



# Scholars of the Future

---

## Scholars of the Future

### An Implementation Model for Increasing Diversity in Information Technology

---

Juan E. Gilbert, Ph.D.  
Associate Professor  
Auburn University

Computer Science & Software Engineering  
Human Centered Computing Lab  
gilbert@auburn.edu

<http://www.JuanGilbert.com/>

---

# Overview

- Background
  - Scholars of the Future Program
  - Progress Report
-

# Background

- CSSE at Auburn University Demographics
    - CSSE is in the College of Engineering
    - 23,000 students; Land Grant, Flagship
  - 131 Graduate Students
    - 65 Doctorate
    - 66 Masters
  - Gender
    - 49 female (37%)
    - 82 male (63%)
-

# Background

## ■ Masters

- 23 female (35%)
- 43 male (65%)

## ■ Doctorate

- 26 female (40%); Nationally (20.5%)
- 39 male (60%); Nationally (79.5%)

## ■ African-Americans

- 14 out of 131 Graduate Students (10.7%)
- 2 out of 14 from Auburn's Undergraduate program

---

# Background

- African-American Master Students
    - 2 out of 66 (3%)
    - Both from Auburn
  - African-American Doctoral Students
    - 12 out of 65 (18.5%)
  - African-American Doctoral Students Nationally
    - 173 nationally (1.6%) (CRA Taulbee Survey 2004)
    - 12 out of 173 (7%) at Auburn University
-

---

# Background

- African-American Faculty
    - 41 out of 3,937 tenure-track nationally (1%)
    - 3 out of 17 tenure-track (17.6%) at Auburn
    - 3 out of 41 tenure-track nationally (7.3%)
    - 2 out of 8 Associate Professors (25%)
  
  - 10% of our undergraduate majors are African-Americans
    - However, only 2 students from Auburn are in our graduate program.
-

---

# Background

- Observations

- Our undergraduates don't go to graduate school, even though our graduate program has a high concentration of African-Americans and women.

- Obviously, there is a disconnect between our graduate program and undergraduate program

- How can we fix the disconnect and replicate our existing model?

---



Scholars of the Future

---

# Scholars of the Future Program

---


---

# Scholars of the Future Program Goals

- Increase the number of women and African-Americans pursuing IT graduate studies from Auburn University's undergraduate program.
  - Increase the number of women and African-American faculty in IT.
-

---

# Scholars of the Future Program Goals

- Replicate the model at  VirginiaTech
    - Whitney Edmister (Engineering Dean's Office)
    - Dr. Manuel A. Perez-Quinones (CS)
  
  - Evaluate and disseminate findings
    - 2 social scientists
      - Dr. Lamont Flowers (Clemson University)
      - Dr. James L. Moore, III (The Ohio State University)
-

---

# Scholars of the Future Model

- Offer scholarships to junior and senior undergraduates in CS and other IT related fields.
    - Scholarship application
      - GPA (2.7 minimum), major, gender, race/ethnicity, etc.
      - Essay (diversity contribution)
      - Faculty recommendation letter
    - \$1,000 Scholarship
  - Research Advisor
    - Each Scholar has a research advisor
    - Independent study for credit
-

---

# Scholars of the Future Model

- Provide scholars with mentors
    - Local and distant
      - Faculty (Dozier, Gilbert, Seals, etc.)
      - Graduate students
  
  - Scholar Activities
    - Graduate student activities
    - Faculty mentoring meeting
    - Undergraduate research forum
    - Conference travel
    - Graduate school program visits
    - Invited speakers
-

---

# Scholars of the Future Model

- Graduate student activities
    - Lunch to discuss graduate school, future plans, etc.
    - Social gatherings in lab, Dr. Gilbert's house, etc.
  
  - Faculty mentoring meetings
    - Graduate school (applying, funding, etc.)
    - Professoriate (salary, daily work, etc.)
    - Research (IT research areas, establishing research)
-

---

# Scholars of the Future Model

- Undergraduate research forum
    - AU Undergraduate Research Forum
      - AU Engineering Day Presentations
      - Posters & Short Talks (<http://www.auburn.edu/cmb/undergradforum.htm>)
  - Faculty mentoring meetings
    - Graduate school (applying, funding, etc.)
    - Professoriate (salary, daily work, etc.)
    - Research (IT research areas, establishing research)
-

---

# Scholars of the Future Model

- Conference travel
    - Richard Tapia, Grace Hopper, BDPA, BOTA Think Tank
  - Graduate school program visits
    - Scholars visit graduate programs (VT, UAB)
-

---

# Scholars of the Future Model

## ■ Invited speakers

### □ Invited women and minority speakers

- Azzari Jarrett (Northwestern University; Ph.D. Candidate)
  - Dr. Ayanna Howard (Georgia Tech; Assoc. Prof)
  - Dr. Damon Woodard (Notre Dame; Postdoc)
  - Dr. Raquel Hill (UIUC; Postdoc)
  - Dr. Ron Eglash (RPI; Assoc. Prof)
  - Kristie Goss (Convergys Corp; Former M.S. Student)
-



# Scholars of the Future

---

## Scholars of the Future Findings to Date

---

---

# SoF Findings to Date: Year 1

- 6 Scholars
    - All African-Americans
      - 4 females; 2 males
      - 4 seniors; 2 juniors
  - 1 out of the 4 seniors went to graduate school
  - Other 3 seniors took corporate jobs
    - All 3 reported will go back to graduate school
-

---

# SoF Findings to Date: Year 2

- 7 New Scholars, 2 Returning
    - 3 African-Americans
      - 2 females; 1 male
    - 3 Caucasians
      - 2 females; 1 male
    - 1 male classified himself as Muslim
    - 9 total Scholars
      - 8 seniors; 1 junior
-

---

# SoF Findings to Date: Year 2

- 6 Scholars have applied to graduate school
  - 1 will do a year in China and return to graduate school
    - Peace Corp
  - 1 took a corporate job
  - Junior Scholar applied for NSF REU
-

---

# SoF Findings Summary

- The qualitative data has begun to yield important themes that speak to the relevance of the components that constitute the Scholars of the Future Program.
  - In fact, most of the students who participated in the individual interviews and focus groups noted that **prior to the program they did not think about going to graduate school or becoming a college professor.**
  - Students also shared that our program has helped them to develop a conceptual linkage between academic coursework and real-world experiences as seen through the eyes of computer science faculty.
  - These initial results are encouraging.
-

# SoF: Synergistic Activity

- Applications Quest
  - Admissions processing software tool
  - US Supreme Court in U of Michigan cases



Gilbert, J.E. (2006) **Applications Quest: Computing Diversity**. *Communications of the ACM*, 49,3, ACM, pp. 99-104.



# Scholars of the Future

---

## Scholars of the Future Next Steps

---

---

# SoF: Next Steps

- NSF Site visit April 19-20, 2006 at Auburn University
  - Virginia Tech Site Replication in Year 3
  - Recruit 8 Scholars at AU and 8 at VT
  - Applications Quest
    - Continue pilot studies and report findings
-

# Richard Tapia Conference

October 19-22, 2005 - Albuquerque, New Mexico





# Scholars of the Future

---

Questions???

<http://www.ScholarsOfTheFuture.org>

---

Juan E. Gilbert, Ph.D.  
Associate Professor  
Auburn University  
Computer Science & Software Engineering  
Human Centered Computing Lab  
gilbert@auburn.edu  
<http://www.JuanGilbert.com/>