

SIGACCESS Member Profile

Joan Francioni

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Member of SIGACCESS since: 1985

Member of ACM since: 1985

Also member of: SIGCSE

1. How many years have you been working in this area?

I have been working in this area, in one way or another, since 1990. In 2000, we began the Computer Science Curriculum Accessibility Project (CSCAP) here in Winona with funding from the NSF. Since that time, I have worked primarily with undergraduate students with visual disabilities to develop technology and pedagogical strategies supporting accessible computer science education.

2. What motivates or inspires you to work in this area?

My overall mission as an educator is to increase the accessibility of the computer science curriculum for students with diverse learning abilities. In particular, I am interested in making computer science more accessible to students with disabilities and to students in traditionally under-represented groups, i.e., women and minorities. I am motivated in this work in two ways. For one, I believe that the under-representation of certain groups of people among the creators of information technology has serious negative consequences, not only for those whose potential goes unrealized, but also for the rest of us who live in a society increasingly shaped by that technology. Secondly, I enjoy the challenge of figuring out new ways to teach computer science to students. Along with that, I enjoy developing computer technology to help in this challenge.

3. Please describe your current research project(s):

We are working to develop an extended version of Microsoft's *InkAnalysis* tool, called *InkAnalysisPlus* that leverages the power of the Tablet PC to be able to generate **accessible** interfaces to hand-drawn diagrams that are typically used in computer science education. "Accessible" in this case means that a user can traverse the diagram completely with only keyboard commands based on audible feedback about what is in the diagram and where the focus of inspection is on the diagram. Using our tool, the creator of the diagram does not do anything extra for the diagram to be accessible. They simply draw and annotate their diagram on their Tablet PC. Making use of the text-recognition feature of the Tablet, the handwritten text can be automatically converted to ASCII text. Non-sighted users will need to use their screen reader to recognize text but, other than that, the tool will be self-contained.

This project is just beginning. The first phase will be to support traditional computer science diagrams used in programming classes through Data Structures. This includes finite state machines, tables, linked lists, trees, and graphs.

7. *Have you participated in any SIGACCESS-sponsored event?*

Treasurer of ASSETS 2002 and 2004.

A. C. Smith, J. M. Francioni, M. Anwar, J. S. Cook, A. Hossain, and M. Rahman.
Nonvisual Tool for Navigating the Hierarchical Structure of Programs. Proceedings of *Assets 2004*, October 2004.

Smith, Ann C., Francioni, Joan M., and Matzek, Sam D., "A Java Programming Tool for Students with Visual Disabilities," in proceedings of *Assets 2000* , Washington D.C., November 2000.

8. *What else would you like to see SIGACCESS do?*

I am very proud to be a member of this SIG. SIGACCESS has made wonderful progress over the past 10 years to increase its visibility, participation, and overall impact in the area of assistive technology. As we continue to grow, I hope that we can work to support more research in this area – including undergraduate research – to both advance the field and increase the number of young people exposed to it.