GRADUATE SCHOOL SURVIVAL SKILLS

Maria Gini, University of Minnesota
Kathryn McKinley, Google

CRA-W.org
@CRAWomen

CRA-W
Computing Research Association
Women

Maria Gini
Professor, University of Minnesota

Research Areas: AI, Multi-agent systems, Robotics

Autonomy

- Ability to make autonomous decisions in complex environments

Distributed decision making

- Each agent decides, not a central system

Cooperation

- Agents are benevolent and/or have common goals

Kathryn McKinley

Senior Research Scientist, Google

Make systems better
faster, reliable, secure, energy efficient

Datacenter efficiency
Programming Language Implementation
DaCapo Benchmarking
Software for Heterogeneous Hardware

+

Professor, UT Austin

ACM Fellow, IEEE Fellow

22 PhD students

Testified to Congress

Family

Workout most days

Photo: Google

CRA-W
Computing Research Association
Women

What does CRA-W do?
Individual & Group Research Mentoring

Undergrads: Undergraduate Research Experiences

Undergrads: Distinguished Lecture series/role models

Grad Cohort: Group mentoring of graduate students

Grad Students: Discipline Specific Research workshops

Academics/PhD Researchers: Group mentoring for early and mid career @ CMW, Grace Hopper, and Tapia

Undergraduates → Graduate Students → Academic careers / Industry/government labs

2400+ students & PhDs a year

Stay in touch: CRA-W.org, @CRAWomen,
Facebook: CRA-W, Linked-in: CRA-Women

CRA-W
Computing Research Association
Women

CRA-W Events at Grace Hopper

Visit the CRA-W Booth in the EXPO to learn more (#2050)

Attend another CRA-W Session
Wednesday (3): Thursday (3) or Friday (1)

Visit a CRA-W Table at the
Student Opportunity Lab on Friday
(Undergrads)

Stay in touch: CRA-W.org, @CRAWomen,
Facebook: CRA-W, Linked-in: CRA-Women

CRA-W
Computing Research Association
Women

Outline

- The ups and downs of graduate school life

- Challenges and time management

- 15 min role playing

- Tips on managing your research life

- 15 min role playing

- Enjoy your journey

CRA-W
Computing Research Association
Women

The Nature of Research

Research is an open-ended exploration of the unknown

Many milestones are vague,

Unstructured, long horizon, and delayed rewards

New expectations, levels of independence & maturity

Paper submissions, rejections…

Multi-tasking literature survey, idea generation, coding, experiments, writing… and creativity!

Advisor & a thesis Topic

- Choosing well is challenging
- Learning from and "managing" your advisor

Personal Life

Partners, parents, friends, children…

Finding a partner, starting a family

Finances on a grad student stipend

More logistics of caring for a home, family, pets …

Health

Being away from people you care about

Fun!

CRA-W
Computing Research Association
Women

Time management

Philosophical Reject the bad myth of workaholism as correlated with success

Make your time count

- Find your "best time" in the day, block it, and best work style
- Block a day a week for research only (no email/social media)
- Schedule "rejuvenation time"
    – gym, concert tickets, community service
- Schedule time for other "stuff" email, reading, chatting, etc.
- Reward yourself for input not output.

Many time management books, find one to "fit" your nature

- Deep Work (Newport), 7 Habits… (Covey), etc.

CRA-W
Computing Research Association
Women

Productivity != Time spent

Graduate school is a job where you are your own boss

Organize your day, week, month, semester

- 15 minutes: What's the most important thing for me to do today? Did I do it yesterday?
- 1 hour a week: What did I do last week, next week?
- 2 to 4 hours a month/semester: goals and to-do lists
- To do lists and on your calendar: reflect your day, week, month, semester **goals** and **progress**

Control distractions

- Make a list of any bad habits and fix them one at a time
- Set time limits on email, web, social media, chatting, etc.
- Write down stray thoughts, save for later

CRA-W
Computing Research Association
Women

Role playing I

Work life balance

CRA-W
Computing Research Association
Women

Structuring your research

- Share an online research notebook with your advisor.

- What is the big picture?

- **Start** by writing the abstract if everything goes perfect

- Can you measure the problem?

- What is the best possible solution? How close?

- Break down problems into manageable components

- Demonstrate each component

- Write progress, ideas, questions, future ideas, & review regularly

- Keep lists of references and notes after reading

Meetings

Advisor

- 24 hours in advance, send agenda links to reading
- Have a plan that works even if she did not read it
- Context: review the short term & big picture
- Then progress, ideas, questions, concerns
- Ask specific questions
- Take notes
- Repeat the action items so you both a clear

Any meeting you go to, set your own agenda!

Choose activities carefully

Saying "yes" to something means "no" to another

- Or less time for what you are already doing

Take some time before you decide

- "Thanks for the invitation/suggestion, let me think it over and get back to you by X"

Does it fit your goals and priorities?

Negotiate

- "If I add X, I cannot do Y" or "I will need to delay Y"

Do not do anything out of guilt

- • Say "yes" or "no" to the task, not the person

Be Assertive and Ask

- Discuss with advisor long term goals and strategies

- Discuss your strengths and weaknesses

- Ask for information/resources – classes to take, how to find a topic,…

- Ask for specific training – elevator talk, reviews

- Ask to be nominated for awards

- Ask to go to conferences/workshops

- Ask for meetings when more needed

CRA-W
Computing Research Association
Women

Role playing II

Paper rejection

All set?

- To make the most of grad school, you have to be willing to take risks, grow, and be bold.

- You can't be afraid!

- So, with that in mind, it's time to **sing along**!

Thank You

Please rate and review the session in the GHC 17 mobile app

Stay in touch

CRA-W.org

@CRAWomen

Facebook: CRA-W

Linked-in: CRA-Women

CRA-W
Computing Research Association
Women

Cope with insecurities

Create your support system

- Mentors
- Family and friends
- Other students

Realize we *all* have insecurities

Prepare for tasks/meetings to increase successes

- What is the most important outcome of this task/meeting?
- Sometimes we fail, consequences of doing something hard

Enjoy your successes

- Celebrate paper submissions & acceptences
- Keep a "good file" of positive feedback

Balance goals and expectations

Know your goals

- Set and write down realistic goals so you can own them
- Ruthlessly prioritize

Understand expectations of others

- Which expectations are self-inflicted!

Understand what is required to achieve a goal

- Why do you want to achieve the goal?
- Is the goal achievable?
- How will you evaluate progress?
- Talk to mentors and others

Learn to enjoy the process

- Focus on the present
- Appreciate your achievements before moving on

CRA-W
Computing Research Association
Women

General Academic Stresses

The nature of grad school

- *Research is an open-ended exploration of the unknown*
- Milestones more vague than course requirements
- Your solution needs to be the "best" and "only"
- No obvious finishing date

You are here because you are a "high achiever"

- Goal-oriented perfectionists: always more to do
- Competition for "who works the hardest"

Insecurities (we all have them!)

Deadlines encourage insane pace but it's not sustainable

CRA-W
Computing Research Association
Women