

MY JOURNEY FROM UCI TO THE NSA (WITH A LAYOVER IN ACADEMIA)

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AGENDA

With a focus on your future
career(s)

- Share my experience and some lessons learned
 - Provide assistance
 - Answer questions—feel free to ask at any time.
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GRADUATE STUDENT

GRADUATE SCHOOL CHOICE

- Undergraduate degree: University of North Carolina at Chapel Hill
- Graduate programs accepted to: UCLA, USC, Claremont, NYU, & UCI
- UCI Math Professors displayed organic, honest attempt to get know their prospective students and relate their program with student interest.

(POSITIVE) RELATIONSHIPS
MATTER

AS A GRADUATE STUDENT AT UCI

- Access to professors and their help
 - During class
 - Office hours
 - Research projects
 - New/unscheduled supervised reading or seminars
 - Graded assignments
- Do the same as a teaching assistant and then summer instructor
 - Be present
 - Learn to explain things in different ways
 - *Clarity over cleverness*
 - **Feedback over answers**
- Positive Relationships lead to understanding and buy-in

5 YEARS IN ONE SLIDE

- Advisor: Prof. Patrick Guidotti
- Ph.D. Thesis: Nonlinear Stability Analysis of a Free-Boundary Problem
- Degree Concentrations: Analysis and Applied Mathematics
- Focused heavily on teaching throughout, including summer (only one quarter not teaching or assisting)
- Thesis resulted in two publications and the Kovalevsky Outstanding Ph.D. thesis award.

WHAT'S NEXT?

- Torn between academia and industry
 - Decision: non-TT over postdoc
- Application materials took forever!
- Not a great year to apply for jobs (2007–2008)
 - Could almost sense it during interviews
 - For later in the talk, $2008+18 = 2026$
- Job Offers: Goucher College and NSA

PROFESSOR

LIBERAL ARTS COLLEGE PROFESSOR

- Goucher College Department of Mathematics and Computer Science 2008–2019
- Started as a Visiting Assistant Prof with a 3–3 load.
- Switched to tenure-track and then received tenure in 2015.
- Research and service expectations once in tenure-track/tenured positions
 - Service: academic advising and service to your department every semester; at least one college-wide committee before tenure.
 - Research: my one peer-reviewed publication per year, far exceeded LA expectations
 - Generally speaking, service is never sufficient to receive tenure.

(UNKNOWINGLY) LEARN
TO LEAD

RELATIONSHIPS MATTER!

- Even in non-tenure track position, focused on students, teaching, mentoring, increasing the number of math/cs majors. Why? Outcomes and ‘stats’ matter to institutions (\$\$)
- Learn to navigate the politics and dynamics of the workplace
- Sought teaching, research, and social opportunities with non-math/cs departments
- Learned after the fact that my UCI letters of recommendations set me apart from other applicants.

FIND OPPORTUNITIES TO SET YOURSELF APART -THIS CAN BE A FORM OF LEADERSHIP

- Wrote new mathematics major curriculum within 1st two years
- Asked to teach in the top postbac pre-medical program and then update that curriculum.
- Aligned strategic initiatives to new math courses
- Taught 20 unique courses and created 6 new courses
- In my attempt to make myself invaluable, I discovered that
 - I was learning to lead in an academic institution (not necessarily department) setting.
 - Much easier to get external and internal funding for curriculum development and conference attendance and presentations
 - Leadership is NOT supervision or management of people

TAKE THE NEXT STEP (AS A
LEADER)

PROFESSIONAL DEVELOPMENT

- I'm not talking about developing and expanding your research agenda (I know you will do that! I did.)
- Take professional seminars/workshops/classes in pedagogy, public speaking, DEI, conflict, giving feedback, technical writing/editing, etc..
- Attend research talks 'way outside math' to better understand different approaches to scholarship and problem solving.
- Try new things professionally by taking on new tasks, jobs, etc

WALK, CRAWL, ...

- Chaired or member of 9 TT Faculty Searches in Math, CS, and Peace Studies
 - 'Yes' I have read 100s-if not 1000s-of application materials.
- Member of Academic Honor Board
 - My way to try new things yet stay close to my comfort zone
- Chair of Mathematics and Computer Science Department
 - Learned so much about budgets, supervising professionals, promotion process/feedback
- Chair of the Academic Policies Committee
 - My first experiment in having a college-wide academic impact.
- Member of non-academic division groups and committees
 - Direct impact to students lives outside of the classroom

HAVE AN IMPACT

RUN!

Focusing on relationships, professional development, and taking steps toward leadership resulted in:

- The faculty electing me Chair of the Faculty
- Serving on the college president's cabinet
- Becoming a college board trustee

Providing an opportunity (again) to have an impact!

- Shaped a new college-wide general education curriculum
- New majors in Data Science, Engineering, Creative Writing, ...
- Created a voluntary early retirement program
- Set strategic vision of the college, including long-term spending agendas

WHAT'S NEXT?

- Remember that choice I had to make in graduate school?
 - Decided to ask the NSA some questions at their booth at the joint math meetings.
 - Didn't realize their offer to sit down and answer my questions was an interview!!
- But why leave academia?
 - What else can I accomplish?
 - $2008+18 = 2026$

DATA SCIENTIST

NSA/CSS MISSION (SOURCE: NSA.GOV)

- The National Security Agency/Central Security Service (NSA/CSS) leads the U.S. Government in cryptology that encompasses both signals intelligence (SIGINT) insights and cybersecurity products and services, and enables computer network operations to gain a decisive advantage for the nation and our allies.
- They are an agency within the Department of Defense and a member of the US Intelligence Community.

RELATIONSHIPS MATTER,
LEARN TO LEAD, TAKE THE
NEXT STEP, HAVE AN
IMPACT

MACHINE LEARNING LEAD

- Build a new ML team
- Create a ML development framework
- 'Corporate Research'
- Work with experts to document questions to answer (create problems to solve)
- Work within budget constraints
- Provide technical guidance and leadership to team to solve problems
- Impact: Automated and improved solutions; provided ML guidance that significantly improved delivery of solutions.

DATA STRATEGIST

- Asked to be a thought leader in this space
- Work with diverse groups to understand pain points
- 'Corporate Research'
- Draft and communicate data strategy to address issues
- Create data strategy implementation plan
- Impact: Set the path for the future. Ability to deliver integrated data solutions with data governance and management built-in. Eliminate duplicative efforts.

CHIEF IT DATA OFFICER

- Responsible for data strategy, vision, governance and management efforts
 - Use business intelligence to demonstrate progress, value, and return on investment
- Communicate data priorities and data governance decisions
- Coordinate and integrate data stewardship activities
- Implement automated data governance and data quality checks and metrics
- Impact: Compliance with Federal Government policies and directives; Data driven decision making to improve operations, provide technical prioritizations, and adjust budgets to achieve outcomes.

Aligning for Success



Research

NSA invests in a world-class workforce and partnerships with academia and industry to deliver capabilities that secure the nation's future.

[LEARN MORE](#)



Academics

NSA partners with schools to help cultivate the next generation of experts in science, technology, engineering, math, language and analysis to protect the nation.

[LEARN MORE](#)



Business

NSA has a wide range of requirements and we need industry's help in fulfilling our mission.

[LEARN MORE](#)

(SOURCE: NSA.GOV).

INTERESTED IN APPLYING? [NSA.GOV/CAREERS](https://www.nsa.gov/careers)

APPLICATION ADVICE-I'VE HIRED IN BOTH ACADEMIA AND GOV'T

- Have a vision; be confident
- Form that relationship
- Be careful about name dropping
- Cover letters are important
- Actions and Impact
- Concise (don't just list)
- Skills and Professional Development
- Resume-1 page in industry. (2 pages can be OK in government)

Translation to Interviews

QUESTIONS?