

# *What about you?*

Bryant W. York  
AARCS Conference  
Auburn University  
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# Questions you may have

- Where do I fit in my community, the USA, the world?
- Where do I fit in the world of computing?
- What is expected of me?
- How can I be successful?
- Am I up to the challenge?
- How much more sacrifice will I have to make?
- What technical problems really interest me?
- Will society at large understand my contributions?
- Will society at large value my contributions?

# Overview

- Environmental Conditions
- Getting Involved
- Opportunities for AA CS Researchers
- AA Grand Challenges
- Some Personal Principles

# *Environmental Conditions*

# *Essence of Your Condition*

- You are a member of a small minority population in the USA.
- You are the bearer of significant, negative stereotypes propagated by the media.
- You are the target of racial discrimination in just about all facets of American life:
  - Education
  - Employment
  - Housing
  - Voting
  - Legal System

# The Racial Climate in the USA

- Charles Stuart Case (1989)
- Rodney King Case (1991)
- OJ Simpson Case (1995)
- The James Byrd Jr Dragging Death (1999)
- Florida Voting Irregularities (2000)
- Hurricane Katrina Aftermath (2005)
- Trent Lott, Mel Gibson, Michael Richards, Imus (2006 – 2007)
- Supreme Court Decisions (1954 – 2007)

# Supreme Court Decisions

- Brown v. Board of Education (1954)
- Miranda (1966)
- Baake (1978)
- Adarand (1995)
- Gratz v. Bollinger (2003)
- Grutter v. Bollinger (2003)
- Parents Involved v. Seattle School District (2007)

# U.S. Population Projection

	<u>2000</u>	<u>2095</u>
• U.S. Population	281M	552M
• White (non-Hsp)	194M (69)	228M (41)
• African American	35M (12)	72M (13)
• Hispanic	35M (12)	180M (33)
• Asian	10M ( 4)	68M (12)
• Nat Am/AK N/P. Isl	3M ( 1)	4M (.7)

<http://www.census.gov/population/pop-profile/2000/chap16.pdf>

<http://www.census.gov/ipc/www/usinterimproj/>

*But ...*

- Young
- African American
- Computer Science Researcher

In other words ...

- *Young, Gifted, and Black*

# Growth in African American PhD Computer Scientists

- Approximate Numbers
  - 1970 – 1990            20
  - 1991 – 1996            41
  - 1997 – 2001            56 (2)
  - 2002 – 2006            58 (6)
  - 175 (8)            224 in pipeline
- B.S. pipeline
  - 2001    3,500 AA B.S. in CS; 35,000 B.S. in CS
  - 2002    4,000 AA B.S. in CS; 38,000 B.S. in CS

*How can I not only survive,  
but also thrive in this  
environment?*

# A Broader View of Environment

1. Your University
2. Your Local Community
3. Your State
4. USA
5. North America
6. The World
7. The Solar System
8. The Galaxy
9. The Universe

*Get Involved*

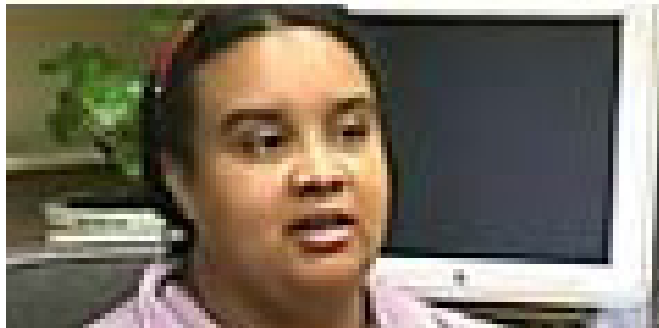
# Some Points of Professional Involvement

- Coalition to Diversify Computing (CDC)
  - <http://www.cdc-computing.org>
- ACM, CRA, IEEE-CS
  - <http://www.acm.org>
  - <http://www.cra.org>
  - <http://www.computer.org>
- Computing Community Consortium (CCC)
  - <http://www.cra.org/ccc/fcrc/>
  - <http://www.cra.org/ccc/rfp/>
- Global Environment for Network Innovations
  - <http://www.geni.net/>
- Federal Funding Agencies – NSF, DoE, DARPA
- National Labs – Sandia, LBL, LLNL, LANL, ANL, ORNL, PNNL
- Corporations and Foundations – Microsoft, Google, IBM, Intel, HP

# Coalition to Diversify Computing

<http://www.cdc-computing.org>

- Bryant York, past-chair
- Executive Committee
- Members
- Projects (Tapia Conference, ...)
- <http://ww.richardtapia.org>



**Nina Berry, Chair**



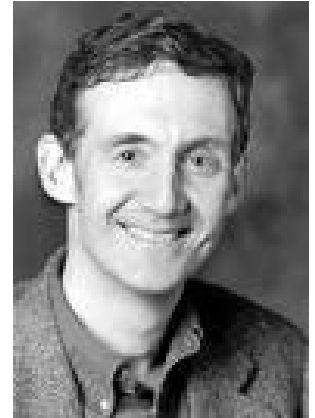
**Pam Williams, Chair-elect**



**Valerie Taylor,  
Past-past Chair**

# CCC Council

**Greg Andrews**, University of Arizona  
**Bill Feiereisen**, Los Alamos National Lab  
**Susan Graham**, University of California at Berkeley  
**Anita Jones**, University of Virginia  
**David Kaeli**, Northeastern University  
**Dick Karp**, University of California at Berkeley  
**John King**, University of Michigan  
**Ed Lazowska**, University of Washington (*Office of the Chair*)  
**Peter Lee**, Carnegie Mellon University  
**Andrew McCallum**, University of Massachusetts Amherst  
**Beth Mynatt**, Georgia Institute of Technology  
**Fred Schneider**, Cornell University  
**Bob Sproull**, Sun Microsystems Laboratories  
**Karen Sutherland**, Augsburg College  
**David Tennenhouse**, New Venture Partners  
**Dave Waltz**, Columbia University



<http://www.cra.org/ccc/rfp/>

# GENI Science Council



**Tom Anderson**, University of Washington, distributed systems and networking (member of GENI Planning Group)

**Hari Balikrishnan**, MIT, wireless networking

**Joe Berthold**, CIENA, optical networking

**Charlie Catlett**, Argonne National Laboratory, grid computing (member of CRA GENI Community Advisory Board)

**Mike Dahlin**, University of Texas, distributed systems

**Stephanie Forrest**, University of New Mexico, biological system modeling, security

**Roscoe Giles**, Boston University, educational technology

**Ed Lazowska**, University of Washington, systems (member of Interim CCC Council and CRA GENI Community Advisory Board)

**Peter Lee**, Carnegie Mellon University, software (member of CRA GENI Community Advisory Board)

**Helen Nissenbaum**, NYU, social, ethical, and political dimensions of IT

**Jennifer Rexford**, Princeton, networking (member of GENI Planning Group)

**Stefan Savage**, UCSD, networking and security

**Scott Shenker**, *Co-Chair*, UC Berkeley, networking (member of GENI Planning Group)

**Alfred Spector**, IBM (ret.), software

**Ellen Zegura**, *Co-Chair*, Georgia Tech, networking, including wireless (member of Interim CCC Council and CRA GENI Community Advisory Board)

# GENI Community Advisory Board

**Charlie Catlett**, Argonne National Lab

**Vint Cerf**, Google

**Susan Graham**, University of California, Berkeley

**Ron Johnson**, University of Washington

**Edward D. Lazowska**, University of Washington

**Peter Lee**, Carnegie Mellon University

**Ellen Zegura**, Georgia Tech

Jeannette M. Wing,  
Assistant Director, CISE  
National Science Foundation

<http://www.cs.cmu.edu/~wing/>

Computational Thinking

<http://research.microsoft.com/ur/asia/summit05/Presentation/PDF/6-Jeanette-Wing.pdf>



Member, CISE Advisory Committee –  
Brian Blake

<http://www.cs.georgetown.edu/~bblake/>



Opportunities and Challenges  
for  
African American CS Researchers

# AA Grand Challenges

# Broad AA USA Social Challenges

- End Racism in America by 2100
- Develop Our Children
  - Build self-respect and self-esteem
    - <http://www.youtube.com/watch?v=rjy9q8VekmE>
- Redefine Education for Our Children
  - Urban schools have failed
  - The Importance of Informal Learning (LIFE Center)
  - <http://www.life-slc.org/>
- Own Our Intellectual Property
- Increase the Dollar Turnover Rate in the AA Community
- Establish an AA “Think Tank”

# Successful Economic Models

- Major League Sports
  - NBA, NFL, MLB
- NCAA Sports
- Black TV Industry
  - Bill Cosby, Oprah Winfrey, Wayans Brothers
- Black Music Industry
  - Quincy Jones, Berry Gordy Jr, P Diddy,
- Black Movie Industry
  - Morgan Creek, 40 Acres and a Mule
- Black Print Media
  - Ebony, Jet, Essence, Black Enterprise, O

*Can we replicate these kinds of successes in the computing and IT industries?*

*What are possible roles for AA CS Researchers?*

# Stella Model

# Technical Challenges and Opportunities

# Basic vs. Applied Research

# Technical Areas with Immediate or Near-Term Social Relevance

- Human-Computer Interaction
- Educational Technology
- Computer and Network Security
- Computer Forensics
- Data Mining
- AI and Computer Game Design
- Robotics

# Some Examples of Socially Relevant Computing

- AADMLSS (Juan Gilbert)
  - <http://www.aadmlss.org>
- MindRap (Melanie West)
  - <http://www.mindrap.org>
- Culturally Situated Design Tools (Ron Eglash)
  - <http://www.rpi.edu/~eglash/eglash.htm>
- Urban Tapestries
  - <http://urbantapestries.net/>
- Applications Quest (Juan Gilbert)
  - <http://www.applicationsquest.org/>
- Electronic Voting (Juan Gilbert, Prime III)

# More Examples of Socially Relevant Computing

- One Laptop per child in the AA Community
  - <http://www.laptop.org/vision/index.shtml>
- Technology in Support of Community-Based, Participatory Design, Implementation, and Ownership of Urban Systems
  - TechComm\TechCommPDO2Slides.pdf
- Defeating Botnets

CNGrid, CANS, PRAGMA & GENI

# Microsoft Research (1)

- Ubiquitous computing with mobile phones
- Socially relevant computing technologies for education
- Information access, privacy, and confidentiality
- Software transactional memory
- Solving environmental problems with computer science
- Beyond search – seeking and finding information in context
- New programming languages for manycore architectures

# Microsoft Research (2)

- Universal access to Human Knowledge (or public access to digital materials)
- Social Networking: Pictures of traces of people, places, and groups
- Games First Pedagogy: Using games and virtual worlds to enhance programming education
- Computational photography

# Some Personal Principles

# Some Personal Principles

- Maintain the Utmost Integrity
- Always Strive to Do Something Positive
- People First
- Teamwork
- Think Big
- Be Globally Aware (Africa, Asia, South America, Europe)
- Mentoring

# People First!

New Approaches to Human Capital Development  
through Information Technology Research  
(2000 – 2006)

[http://](#)

Technology in Support of Community-Based,  
Participatory Design, Implementation and Ownership  
of Urban Systems

<http://www.cs.pdx.edu/~york/TechCommPDO1.pdf>

# Think Big!

<http://210.34.48.220/ocean>

# Be Globally Aware!

<http://210.34.48.220/ocean>

# Importance of Role Models and Mentoring

- John O'Bryant
- Jackie Robinson
- Willie Mays
- Bill Russell
- Rosa Parks
- Wilma Rudolph
- JFK
- MLK Jr.
- RFK
- Malcolm X
- Burton White
- Michael Arbib
- David Marr
- Bill Wulf
- Angela Davis
- Badi Foster
- Valerie Taylor
- Roscoe Giles
- Juan Gilbert

## The Colors of My Life

<http://www.sjfa.com/Cases/York/Bio/BWYShortBio.html>

CS 1 with Mr. Kelso (1951)

# Conclusion

I am depending on you

Keep your eyes on the Prize

**The End**