Academic Career Paths and Job Search

Chad Jenkins

Shiri Azenkot

2018 CRA URMD Grad Cohort Workshop

CRA
Computing Research Association

Chad Jenkins

Associate Professor of Computer Science
U. Michigan (2015-Now), Brown Univ. (2004-15)
Ph.D. in 2003 from USC
Research: Autonomous Robotics
Awards: PECASE, ONR Young Investigator, NSF CAREER

Shiri Azenkot

Assistant Professor of Information Science
Jacobs Technion-Cornell Institute at Cornell Tech
Ph.D. in 2014 from U. Washington
Research: Human-computer interaction and Accessibility
Awards: ASSETS Best Paper, NSF Grad. Research Fellowship

CueSee

Exploring Visual Cues for People with Low Vision to Facilitate a Visual Search Task

Yuhang Zhao, Sarit Szpiro, Jonathan Knighten, Shiri Azenkot

UbiComp 2016

Chad Jenkins

Associate Professor of Computer Science
U. Michigan (2015-Now), Brown Univ. (2004-15)
Ph.D. in 2003 from USC
Research: Autonomous Robotics
Awards: PECASE, ONR Young Investigator, NSF CAREER

Shiri Azenkot

Assistant Professor of Information Science
Jacobs Technion-Cornell Institute at Cornell Tech
Ph.D. in 2014 from U. Washington
Research: Human-computer interaction and Accessibility
Awards: ASSETS Best Paper, NSF Grad. Research Fellowship

Scene Perception for Robotic Manipulation

Given an unstructured tabletop scene

Take Home Messages

What will your job application look like?

What will your tenure package look like?

What kind of person will you become?

CRA
Computing Research Association

Take Home Messages

We already know you are awesome, but that is not always enough

Enjoy… your work and colleagues

Prioritize … you can't do everything

"No" … learn how to "say" it

Mentorship … take it and give it

CRA
Computing Research Association

Tenure-track Positions

Research — advance and disseminate scholarship

train new researchers

attract funding (“sponsored projects”)

Teaching

educate the next generation (classroom and beyond)

mentor students

Service / Administration

- Departmental • School /College • University
- Professional (societies, editorial, diversity)

CRA

Computing Research Association

Types of College/Universities*

	Type	Highest Degree Program	Emphasis	Important
R1 - R3	**Research Universities**	Doctoral	Research	Teaching, Service
M1 - M3	**Colleges / universities**	Masters	Teaching	Research, Service
Undergraduate	**Selective Liberal Arts Colleges**	Bachelors	Teaching, Scholarship	Service, Research
	Baccalaureate / Associates	Bachelors	Teaching, Service	Research

* roughly the Carnegie classifications

CRA
Computing Research Association

Typical Time Management

Tenure-track at Research (R1) Institution

60% - 80% Research

10% - 35% Teaching

5% - 10% Service

M.S. / B.S. Institution (or teaching faculty at R1)

50 - 80% Teaching

10 - 30% Professional Development

10 - 20% Service

CRA

Computing Research Association

Faculty-level Academic Positions

Professorial Ranks

Assistant Professor — often untenured
Associate Professor — often tenured
Full Professor
Distinguished/Chaired/Endowed Professor

Instructor — teaching & service

Professor of the Practice

Lecturer — teaching

Postdocs — research

CRA
Computing Research Association

Remaining Topics

Tenure-track positions (Jenkins)

Teaching positions (Jenkins)

Postdoctoral positions (Azenkot)

Research Scientists (Azenkot)

Faculty search (Azenkot)

R1 Expectations: Timing

During last year(s) of dissertation

Apply for Assistant Professor jobs (or Postdocs)

Tenure-track clock for Assistant Professor

Typically as two contracts (3 year then 4 year)

Year 3: Reappointment for second contract

Year 5: (Optional) Tenure Tour

Year 6: Submit tenure package

Year 7: Promotion to Associate

or go make more money

Promotion to Full (Year 11-17)

CRA

Computing Research Association

R1 Expectations: Research

Publications

journal, conferences, workshops

top-tier venues and peer-review

Funding

support research group and your summer salary

peer-reviewed, basic vs applied, grant vs industry

People

doctoral graduates (and their professional success)

CRA

Computing Research Association

Odest Chadwicke Jenkins

FOLLOW

GET MY OWN PROFILE

University of Michigan
Verified email at umich.edu - Homepage

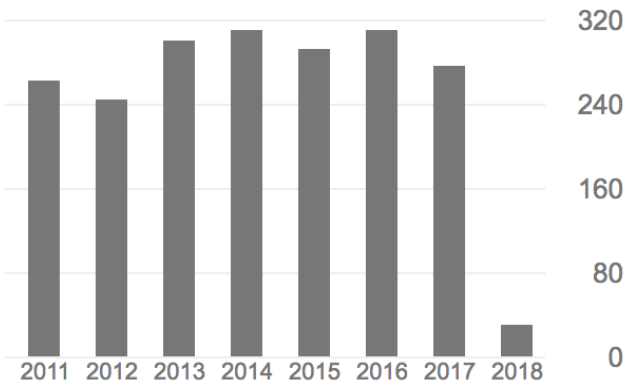
Robotics Interactive Robotics Human-Robot Interaction

TITLE	CITED BY	YEAR
Automated derivation of primitives for movement classification A Fod, MJ Matarić, OC Jenkins Autonomous robots 12 (1), 39-54	404	2002
A spatio-temporal extension to isomap nonlinear dimension reduction OC Jenkins, MJ Matarić Proceedings of the twenty-first international conference on Machine learning, 56	230	2004
Deriving action and behavior primitives from human motion data OC Jenkins, MJ Mataric Intelligent Robots and Systems, 2002. IEEE/RSJ International Conference on 3 …	202	2002
Dogged learning for robots DH Grollman, OC Jenkins Robotics and Automation, 2007 IEEE International Conference on, 2483-2488	139	2007
Automated derivation of behavior vocabularies for autonomous humanoid motion OC Jenkins, MJ Mataric Proceedings of the second international joint conference on Autonomous …	138	2003
Physical simulation for probabilistic motion tracking M Vondrak, L Sigal, OC Jenkins Computer Vision and Pattern Recognition, 2008. CVPR 2008. IEEE Conference on …	132	2008
Motion capture from inertial sensing for untethered humanoid teleoperation N Miller, OC Jenkins, M Kallmann, MJ Mataric	123	2004

Cited by

VIEW ALL

	All	Since 2013
Citations	3485	1521
h-index	30	25
i10-index	64	45



Co-authors

- Maja J Mataric — Chan Soon-Shiong Prof. of Com…
- Daniel Grollman — Misty Robotics
- Sarah Osentoski — Robert Bosch LLC, Bosch Resea…
- Matthew Loper — Max Planck Institute for Intelligen…

R1 Expectations: Research

Reputation and **Impact** — **professionally necessary**

letter writers and international reputation

citations, H-index, Google Scholar

recognition as awards and invited talks

conference/journal/society organization

Other — **often personally fulfilling**

outreach, mentoring, undergrad research

patents and open source

CRA

Computing Research Association

R1 Expectations: Teaching

Teaching load

- Typically 2-3 courses/year
- Mix of undergrad and grad courses
- Teaching assistants for grading, office hours, and overall course management help

Promotion and tenure

- Quality research essential
- Good teaching useful

Teaching is your chance to impress great students!

R1 Expectations: Service

Committees (Internal)

Department — admissions, curriculum, fac search, …

School — executive committee, safety, …

University — faculty senate, university resources, …

Professional (External)

Program committees, conference org., journal editing

Funding panels

Professional societies: ACM, IEEE, CRA and their TCs

To those who have more, more is expected

Be selective! Avoid flaking!

Choose important roles where you can engage

Gaining the Necessary Skills

Graduate school is your apprenticeship

Research

- Learn from your advisor and other mentors
- Develop your style (organizing ideas, executing projects)

Teaching

- Experience is very helpful, Preparation is essential
- Documentation: ensure accountability at all levels

Service

- Develop Support networks and Student organizations
- Working on department committees
- Volunteering at conferences

CRA
Computing Research Association

Gaining the Necessary Skills

Graduate school is your apprenticeship

Research

- …n from your advisor and other mentors
- …elop your style (organizing ideas, executing projects)

Teaching

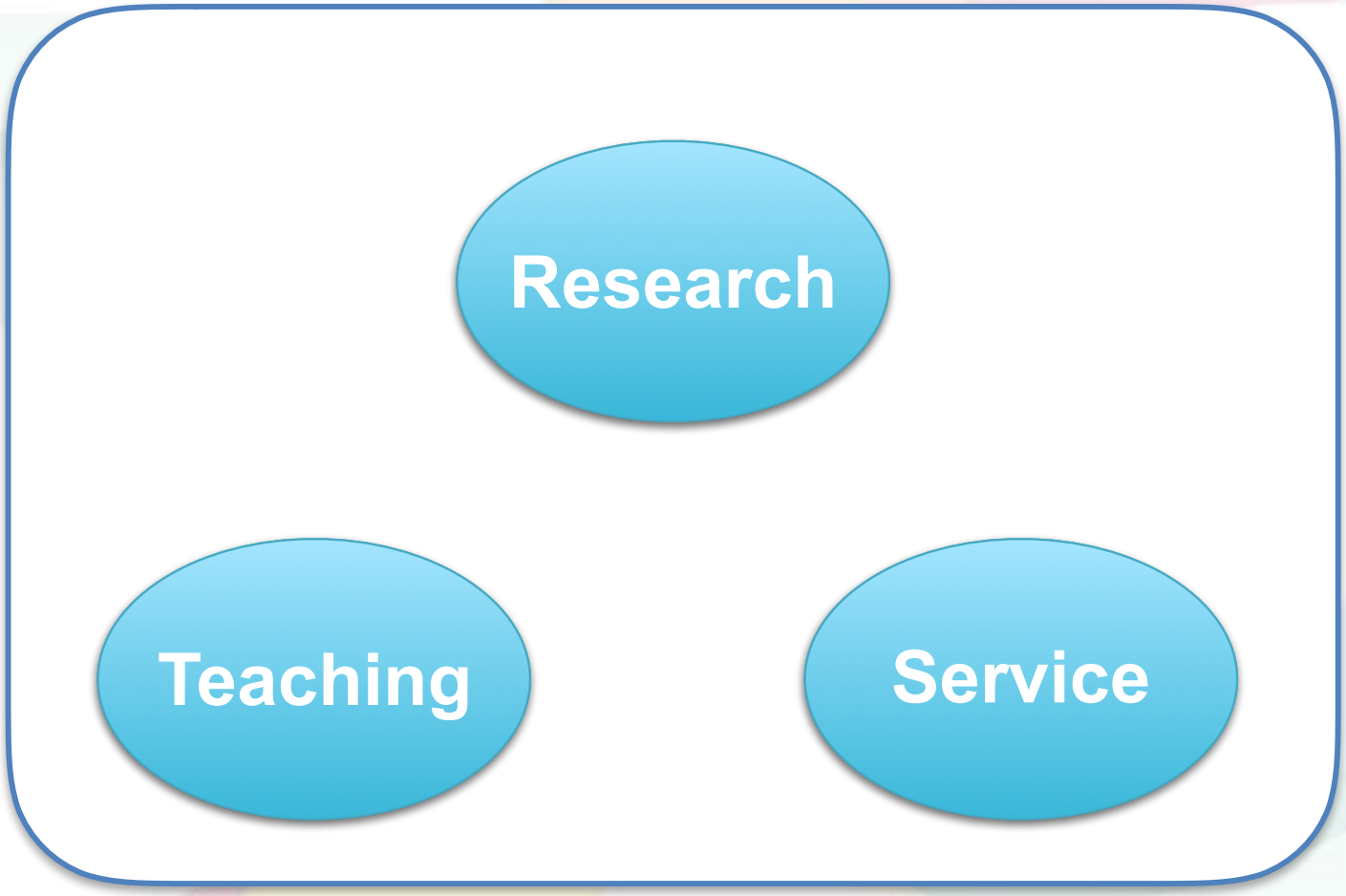
- …ience is very helpful, Preparation is essential
- Documentation: ensure accountability at all levels

Service

- …op Support networks and Student organizations
- Working on department committees
- Volunteering at conferences

CRA
Computing Research Association

Profession



Balance is the key

CRA
Computing Research Association

Challenges

Balance three professional roles

- All three can be infinite sinks
- Avoid spending all of your time on one
- “Peaks and Valleys”

Networking

- Academia is a community (be a part of it!)
- Become comfortable engaging with new people

Pressure of career (and deadlines)

Promotion magnifies (not changes) your behavior

Rewards

Intellectual freedom

love your work, be your own boss, but meet expectations

Create your own culture

Collaboration with graduate and ugrad students

They will look to you for leadership and mentorship

Global community

Friends and colleagues all around the world

Variety and flexibility of work

“7 year postdoc” and “the weekday sofa choice”

CRA
Computing Research Association

Remaining Topics

Tenure-track positions (Jenkins)

Teaching positions (Jenkins)

Postdoctoral positions (Azenkot)

Research Scientists (Azenkot)

Faculty search (Azenkot)

Academic Teaching Positions

Teaching-oriented institutions

Tenure-track emphasizes teaching (asst/assoc/full)

Teaching track at a research institution

Many different types/titles

Few with tenure, most on contracts

Lecturer, Senior Lecturer

Teaching Professor

Professor of the Practice, Clinical Professor, Lecturers with Security of Employment

CRA
Computing Research Association

Teaching Positions: Expectations

Teaching load

- 2-4 classes / semester
- Teach out of your specific area
  - Intro programming sequence, non-majors
  - Expect busy office hours

Service

- Attend faculty meetings (dept. and university)
- Serve on campus committees (technology, etc.)

CRA
Computing Research Association

Teaching Positions: Research

Fewer institutional resources (time, space, equipment)

- No graduate RAs

Cannot serve on doctoral thesis committees

Get undergraduates involved

- CRA DREU and CRA CREU mentorship programs
- REU through NSF
- Local programs at undergraduate institutions

CRA
Computing Research Association

Teaching Positions: Getting the Job

Teaching focus needs to be clear in application materials

Document relevant experience related to teaching

- "Customer satisfaction surveys" (aka, course evaluations)
- Opportunities: Teaching Assistant, Center for Teaching programs, Instructor of Record for a course

Experience for grad students teaching intro/non-major courses

Your expertise much match your teaching focus

CRA
Computing Research Association

Teaching Positions: Challenges

Perception of less prestigious than research faculty

- Typically lower salary and greater flexibility

Intense focus on students, their education, and their inspiration

- Building “the machine for large courses” (100-1000 students)

Working environment

- Small department at small school (~5 profs)
- Small group in a large research department
- Large lecture staff in a large department

Staying engaged in research

- Infrastructure, resources, grant administration

CRA
Computing Research Association

Teaching Positions: Rewards

Fulfillment of teaching is inspiring for both you and students

- Close relationship with undergrads
- More focus on being great at one thing

Culture and Impact

- Be a member of the larger university culture
- Chance for leadership and influence on campus

Fit with beliefs and lifestyle

- Teaching may be your gift (share it with others!)
- Typically less travel
- Flexible schedule for families

CRA
Computing Research Association

Remaining Topics

Tenure-track positions (Jenkins)

Teaching positions (Jenkins)

Postdoctoral positions (Azenkot)

Research Scientists (Azenkot)

Faculty search (Azenkot)

What is a post-doc?

Training opportunity whereby a person can deepen his or her expertise and/or research skills for a few years, en route to a permanent position

Typically funded either by a fellowship awarded directly to the Post-Doc or by the institution at which they will spend a limited time

http://cra.org/postdocs/workingpaper.php

CRA
Computing Research Association

Some Post-doc Motivations

Timing: Graduate “off season”, Two-body issues, Difficult job year

Improve job opportunities: Strengthen research, Work in a highly regarded institution

Learn new area, field

Work with a specific expert: additional mentoring

Experience different type of university

CRA
Computing Research Association

What is a GOOD post-doc

- Used to expand experience
  - entering a new research discipline
  - gaining a distinctly different perspective on the scholar's current research base
- Specific & relevant intellectual growth
  - working with a particular mentor or on a particular project
- Two years in duration

http://cra.org/postdocs/

CRA
Computing Research Association

GOOD postdoc position offers

Mentoring & guidance that directly supports professional development

- not simply serve as a contract researcher

Significant opportunities to explore independent research topics

- in addition to supporting existing research efforts of the mentor's group
- manage operational aspects of a project under the supervision of the mentor

Enhance the breadth of their research exploring new fields or new perspectives not simply refine material from PhD

http://cra.org/postdocs/

CRA
Computing Research Association

Expectations

Variable, some combination of:

- Teaching, Research, Supervising, Mentoring, Organizing

The ratio will depend on your own long-term goals, and the position

Should get a clear understanding BEFORE accepting job

CRA
Computing Research Association

Challenges

Low pay (compared to faculty, industry)

Role in the university

- Not a student, but not faculty
- Depending on school, can feel isolated

May not have independence

- working on PI's grant

If you have family, can be difficult to move for a temp position

CRA
Computing Research Association

Research Scientist

No tenure

- "Soft money" – grant writing!

Less requirements (service, teaching)

- Can focus on research

Dependent on PI

- Hired to get things done for grant
- Not independent
- Need a good advocate, well-funded lab

Possibly easier work/life balance

CRA
Computing Research Association

Remaining Topics

Tenure-track positions (Jenkins)

Teaching positions (Jenkins)

Postdoctoral positions (Azenkot)

Research Scientists (Azenkot)

Faculty search (Azenkot)

Job Search in ~2 years? What to do now?

Publish great work!!

Go to Conferences, meet researchers in your area

Figure out research and/or teaching focused

- Teaching– attend a SIGCSE conference, try to teach a course, think about teaching initiatives and philosophy

Attend CRA or CRA-W Career Mentoring Workshops

http://cra-w.org/ArticleDetails/tabid/77/ArticleID/50/Career-Mentoring-Workshop-CMW.aspx

CRA
Computing Research Association

Some numbers (YMMV)

I applied to:

XX faculty, XX research labs
US News rankings from 1-99

Informal heuristic:

25-30 applications -> 4 interviews -> 1 job

CRA
Computing Research Association

What's in an application?

Pages of online forms — Takes longer than you think!

Cover letter (lightly personalized)

CV

Research and teaching statements

3-5 references

People who can write knowledgeable letters

Diversity – sometimes separate statement, sometimes mention in teaching / cover letter

Due dates Nov – Jan, often not firm

CRA
Computing Research Association

Phone/On-site interviews

Sometimes phone interview first – 1 hour typically with search committee

Onsite: 1,1.5, or 2 days

- Mostly 30 min slots throughout the day
- Faculty 1 on 1, dept chair, dean, students
- Job talk
- Sometimes demo lecture (teaching school)
- 3+ meals

CRA
Computing Research Association

A long day!

Not more than 3 in 2 weeks

"Greg's rule"

Breakfast often at 7:30

and dinner until 9-10

Very limited breaks between slots

Lots of walking, going outside

Lots of repetition

CRA

Computing Research Association

Research Talk

Usually 45-55 minute slot

Prepare for lots of interruptions

- Plan to make shorter on the fly
- Don’t go over

Goal:Accessible to non-specialists but also deep technical content (this is hard)

- Don’t: excessive background (need some)
- Do: provide framework for research agenda

CRA
Computing Research Association

Things you will be asked

Why do you want to be in academia?

Tell me about your research/teaching (current, agenda)

- Something not in your job talk
- Something in your field you aren't working on

Who here do you expect to collaborate with?

Where do you expect to get funding?

What lower-level classes can you teach?

Where else are you interviewing? (This may be illegal)

Are you married or have children?

- (This is definitely illegal)

CRA
Computing Research Association

Questions you should ask

How many faculty? Teaching load?

How much (if any) TA support?

What is the quality of grad students?

How recruited? Success after graduation?

What is the support for new faculty:

mentoring, help with grants, teaching priority and relief, etc.?

What is the review process? Tenure rate?

What about IT, admin, grant-writing support, etc.?

How collaborative are the faculty members?

What is it like to live in this area?

Where do faculty typically live?

CRA

Computing Research Association

Where to find job listings

CRA: http://cra.org/ads/

IEEE: http://careers.ieee.org/

Chronicle of Higher Ed:

https://chronicle.com/section/jobs/61

Listservs

http://www.sigsoft.org/seworld/

http://duerer.usc.edu/mailman/listinfo.cgi/robotics-worldwide

Many have RSS feeds!

CRA
Computing Research Association

Job Search – Closer to getting out

Prepare CV and research/teaching statements

Get these materials reviewed

Talk to advisor/other faculty about where to apply

Apply to several places

Prepare/Practice interview talk

Be assertive

CRA
Computing Research Association

How to get a post-doc

Can be posted in same venues as other academic jobs

Not always advertised

- Use Your Network!
- Give talks as you get closer to graduating

Remain in PhD lab

- Usually for timing reasons only

CRA
Computing Research Association

Moving between Schools and Positions

- University to university
  - Not particularly difficult
  - If have tenure, usually get tenure
    - But not in all cases: schools have different rules and moving to higher ranked school
- University to teaching-oriented college
  - Must show evidence of being good teacher
- Teaching-oriented College to university
  - Must show can do research - publications

CRA
Computing Research Association

Resources

CRA Career Mentoring Workshops:

http://www.cmd-it.org/programs/current/acw/

http://www.cra-w.org/ArticleDetails/tabid/77/ArticleID/50/Career-Mentoring-Workshop-CMW.aspx

On Academic Life:

http://blogs.scientificamerican.com/guest-blog/2013/07/21/the-awesomest-7-year-postdoc-or-how-i-learned-to-stop-worrying-and-love-the-tenure-track-faculty-life/

http://dynamicecology.wordpress.com/2014/02/04/you-do-not-need-to-work-80-hours-a-week-to-succeed-in-academia/

On Post-Docs:

http://cra.org/resources/bp-view/best_practices_memo_computer_science_postdocs_best_practices

Tips on doing an academic job search:

http://matt.might.net/articles/advice-for-academic-job-hunt/

http://people.mills.edu/spertus/job-search/job.html

https://homes.cs.washington.edu/~mernst/advice/academic-job.html

CRA
Computing Research Association