

NCWIT Extension Services (ES-UP) Transformation Award Application Executive Summary

The Department of Computer Science at Virginia Tech is seriously committed to recruitment and retention activities aimed at increasing the gender diversity of its students and faculty. In 2003 the department joined the ABET-accredited College of Engineering (CoE) where students are admitted to the college (not to a specific major) and follow a common first year of classes. Moving to engineering adversely affected our proportion of female CS majors, as did the fallout from the dot-com bust as reflected in the decreased percentages of female CS majors (**12.5% of 1152 CS majors in 2002¹ versus 4.2% of 272 CS majors in 2007**).

The department has been a member of NCWIT's Academic Alliance since 2006; in 2008 with the arrival of a new department head, Dr. Barbara Ryder, we intensified our recruiting activities to attract more female students into CS. New activities included: (i) active leadership of the NCWIT VA/DC Aspirations in Computing Awards including modest scholarships for winners who major in CS at Virginia Tech; (ii) creation of designer minors to attract women to computing who seek to combine CS with other disciplines; (iii) outreach to high school women by CS majors discussing with them *Why study CS?*; (iv) computing research encounters for pre-frosh CoE students in summer programs; (v) establishment of peer mentoring programs; (vi) creation of multiple networking opportunities for female students (CS majors/minors and first-year undecideds) interested in computing majors; and (vii) an annual dinner with a female CS Distinguished Lecturer combining female students and faculty from ECE and CS.

In 2012, we started collaborating with the Bradley Department of Electrical and Computer Engineering (ECE) and the Center for the Enhancement of Engineering Diversity (CEED) to recruit women into both computer engineering (CpE) and computer science. This effort was sponsored financially by mini-grant funds from NCWIT ES-UP for the first year, and continues under joint sponsorship of the CS and ECE departments.

Given all these activities, the department increased the percentage of female CS majors from **4.2%** in 2007 to **16.7%** in 2015, and doubled the 2-year average percentage of female CS graduates since 2011 from **5.2%** to **10.3%**. Between 2007-2015, the CS faculty has diversified **from 10% female tenure-track professors in 2008 to 21% in fall 2015!** In addition, the current percentage of CS teaching faculty (i.e., professors of the practice, instructors) who are female has improved to **40%** (2 out of 5) versus our 2 male instructors in 2008. Having achieved retention rates in 2015 that are *comparable* for CS men (**94.2%**) and women (**93.5%**), we are emphasizing recruiting activities.

Future plans include increasing interaction between CS alumni and current CS majors & minors, broadening recruiting alliances across CoE to include Aerospace and Ocean Engineering, encouraging engagement by faculty/advisors in new activities, and forming a CS alumni diversity group for programmatic advice and as a source of role models.

¹ The figures for 2002, when CS was in College of Arts and Sciences, include 4 years of CS students vs. 3 years of CS students for 2007 when CS was in CoE.