Academia or Industry?

An Age-Old Question

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The Big Question

- What do you want from your career?
  - Caution: the answer can be time-variant

Stability? Innovation? Impact? Freedom?

- Both industry and academia offer *different versions* of these.

When you think about your career, it's easy to focus on titles, salaries, institutions, or fame. But underneath all that, the real question is, what *do you actually want from it?*

What Career Paths Look Like?

- What are different types of jobs you can think of in industry vs. academia?

Academia

- Professor or Lecturer at a research or teaching university
- Research assistant
- Education & Outreach professional
- Academic administration (program coordinator, dean's office)
- Researcher in university-affiliated labs

Industry/Government/Nonprofit labs

- Engineer, Designer, Analyst, or Consultant
- Research Scientist / Policy Researcher / Data Specialist
- Manager, Entrepreneur, or Start-up Founder
- Public service (government, NGOs, community orgs)
- Creative roles: product design, media, UX, or marketing

Academic Career Ladder

1 Graduate Student (MS / PhD) — ~5 years

- Learn to do independent research, publish papers, attend conferences, and work closely with advisors and mentors

2 Postdoctoral Researcher — ~2 years

- Deepen expertise in a specialized area, Lead projects, mentor students, build a publication record, and apply for faculty positions

3 Assistant Professor (Tenure-track or non-tenure-track) — ~6 years

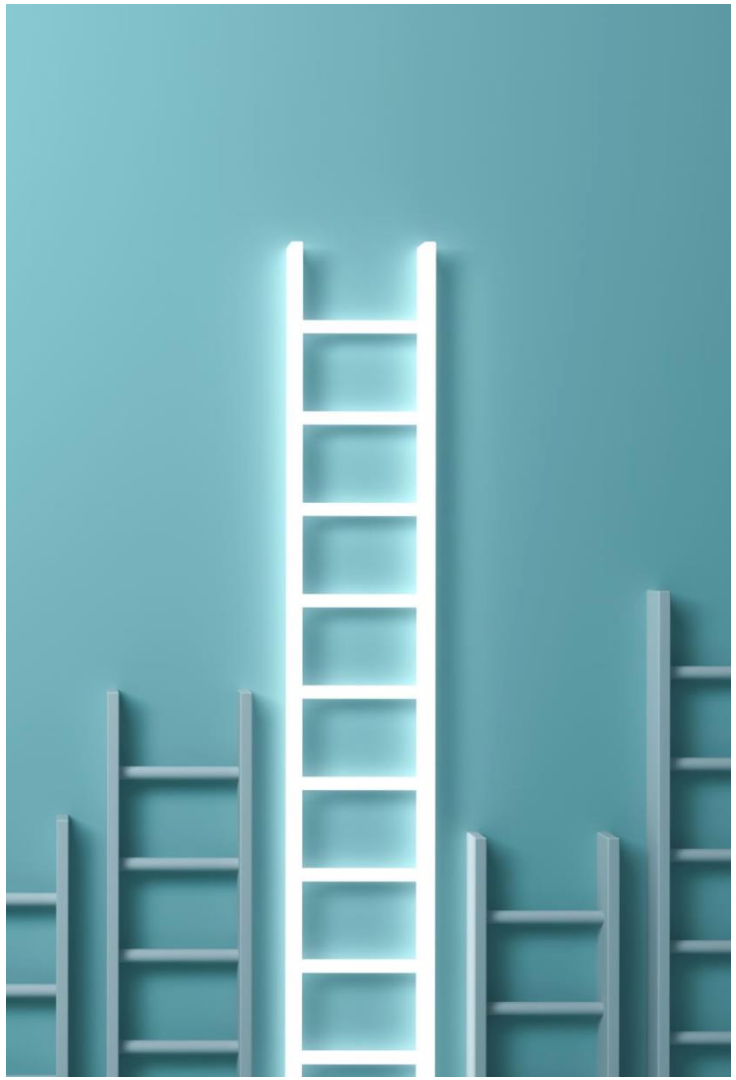
- Start your own lab or research group, teach courses, apply for grants, and balance research, teaching, and service

4 Associate Professor (Tenured) — ~6+ years

- Earn tenure based on impact and consistency, lead committees and shape department direction, mentor junior faculty and graduate students

5 Full Professor / Chair / Dean

- Recognized leader in the field, guides institutional initiatives, and represents the university nationally and internationally



R1 vs. R2 institutions, Teaching-oriented colleges, Public vs. private schools

Industry Career Ladder

1 Entry-Level / Associate

- Learn tools, workflows, and professional communication
- Apply classroom skills to real-world problems
- Collaborate and build credibility

2 Mid-Level / Specialist / Senior

- Take ownership of projects or clients
- Develop deeper expertise in a focus area
- Mentor juniors, contribute to strategy

3 Manager / Team Lead

- Lead teams or projects across functions
- Blend technical, creative, and interpersonal skills
- Influence direction and efficiency

4 Director / Senior Manager

- Manage multiple teams or portfolios
- Shape organizational policies and culture
- Focus on impact, innovation, and scalability

5 Executive / VP / Founder / Partner

- Set vision and drive long-term goals
- Build partnerships and represent the organization
- Balance leadership, ethics, and growth

Startups, Consulting, Partnerships, etc.

Working in Government

Why work at a Government lab?

- Opportunity to work on problems of national and international importance
- Chance to make a difference
- Work on cross-disciplinary teams with other scientists

https://cra.org/cra-wp/wp-content/uploads/sites/8/2021/07/Industry-vs.-Academic-Research-Positions_GC-W21.pdf

DOE, DoD, NASA, NSF, DHS, NSA, NIST, NRC, FAA, …

Federal, state-level, and local agencies

Academic Career

Discover, preserve, and share knowledge

Core activities:

🧠 **Research** asking new questions, discovering patterns, creating new knowledge.

🎤 **Teaching** sharing what you've learned with students, inspiring curiosity.

🌎 **Service** helping the academic community grow, mentoring, organizing, collaborating, and improving institutions.

What my day looks like as a Faculty

- Teaching classes and mentoring students
- Meeting with research teams and collaborators
- Writing papers, proposals, and reviews
- Attending seminars or committee meetings
- Responding to a never-ending stream of emails
- Balancing research, teaching, and service (some days more flexible than others!)

Industry Career

Apply knowledge to create real-world products, services, and solutions.

Core activities:

⚙️ **Development** turning ideas into reality through design, engineering, creativity, or production.

🤝 **Collaboration** working in cross-functional teams that mix business, design, tech, and communication.

🌍 **Impact** delivering results that affect lives, economies, and society at scale.

What a day looks like in Industry

- Morning stand-up or team sync to align on goals
- Working on projects or product development tasks
- Cross-team collaboration (design, business, research, marketing)
- Meetings with managers or clients to review progress
- Learning new tools or tech for skill growth
- Define deliverables, and next-day planning

Different Thought Processes

Academia	Industry
“Why does it work?”	“How can we make it work?”
Long-term, uncertain	Short-term, goal-driven
Papers & prototypes	Products & performance
Freedom of topic	Defined priorities

Academia asks *why things work*; industry asks *how to make them work at scale.*

Both approaches are essential – one builds understanding of the world, the other builds reality.

Timelines & Outcomes

Academia

Research Proposal — Data Collection — Paper Publication

- Focuses on multi-year exploration – projects often take years to mature.
- Emphasizes depth, validation, and discovery before publication.
- Example: Developing an AI model or publishing a paper can take 2–3 years.

Industry

Product Launch — User Testing — Feature Update — Market Review

- Works on quarterly or semi-annual deliverables aligned with business goals.
- Prioritizes speed, iteration, and measurable impact.
- Example: Deploying an AI feature or product improvement may take only a few months.

Rewards & Recognition

Academia

- Publications and conference papers
- Research grants and funding
- Citations and peer recognition
- Teaching excellence and student impact

Industry

- Salary, bonuses, and stock options
- Promotions and career growth
- Shipped products and user impact

Academia: Intellectual Freedom

- **Myth**: Academia has all the intellectual freedom, while Industry doesn't

  🧠 **Reality:**

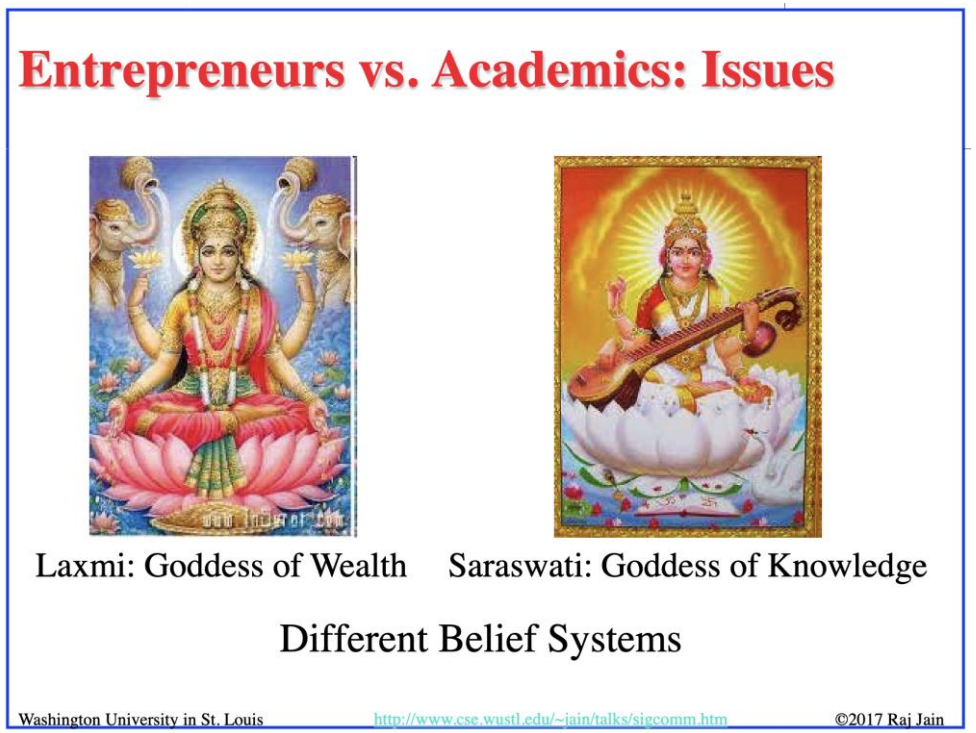
  - Freedom exists in both, but it's shaped differently.
  - Academia: You can choose your research direction, but it depends on funding, reviews, grants, and hiring, which can influence what's possible.
  - Industry: Your direction may be aligned with company goals, but you often get resources, data, and real users that enable large-scale impact.
  - Many industry roles (e.g., R&D labs, applied research teams, think tanks) give scientists and engineers freedom *with focus*.

Industry: Financial Freedom

- **Myth**: Industry has all the money, Academia doesn't

  💰 **Reality:**

  - Industry often offers *higher salaries early on*, but *academic careers* can include research funding, consulting, patents, and startups. Many faculty and students launch startups based on their research, often with university support (incubators, tech transfer offices, grants).
  - Research funding, consulting, patents, and spinoffs can all generate income and real-world impact.
  - Industry often offers faster financial growth, but job security is unpredictable.



Moving Between Industry and Academia

You don’t have to choose one forever – careers can flow both ways.

- Easier than ever today
- Research labs, startups, and joint projects bridge both worlds
- Faculty start companies; industry experts teach or mentor
- Skills transfer both ways - creativity, collaboration, communication

Prepping for Academic Career

Understand the path ahead: grad school → postdoc (optional) → faculty

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Industry

Prepping for Industry Career

Gain Experience

Secure internships to apply knowledge in real-world settings.

Build Networks

Connect with mentors and peers through platforms like LinkedIn.

Learn Communication

Develop clear and effective communication and teamwork abilities.

Develop Skills

Focus on both technical skills and adaptable personal qualities.

Create Portfolio

Prepare a strong resumé showcasing your accomplishments and skills.

Stay Curious

Keep learning to adapt to industry changes and advancements.

Grad School or Industry?

Going Straight to Grad School

- Work under a research faculty as an RA
- Maintain academic momentum and research continuity
- Deepen expertise in your field early on
- Ideal if your goal is academia, R&D, or professions that *require* advanced degrees
- Benefit from focused time on scholarship

Working First: Industry Experience

- Test your career interests before committing time and money to grad school
- Gain real-world experience and professional clarity
- Strengthen your grad school application with tangible achievements
- Build financial stability and understand workplace challenges

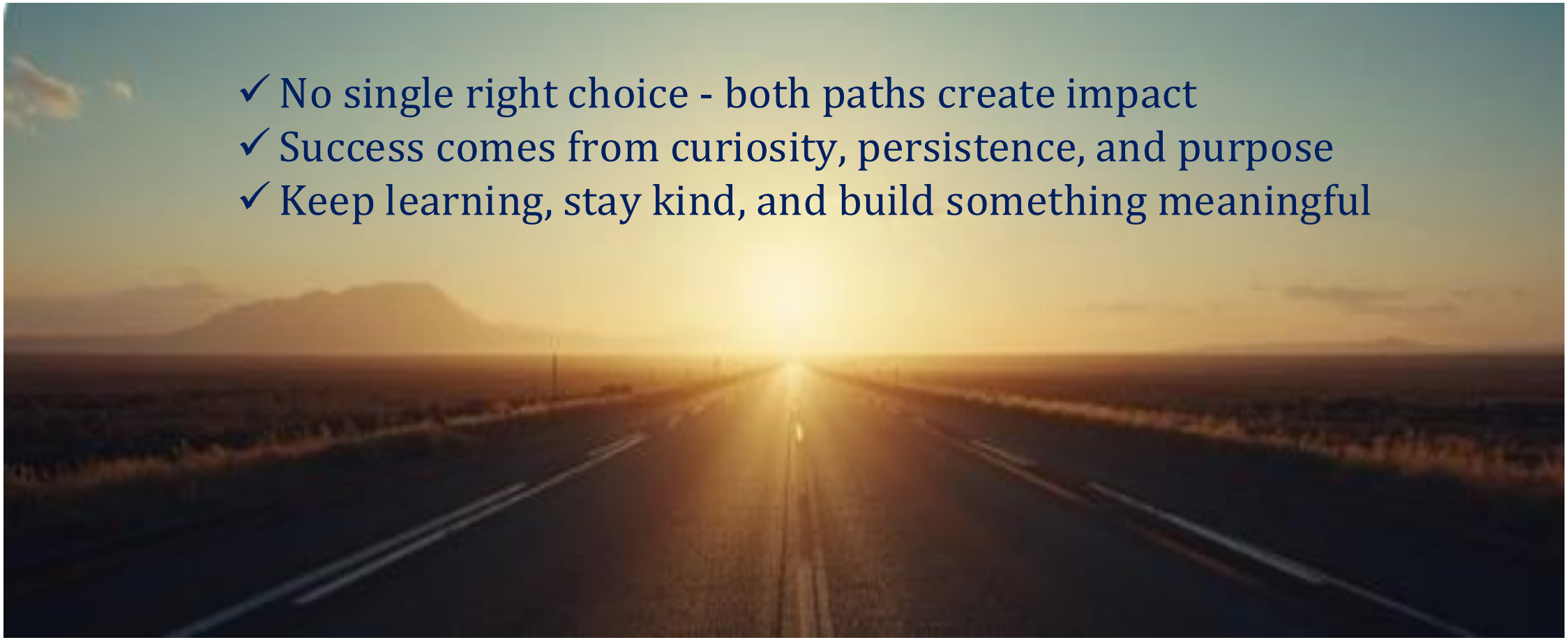
Succeeding in Academia vs. Industry

Common across the spectrum

- Hard work
- Focus
- Communication skills

Academia	**Industry**
Curiosity and perseverance	Adaptability and execution
Strong writing and communication	Collaboration and communication
Independent thinking	Team-oriented problem solving
Long-term vision and resilience	Delivering results on time
Mentorship and networking	Leadership and innovation

Final Thoughts



Questions?