers and 28% of the computer scientists currently receiving Bachelor of Science degrees. In physics and engineering these numbers have leveled off and in computer science these numbers are actually decreasing. Recent results indicate that even though the enrollment of CS is going up, the percentages of women enrolling in CS programs is declining. The goal of this project is to keep on top of the current statistics on women in computing, investigate these trends, and explore the reasons behind the decreasing numbers of women in CS.

#### **Current Work**

- Continuing to gather, analyze, and publish statistics.

### **3.11 Pathways**

**Project Leader:** Teri Perl

**Project URL:** <http://www.expandingyourhorizons.org/>

**Starting Date:** October 1996

**Status:** Active

#### **Description**

Pathways is an online virtual environment that encourages young women to continue their math and sciences studies by matching them with women scientists to serve as mentors through asynchronous online activities that center around women scientists and their discoveries. Pathways is an Internet-based mentor program where participants have access through a web browser that provides text-based information and graphics with point and click capabilities. ACM-W is supporting this project, housed within Math/Science Network (M/SN). M/SN is an organization that produces Expanding Your Horizons workshops all across the United States to encourage girls to pursue math and science. M/SN will provide access to more than 100,000 students and women scientists and provides a home for Pathways.

#### **Recent Accomplishments**

- Presented papers at three conferences based on Pathways: CUE, NECC, and NCTM (see references at end of report).
- Hired a new intern, Meaghan Fitzgerald – a sophomore at Castilleja, a girls' middle and high school in Palo Alto, CA.

#### **Current Work**

- Will be extending features of Pathways with the cooperation of the technology club at Castilleja in the Fall 2002.

### **3.12 Special SIGCSE Issue on Women in Computing**

**Project Leader:** Tracy Camp

**Starting Date:** Fall 2001

**Status:** Active

**Description:** SIGCSE asked Tracy Camp, ACM-W Co-Chair, to edit a special issue on women in computing for their Inroads June 2002 issue. The goal was to have a comprehensive issue on women in computing that is referenced for many years to come.

The issue is extensive and ACM-W members quite involved – there are 18 articles with ACM-W members as authors.

### **Recent Accomplishments**

- Received funding from many ACM groups and NSF for dissemination of the special issue (ACM Executive Committee \$10k, ACM-W \$10k, SIGCSE \$10k, the SIG Project Fund \$20k, SIGDA \$10k, NSF \$35,880).
- Disseminated 3900 copies to high school teachers at the National Education Computing Consortium (NECC). Are discussing ways to distribute 1100 more copies to high school teachers (this dissemination was funded by NSF).
- Will be giving away a free copy to each GHC 2002 attendee (650 copies total).
- Gave away free copies to Research University Chairs at the CRA Snowbird Conference 2002 (200 copies).
- Sent a copy to all SIG Chairs (150 copies).
- Sending copies to all ACM Council members, ACM Headquarters Staff, ACM-W members, and ACM-W Chapters.
- Will send copies to other appropriate groups such as CRA-W members, IWT Staff, AWC officers, appropriate press, and so forth.
- Will distribute copies to the ACM/ISTE Symposium for Secondary CS and IT Teachers (150 copies).

### **Current Work**

- Continuing to disseminate the issue to appropriate groups and providing free copies from the ACM-W website.

## **4. Other activities Related to Women in Computing**

### **4.1 Grace Hopper Celebration on Women in Computing 2002**

ACM-W has a strong presence at GHC 2002. ACM-W members are presenting on nine panels, two technical papers, and one short paper and workshop. Anita Borg is GHC founder and is on the Steering Committee, Tracy Camp is the Technical Papers Chair, Ursula Martin is General Chair for the Senior Women's Summit, and Denise Gürer is on the Scholarship Committee. ACM-W is holding a meeting at GHC, will have a booth advertising ACM-W and ACM, and will have an ACM-W Chapter gathering.

Having a strong presence at GHC is important for ACM-W members to present their work and network for ACM-W's ongoing work on women in computing. In addition, a strong presence will reflect well on ACM, encourage more women to join ACM, and inspire more people to create ACM-W Chapters.

The panels and presentations that include ACM-W members are as follows:

- Annemieke Craig (moderator), Vashti Galpin, Rosemary Paradis, and Eva Turner, "What is Computing? The Perceptions of University Computer Students" (panel).

- Anne Condon and Mary Lou Soffa, “Pursuing Graduate School and the Computer Science Research Career” (panel).
- Paula Gabbert (moderator), Nancy M. Amato, Sharon N. Vest, and Gloria Townsend, “ACM-W Chapters: Recruiting and Retaining Female Students”. (panel)
- Denise Gürer (moderator), Anne Condon, Annemieke Craig, Vashti Galpin (organizer), Ursula Martin, Veronica Oechtering, “Women in Computing Around the World: The ACM-W Ambassador Program” (panel)
- Denise Gürer (moderator), Janice Cuny, Joanne McGrath Cohoon, Paula Gabbert, Sheila Humphreys, Maria Klawe, Gloria Childress Townsend, Caroline Wardle, “Recruiting and Retaining Women in Computer Science. Where are We? Where do we Go From Here?” (panel)
- Telle Whitney (moderator), Maria Klawe, Val McIlroy, and Julie Shimer, “Start-Up Companies: The Right and Wrong Approach”. (panel)
- Barbara Simons, Susan Landau, and Ruchika Agrawal, “Security, Freedom and Privacy in the Wake in a Post-September 11 World. (panel)
- Ellen Spertus (moderator), Lenore Blum, Sheila Humphreys, Maria Klawe, “Surging into the Pipeline: Re-entry Programs for Women in Computing” (panel)
- Xia Jiang and Tracy Camp, “A Review of Geocasting Protocols for a Mobile Ad Hoc Network” (technical paper)
- Nalinrat Krittiyanont Yuba and Tracy Camp, “A Location Service for an Ad Hoc Network”. (technical paper)
- Telle Whitney (moderator), Susan Owicki, Jackie McNab, and Anita Borg, “Career Transitions and Choices”. (panel)
- Michele Ng, Maria Klawe, Eve MacGregor, Regan Yuen, and Rainbow Koo, “‘Virtual Family’: A Hands-On Outreach Activity to Introduce Java Programming to Students”, (short paper and workshop)

#### **4.2 Involvement in Other Organizations**

ACM-W members are participants in the following organizations (in no specific order):

- Maria Klawe is President of ACM.
- Denise Gürer is a member of the ACM Council as Member at Large.
- Anita Borg is founder and president of the Institute of Women in Technology (IWT) in Xerox PARC.
- Denise Gürer is a member of the Advisory Board of the Institute for Women and Technology (IWT).
- Anne Condon is the Co-Chair of CRA’s Committee on Women in Computing.
- Ursula Martin is a member of the Committee on Women of the London Mathematical Society, which is the UK learned society for mathematics.

- Ursula Martin is a Panel Member for the Athena awards: these are a competition run by the UK government department of Trade and Industry, for initiatives relating to women scientists.
- Annemieke Craig Co-ordinates the VicWic group (Victorian Women in Computing) at Deakin University.
- Anita Borg is founder of Systems and GHC (and is still actively involved with both).
- Tracy Camp is on the Program Committee of GHC 2002, serving as co-chair of Technical Papers.
- Ursula Martin is General Chair for the Senior Women's Summit of the GHC 2002.
- Denise Gürer is on the Scholarship Committee of GHC 2002.
- Tracy Camp was invited to be a participant of the organization Women in Science, Engineering and Mathematics (WISEM) at the Colorado School of Mines.
- Teri Perl is the president of Math Science Networks (M/SN). M/SN sponsors the Pathways project.
- Barbara Simons is on the Board for Math Science Network.
- Ellen Spertus is the Mills Campus liaison for MentorNet.

### 4.3 The Press

ACM-W serves as a source of information on women in computing. Newspaper and journal articles on women in computing, where ACM-W members were quoted in 2000-01 are: Computerworld (February 18, 2002), Colorado Women's Magazine (February 2002), San Jose Mercury News (February 12, 2002), and Business First (December 7, 2001). Vashti Galpin was interviewed by *Women Today* of South African National Radio (SAFM) about women in computing and the ACM-W Ambassador Program.

### 4.4 Publications

Articles related to women in computing and written by ACM-W members in 2001-02 are the following (ACM-W members are in bold):

- **Borg, Anita** (2002) "Computing 2002: Democracy, Education, and the Future," *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 13-14.
- **Borg, Anita** & Whitney, Telle (2002) "The Grace Hopper Celebration," *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 181-182, reprinted from *Communications of the ACM*, 38(1).
- **Camp, Tracy** (2002) "The Incredible Shrinking Pipeline," *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 129-134, reprinted from *Communications of the ACM*, 40(10), 103-110, 1997.

- **Camp, Tracy.** (2001) “Women in Computer Sciences: Reversing the Trend,” *Syllabus*, 24-26, August.
- Countryman, Jeri; Kekelis, Linda; Feldman, Alegra, & **Spertus, Ellen** (2002) “Developing a Hardware and Programming Curriculum for Middle School Girls,” *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 44-47.
- **Craig, Annemieke;** Paradis, Rose, & Turner, Eve (2002) “A Gendered View of Computer Professionals: Preliminary Results of a Survey,” *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 101-104.
- Duplantis, Willa; MacGregor, Eve; **Klawe, Maria;** & Ng, Michele (2002) “‘Virtual Family’: An Approach to Introducing Java Programming,” *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 40-43.
- Dunigan, Megan and Turner, Melissa (2002) “Seeking Educational Strategies to Close the Information Technology Gender Gap,” presented at *NCUR*. Result of work performed under the guidance of **Paula Gabbert**.
- **Gabbert, Paula** & Meeker, Paige H. (2002) “Support Communities for Women in Computing,” *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 62-65.
- **Galpin, Vashti** (2002) “Women in Computing Around the World,” *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 94-100.
- **Gürer, Denise** (2002) “Women in Computing History,” *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 116-120.
- **Gürer, Denise & Camp, Tracy** (2002) “An ACM-W Literature Review on Women in Computing,” *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 121-127.
- **Gürer, Denise** (2002) “Pioneering Women in Computer Science,” *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 175-183, reprinted from *Communications of the ACM*, 38(1), 45-54.
- Humphreys, Sheila & **Spertus, Ellen** (2002) “Leveraging an Alternative Source of Computer Scientists: Reentry Programs,” *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 53-56.
- Jepson, Andrea & **Perl, Teri** (2002) “Priming the Pipeline,” *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 36-39.
- **Klawe, Maria** (2002) “Girls, Boys, and Computers,” *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 16-17.
- Leever, Sarah. (2002) “The Power to Change is in Our Hands,” Presented at *Consortium for Computing in Small Colleges (CCSC)* and to be published in the *Journal of Computing in Small Colleges*, 18(2). Result of work performed under the guidance of **Paula Gabbert**.
- **Perl, Teri** (2002) “Phase 2: Pathways for Young Women ... An Internet Site Extending Real World Inspiration,” Presented at *Computer Using Educators (CUE)*, March 9.

- **Perl, Teri** (2002) “Math, the Critical Filter: Then, Now, and Tomorrow – The Issue! The History! The Present! The Future!” Presented at the *National Council of Teachers of Mathematics (NCTM)*, April 22.
- **Perl, Teri** (2002) “Pathways: An Internet Site that Addresses Math and Science Gender Equity Issues,” Presented at the *National Education Computing Consortium (NECC)*, June 18.
- **Spertus, Ellen** (2002) “Gender Benders,” *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 145-146, reprinted from *Women in Higher Education*, May, 1997.
- **Townsend, Gloria** (2002) “People Who Make a Difference: Mentors and Role Models,” *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 57-61.
- **Townsend, Gloria** (2001) “Using Scenarios to Teach Computing Ethics Workshop,” *SIGCSE Conference*.
- **Wardle, Caroline & Burton, Lawrence** (2002) “Programmatic Efforts Encouraging Women to Enter the Information Technology Workforce,” *Inroads (SIGCSE Bulletin)*, Vol. 34, No. 2, 27-31.

#### 4.5 Other Activities

- Annemeike Craig was guest lecture at Monash University on Women in Computing.
- Betty Toole was interviewed by BBC World – an information technology radio program of the BBC – about her work on Ada Lovelace.
- Annemieke Craig is developing a resource booklet for graduating female students.
- Vashti Galpin oversaw research on self-efficacy, gender and prior experience among first year Computer Science students. She is currently overseeing a new project on perceptions of computing and computer science among high school students (14-15 year olds).
- Tracy Camp led a hands-on computing workshop at the Colorado School of Mines Expanding Your Horizons Program for 5<sup>th</sup> and 6<sup>th</sup> grade girls.

## APPENDIX A ACM-W COMMITTEE MEMBER ADDRESSES AND AFFILIATIONS

### CO-CHAIRS

#### **Tracy Camp**

Associate Professor, Department of Mathematical and Computer Science  
The Colorado School of Mines, Golden, CO 80401  
303-384-2184 (office), 303-273-3875 (fax), tcamp@mines.edu

#### **Denise Gürer**

Senior Computer Scientist, EMD Consulting, ACM Council  
709 Coast Range Drive, Scotts Valley, CA 95066  
831-430-0801 (office), gurerd@acm.org

### ADVISORY

#### **Anita Borg**

Founder and CEO, Institute for Women and Technology  
1501 Page Mill Road, MS 1105, Palo Alto, CA 94304  
650-236-4756 (office), 650-852-8172 (fax), aborg@iwt.org

#### **Maria Klawe**

Dean of Engineering and Applied Science, Engineering Quad, Princeton University  
Princeton, NJ 08544  
609-258-2260 (office), klawe@princeton.edu  
(contact info good after January 2003)

#### **Barbara Simons**

Founder and Co-Chair ACM's US Public Policy Committee (USACM), Consulting  
Professor at Stanford, Former ACM President  
770 Homer Ave., Palo Alto, CA 94301  
650-328-8730 (office), simons@acm.org

#### **Caroline Wardle**

Senior Science Advisor CISE/EIA, National Science Foundation  
4201 Wilson Blvd., Arlington, VA 22230  
703-292-8980 (office), cwardle@nsf.gov

### PROJECT LEADERS

#### **Paula Gabbert**

Associate Professor, Department of Computer Science, Furman University  
3300 Poinsett Highway, Greenville, SC 29613  
864-294-3538 (office), 864-294-3229 (fax), paula.gabbert@furman.edu

#### **Suzanne Hoffmann**

Director of Technology, Sanford School  
P.O. Box 888, Hockessin, DE 19707  
302-239-5263 x319 (office)  
hoffmanns@sanfordschool.org or shoffmann@corsairsystems.com

#### **Kathy Kleiman**

Computer Science Historian, Attorney  
McLeod, Watkinson, & Miller  
One Massachusetts Ave., NW, Suite 800, Washington DC 20001  
202-842-2345 (office), kleiman@acm.org

**Teri Perl**

Consultant, Teri Perl Associates, President, Math Science Network  
525 Lincoln Ave., Palo Alto, CA 94301  
650-326-2003 (office), 650-326-0558 (fax), teriped@aol.com

**Ellen Spertus**

Assistant Professor, Mills College  
5000 MacArthur Blvd., Oakland, CA 94613-1301  
510-430-2011 (office), 510-430-3314 (fax), spertus@mills.edu

**Betty Toole**

Author & Computer Science Historian  
P.O. Box 452, Sausalito, CA 94966  
415-388-3549 (office), 415-388-2328 (fax), adatoole@well.com

**Gloria Childress Townsend**

Chair Computer Science Dept., Professor Computer Science, DePauw University  
A219 Julian Center, 602 South College, Greencastle, IN 46135  
765-658-4726 (office), gct@depauw.edu

**Amy Wu**

Founder, First Page  
378 Sunset Ave., Sunnyvale, CA 94086  
408-746-0529 (office), amy@computergirl.com

**AMBASSADORS**

**Jehan Ara – PAKISTAN**

CEO – Enabling Technologies  
Room 302, Plot # 1C, 5<sup>th</sup> Zamzama Commercial Lane, Phase V, DHA, Karachi, Pakistan  
92-21-586-2086 (office), 92-300-822-0180 (cell phone), 92-21-586-2087 (fax)  
jehan@cyber.net.pk or jehan@pk.netsolir.com, <http://www.wiredET.com>

**Reyyan Ayfer - TURKEY**

Chair, Department of Computer Technology and Programming, Bilkent University  
East Campus, 06533, Ankara, Turkey  
90-312-290-5065 (office), 90-312-266-4610 (fax), ayfer@bilkent.edu.tr

**Anne Condon - CANADA**

The Department of Computer Science, University of British Columbia  
201-2366 Main Mall, Vancouver, BC V6T1Z4, Canada  
604-822-8175 (office), 604-822-5485 (fax), condon@cs.ubc.ca

**Annemieke Craig - AUSTRALIA**

School of Information Systems, Deakin University  
Geelong, Victoria 3217, Australia  
61-3-5227-2152 (office), 61-3-5227-2151 (fax), acraig@deakin.edu.au  
<http://www.business.vu.edu.au/infosysstaff/craig.htm>

***Vashti Galpin – SOUTH AFRICA***

Programme for Highly Dependable Systems, University of the Witwatersrand  
School of Computer Science, Private Bag 3, Wits 2050, South Africa  
27-11-717-6184/6189 (office), 27-11-717-6199 (fax), vashti@cs.wits.ac.za

***Ursula Martin – UNITED KINGDOM***

School of Computer Science, University of St Andrews  
North Haugh, St Andrews, Fife KY16 9SS, Scotland  
44-1334-463253 (office), 44-1334-463278 (fax), um@dcs.st-andrews.ac.uk

***Veronika Oechtering - GERMANY***

Fachbereich Mathematik und Informatik, Universitat Bremen  
Postfach 330440, D-28334 Bremen, Germany  
49-421-218-2701 (office), 49-421-218-4322 (fax), oechteri@informatik.uni-bremen.de

***M. Suriya – INDIA***

Professor and Head University Librarian, Annamalai University  
Department of Library & Information Science, Annamalainagar-608 002  
Tamilnadu, India  
91-4144-38155 (office), 91-4144-38080 or 91-4144-38145 (fax),  
au\_suriya@rediffmail.com

**STUDENT INTERNS**

***Sheetal Amin***

President Student Chapter of ACM, University of Scranton  
550 Adams Ave. Apt. 100, Scranton, PA 18510  
570-341-7607 (office), amins3@scranton.edu

***Renee Puchalski***

Vice President Student Chapter of ACM, University of Scranton  
303 Crisp Ave., Scranton, PA 18504  
570-344-4985 (office), puchalskir2@uofs.edu