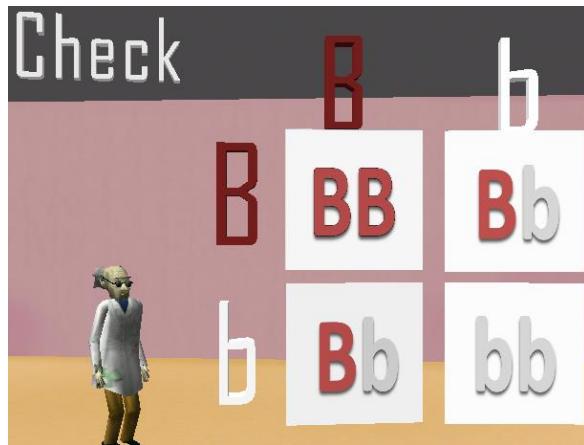


Early Career Advice



The First Diversity in Games Research DiGR Workshop



Susan H. Rodger
Duke University

Oct 4, 2014

Hailey Programmer and the Goblet of Java

You will receive a password at the end of each level that will be used to unlock the next level.
WRITE THESE DOWN!
If this is your first time playing, select Charms.

Charms	History of Programming	Flying	Potions
Defense	Divination	Herbology	Finale



Supported by the National Science Foundation Collaborative Grant
NSF 1031351, CRA distributed mentor awards, and Faculty Awards
from International Business Machines.



Background – Susan Rodger

Intro #1: The Technical Me...

- NCSU BS, Purdue PhD
- Rensselaer 89-94 – Assist Prof
- Duke '94-now - Professor of the Practice (assist, assoc, full)
- Research: Visualization, algorithm animation, computer science education

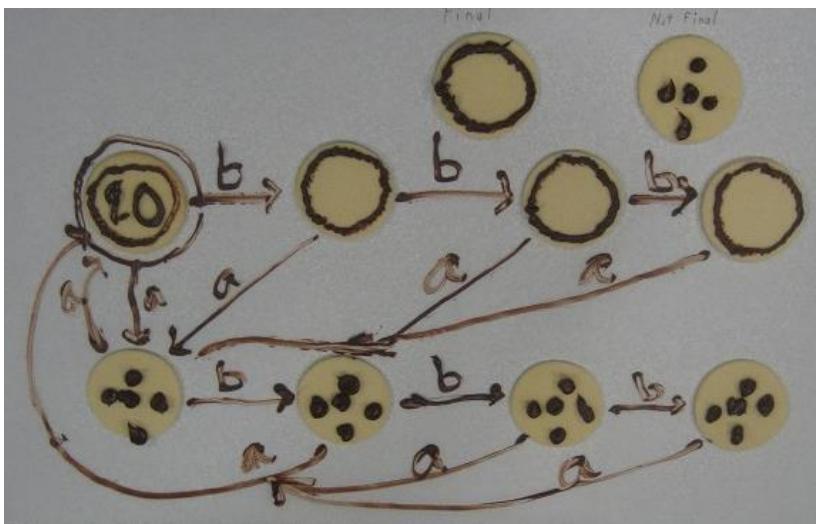
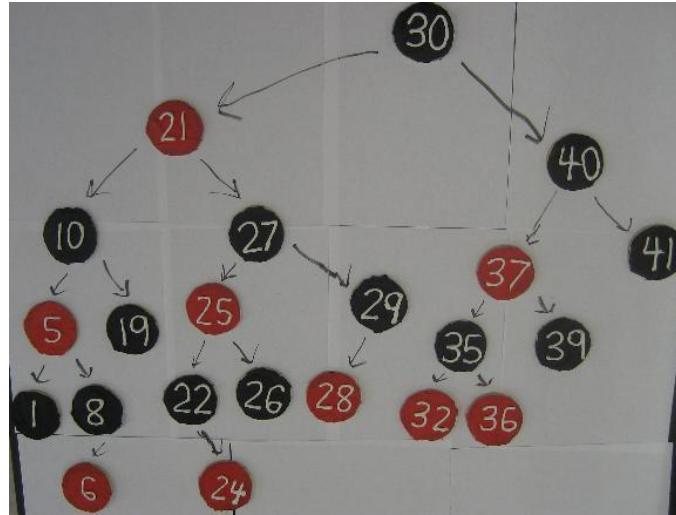


Intro #2: Non-Technical Me

- Married to Thomas (met in graduate school, CS – Networking)
- Kids: Erich (17), Markus (14)
 - Always trying to keep up with them
- 3 cats, over 200 fish
- Other fun: swimming, running, baking, write Wikipedia pages



What happens when your hobby and your career collide...





Adventures in Alice Programming

Grades 5-12 Outreach

www.cs.duke.edu/csed/alice/aliceInSchools





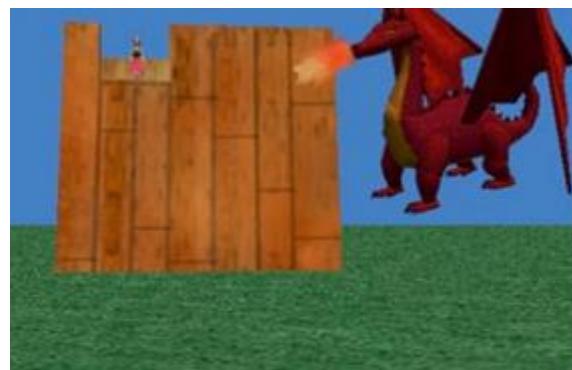
Adventures in Alice Programming

- 2-week Teacher workshops
 - Over 200 teachers, middle school, high school, some elementary
 - First week Teach Alice, Practice
 - Second week - Develop Lesson Plans
 - One-week follow-up workshop the following summer
 - Summers 2008-2015, funding for lodging
- Main Sites:
 - Duke University, Durham, NC
 - Charleston/Columbia, SC
 - San Jose, CA (starting 2014)



3-4 Part getting started tutorials

- One long story in three or four parts (about 3 hours)
- 4 stories to pick from



Example: Getting Started Tutorial teaches:

- Placing objects
- Moving objects
- Setting up Camera tripods and moving between views
- Using built in methods and writing your own
- Gluing objects together
- Adding sound, 2D pictures to enhance world



Getting Started Tutorial – 3 part



Tutorial for Simple Game – Control boat, earn points



Tutorial for Adventure Game –

Find objects in order



Harry Potter Challenge

- Mix of programming and math challenges

Hailey Programmer and the Goblet of Java

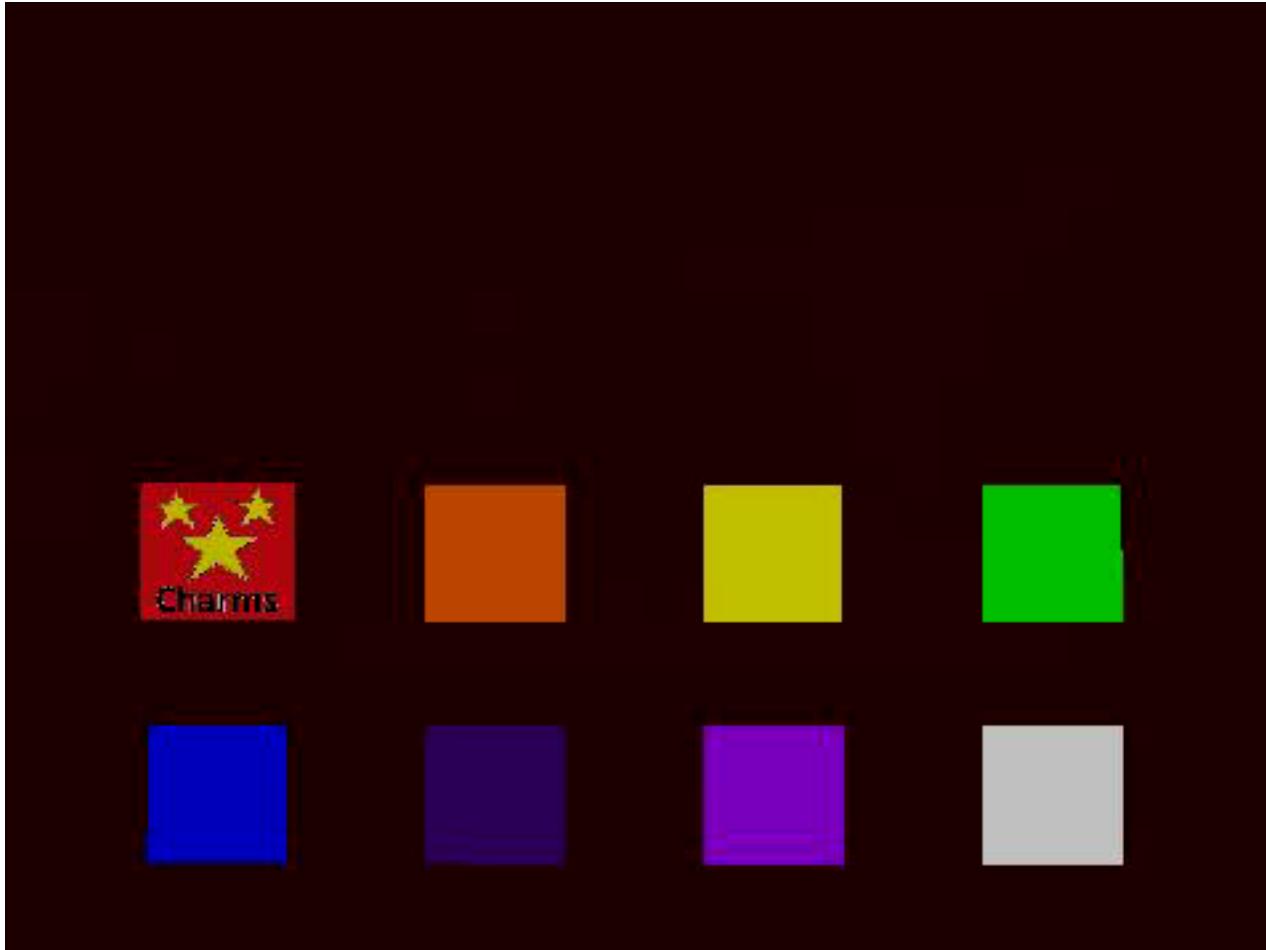
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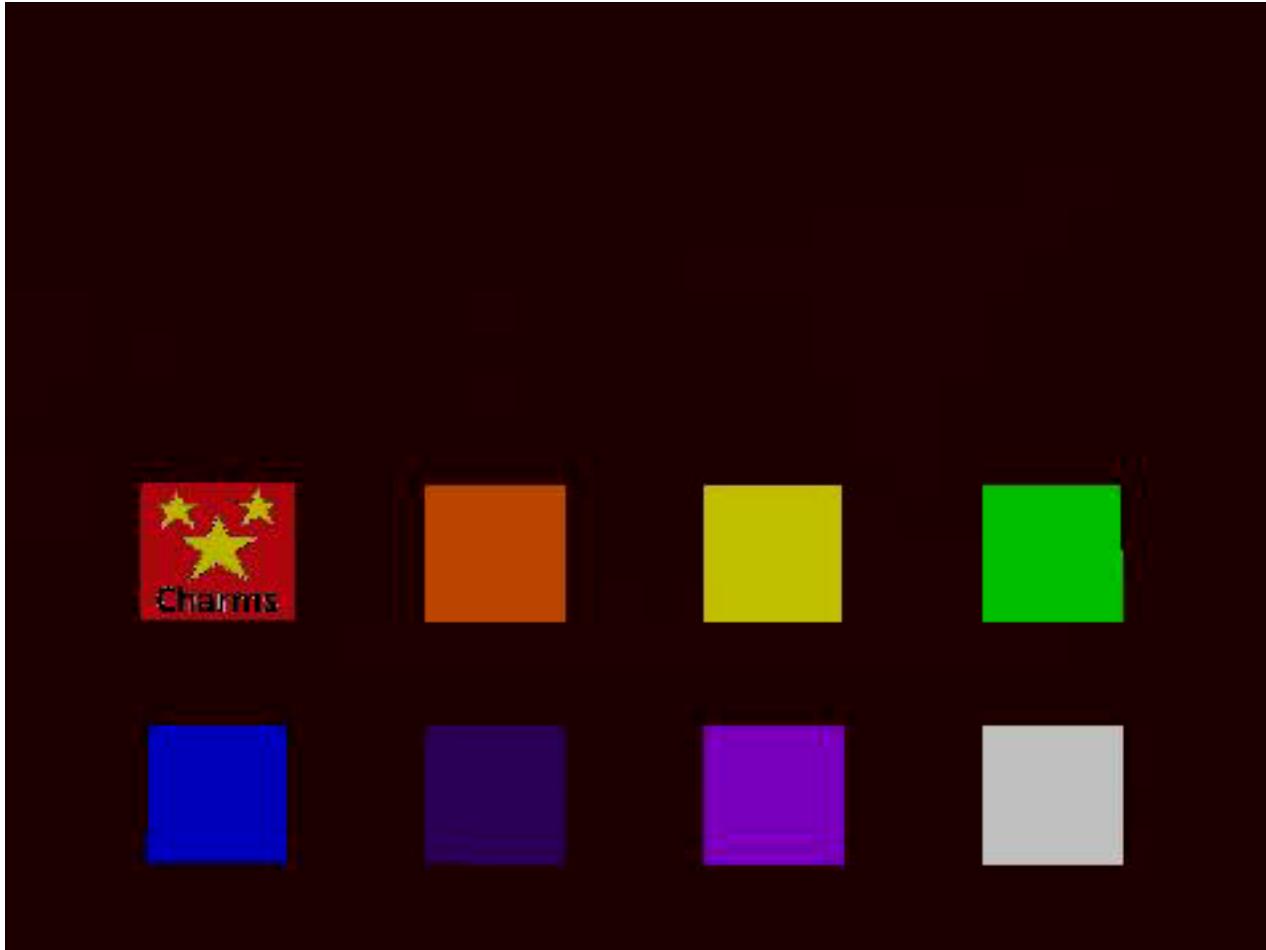
Harry Potter – Math/computing

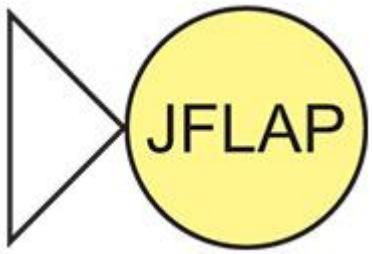
Level 1 Charms - before



Harry Potter – Math/Computing

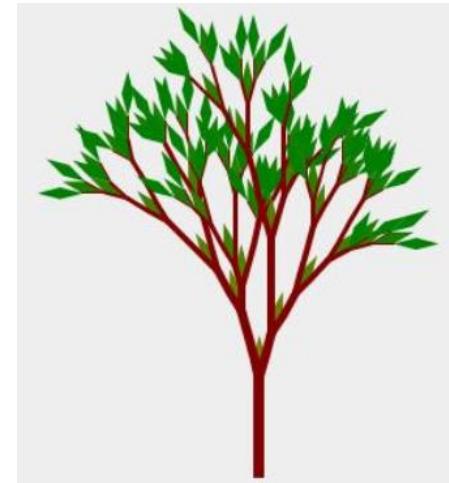
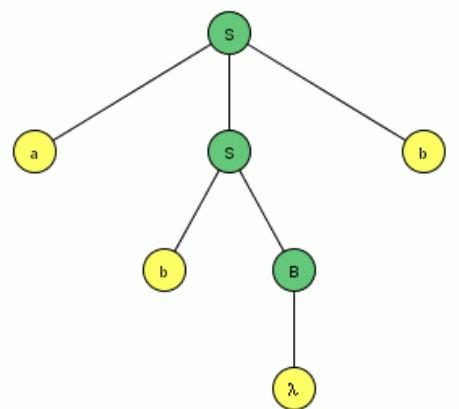
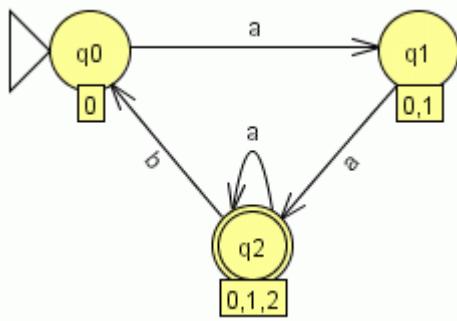
Level 1 Charms - after





JFLAP

(for over 20 years, jflap.org)



Notable Women In Computing

Write a Wikipedia page

for info on project and cards: bit.ly/NotableW





Starting and Growing Your Own Research Program



Agenda

- The CRA-W
- Defining your research program
- General advice
- And some more specifics

CRA-W

Computer Research Association Committee on the Status of
Women in Computing Research

Mission increase the participation and
success of women in computing research



What does CRA-W do?

Individual & Group Research Mentoring

Undergrads: Undergraduate Research Experiences

Undergrads: Distinguished lecture role models

Grad Cohort: group mentoring of grad students

Grad Students: Discipline Specific Research workshops

PhD Researchers: group mentoring of early & mid career @ CMW, CAPP, Hopper & Tapia

600+ students and PhD researchers a year





Defining a Research Program

- What is the overall theme of your work?
- What do you LOVE to do?
- What are your short, medium, and long-term goals?
- What steps do you need to take now and in the future to meet those goals?



Some General Advice....

- Developing your reputation
- Building collaborations
- Getting the resources you need to do your work



Develop Your Reputation: Academia

- Identify a strong research problem with clear short-term, medium-term and long-term goals
 - Be mindful of overlap with advisors or senior faculty
 - Establish your lab or group as quickly as possible
 - Identify and mentor strong students
 - Publish in the publications that matter the most
- Selectively do service that enhances your reputation



Develop Your Reputation: National Lab or Industry

- Identify how you can contribute to the organization while building your career
 - Develop your overall research and engineering capabilities
 - Establish your expertise/carve out your niche
 - Identify good collaborators and champions
 - Produce deliverables on time, show impact and relevance
 - Practice good, punchy short presentations/demos
- Maintain your external visibility
 - Publish ... or perish
 - Host interns and visitors, collaborate with academia



Reputation = Work + Networking

- Network
 - Attend *important* conferences
 - Volunteer selectively in conferences and professional associations
 - Help others
- Self-promote
 - Give talks
 - Maintain your online presence
 - Your organization's website
 - Your own website
 - Google Scholar/Microsoft Academic/Research Gate
 - Social media



Build Collaborations

- Internal and external collaborators
- People you enjoy
- Compatible or complementary skill set
- Junior researchers who are also starting research careers and have compatible skills
- Senior researchers who think well of your work
- Be generous with co-authorship on papers



Build Collaborations

- **Do**
 - Communicate effectively and be responsible
 - Learn to multi-task
 - Have a contingency plan
- **Don't**
 - Be a “student” for someone else
 - Take it personally if a collaboration does not work
 - Be the programmer or tech support for another discipline



Develop Proposals

- Look for new proposal opportunities
 - Early career proposal calls
 - As a collaborator/subcontractor
 - Internal funding grants
 - Travel grants
 - Private foundations or companies
 - Faculty Fellowships: NASA, Microsoft etc.
- Learn the rules and constraints of your organization with respect to funding
 - Human subjects, environmental etc.



Develop Proposals

- Learn how different organizations work and how they select proposals
- Ensure that your proposal is a good fit and addresses all review criteria
- Serve on review panels
- Talk to the program manager
- For Academics: talk to friends in industry
- For Industry: don't assume you are ineligible for grants



Tradeoffs and Priorities

- Funding: ask yourself “why not?”
- Service: ask yourself “why?”
- Maintain a high quality of teaching, but remember, most people don’t get tenure for teaching
- Follow the problems you want, but bear in mind how you will publish and fund your work



Be Your Own Advocate

- Take credit for **your** work
- Avoid working with people who do not give you credit for your work
- Present your work regularly
 - Elevator speeches
 - Blogging, microblogging, social media
 - Departmental seminars, manager meetings, etc.
- Meet the program managers and organizational leaders who will have influence on your funding
- Despite what your mother told you, its okay to brag a little

In closing

- Enjoy what you do... it's a great career
- Feel and share the passion in research
- Don't pull the ladder up!