

# How to Stand Out

## For Graduate Schools, Internships and Employment Opportunities, Scholarships & Fellowships



Dr. Kurt Polzin  
4 April 2025

- Standing Out
- Resume Tips
- Internships and Employment
- Scholarships and Fellowships

- Why should you stand out???
- What makes you special? Unique? Qualified?
- You need to convince people that you are a 'Good Bet'

# To Positively Stand Out, Focus On...

- Proactive initiatives
- Continuous learning
- Building a strong professional network
- Demonstrating commitment to personal growth and seeking opportunities for advancement.

**But I'm 'too busy' right now.**

**Everyone is busy. The ones that stand out effectively manage their time to do these things, because they are important.**

# Proactive Engagement and Initiative

- **Take Initiative:** Don't wait for opportunities; create them. Volunteer for new projects. Take on extra responsibilities. Seek out challenges. (Actively participate!! No chair-warming.) ✓
- **Contribute Ideas:** Actively participate in meetings and brainstorming sessions, offering valuable insights and solutions. ✓
- **Be Proactive:** Anticipate problems and plan solutions in advance, demonstrating a proactive and solution-oriented approach.
- **Volunteer:** Offer to help colleagues or take on extra work when you can, showcasing your willingness to go above and beyond. ✓

\* You (**are** / **might've been**) doing these by attending the conference (✓-**are**, ✓-**might've been**)

# Continuous Learning and Skill Development

- **Set SMART Goals:** Define specific, measurable, achievable, relevant, and time-bound professional development goals.
- **Seek Feedback:** Regularly ask for feedback from your manager and colleagues to identify areas for improvement. ✓
- **Pursue Learning Opportunities:** Take advantage of training programs, workshops, and online courses to enhance your skills and knowledge. ✓
- **Share Your Learning:** Share your new knowledge and insights with your team, demonstrating your commitment to growth and collaboration. ✓

# Building a Strong Professional Network

- **Network Internally:** Build relationships with colleagues in different departments to broaden your knowledge and understanding of the organization.
- **Network Externally:** Attend industry events, join professional organizations (e.g., AIAA), and connect with people (e.g., LinkedIn) to expand your network. 
- Actively participate!! No chair-warming\*.
- **Seek Mentorship:** Find a mentor who can provide guidance and support as you navigate your career. 

\* chair-warming: occupying a position but not actively doing anything in that position

# Demonstrating Commitment and Growth

- **Exceed Expectations:** Consistently deliver high-quality work and exceed expectations in your role.
- **Be Reliable and Dependable:** Demonstrate consistency and reliability in your work, building trust and credibility. ✓
- **Be Adaptable:** Embrace change and be willing to learn new skills and adapt to new situations. ✓
- **Speak Up:** Don't be afraid to voice your opinions and ideas in meetings and discussions. ✓
- **Focus on Professional Development:** Show initiative in independent learning and demonstrate a genuine interest in continuous growth. ✓

# Resumes

- **STAND OUT!!! (visually and in content)**
- **Tailor your presentation – No Generic Resumes**
- **Experience**
  - Held what positions?
  - WHAT HAVE YOU DONE IN THEM?
- **Education**
  - Where did you go? What did you do there?
  - Independent work? Research? Clubs? Honorary Societies?
- **Abilities / Skills**
  - What other skills make you stand out?
  - Computer programming languages and programs.
  - Hands-on skills (machine tools, CNC, welding, drone building)
- **Making a Statement**
  - Publications and conference/poster presentations
  - Awards and accolades
  - Professional Society membership and activities
  - Anything else that makes you STAND OUT!



# Computer-Scanned Resumes

- **Software to scan / sort resumes**
  - Many employers and US Government do this
- **General Submission Guidelines**
  - Visual layout / formatting less important
  - (if possible) Know which ATS
- **Applying for a Position**
  - Read the position description closely
  - Key words and phrases... Did you identify them, and are they in your submission?
  - **Tailor, tailor, tailor** to fit the position description to which you are applying.
  - Don't lose the depth of your experiences.
  - Don't write gibberish or simply stuff your resume with keywords. Use proper grammar and phrasing that actually has meaning... IF the computer selects your resume, the next filter is usually a real person.



- **Be Responsive**

\* When you are contacted, you have to be responsive (even if that response is that you are no longer interested). It is considered incredibly rude to not be responsive.



# Things I wish I'd Known as a Fresh Out

Dr. Robert Tramel  
Chair, GHS

Presentation to Region II Student Conference  
April 4<sup>th</sup>, 2025

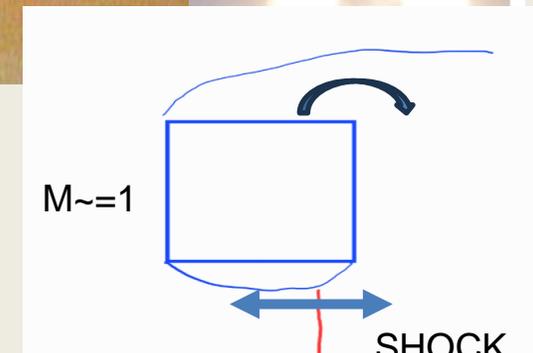
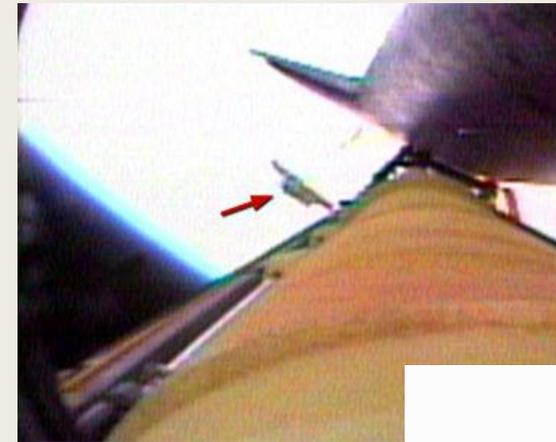
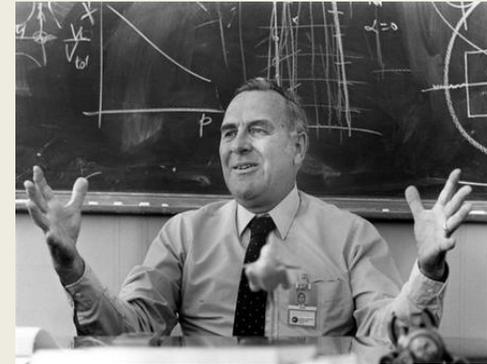
---

# Simple Rules for a Successful Career

- **Take your job seriously but never take it personally**
- **Everything is personal so build lasting relationships**
- **Choose your friends wisely**
- **Always be the first person to question your own results**
- **Build intuition so you can trust your instincts**
- **Develop your writing skills**
  
- **Presume incompetence until malice is clearly demonstrated**
- **Choose your own enemies**
- **Make sure to enjoy your work**
- **Pay attention to the economics of what you are doing**

# Take Your Job Seriously but Never Take it Personally

- The things we do have serious consequences
- Consider the Space Shuttle Columbia
- It was brought down by a piece of foam!
- A large effort was conducted to examine ways to eliminate foam loss
- Removal of the Protuberance Air Load (PAL) ramps was investigated
- The PAL ramps were added based on questionable wind tunnel data
- Many passionate debates followed
- I was asked by Apollo Chief Aerodynamicist Werner Dahm why I disliked wind tunnels?
- Many subsequent studies confirmed PAL removal was safe
- In spite of this NASA declined to remove the PAL ramp (More on this later)
- You'll be wrong from time to time in these events. Enjoy your crow



# Everything is Personal so Build Lasting Relationships

---

- A faithful friend is the medicine of life (Ecclesiasticus 6:16 )
- Get to know the movers in your field
  - Don't be shy
  - Engage by asking questions, sending an email, etc.
  - Business development is everyone's job
  - Learn who makes the decisions
  - Support your BD staff
- Stay engaged with your customers
  - understand their needs
  - exceed their expectations.
- Engage in professional societies, marketing associations, etc.



# Always be the First Person to Question your Own Results

---



- I beseech you, in the bowels of Christ, think it possible that you may be mistaken. (Oliver Cromwell)
- Cromwell's rule, named by statistician Dennis Lindley states that the use of prior probabilities of 1 ("the event will definitely occur") or 0 ("the event will definitely not occur") should be avoided
- The loss of the PAL ramp on the 1<sup>st</sup> post-Columbia flight is a perfect example of a “Black Swan” event
- The designers of the Titanic and the Chernobyl nuclear reactors considered their systems infallible
- From a practical viewpoint people may not remember your successes but they will never forget a failure
- The most rigorous review of your work should happen in house
  - ❑ Plenty of folks out there will be looking to throw stones at your work. Better it happen with friends
  - ❑ Remember take it seriously but never take it personally!!!

# Build Intuition so You can Trust Your Instincts

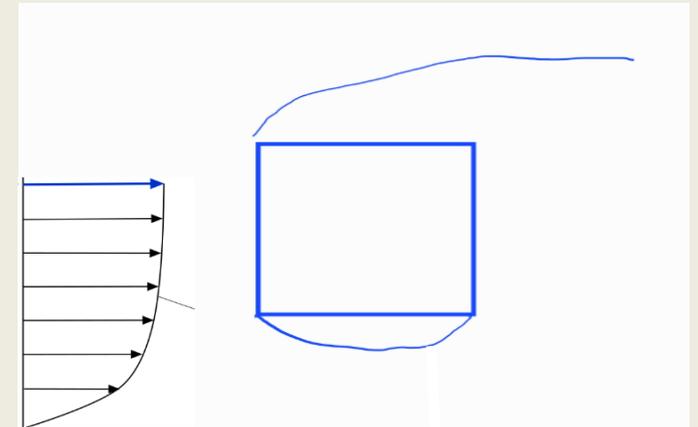
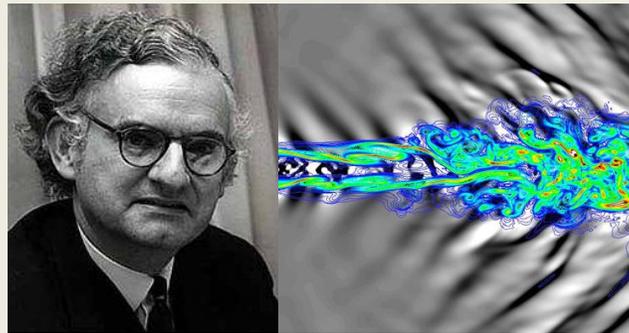
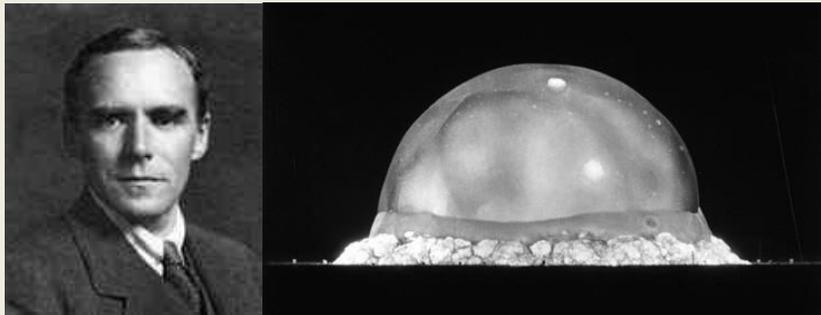
---

“Never make a calculation until you know the answer. Make an estimate before every calculation, try a simple physical argument .... before every derivation, guess the answer to every paradox and puzzle. Courage: No one else needs to know what the guess is. Therefore, make it quickly, by instinct. A right guess reinforces this instinct. A wrong guess brings the refreshment of surprise.”

- Learn the importance of order of magnitude of things
  - ❑ Let's you quickly tell when a mistake as been made
  - ❑ Let's you quickly tell what a reasonable answer is
- Pay attention to dimensional analysis
  - ❑ G.I. Taylor accurately determined the yield of the trinity explosion from two photographs
  - ❑ James Lighthill determined that noise from jet engines scales with  $U^8$  on the back of an envelope on a train ride to brief the MoD



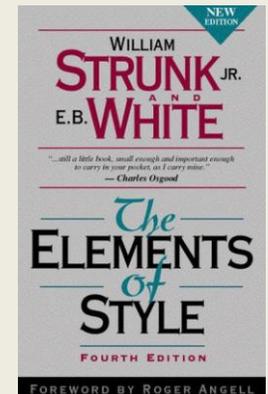
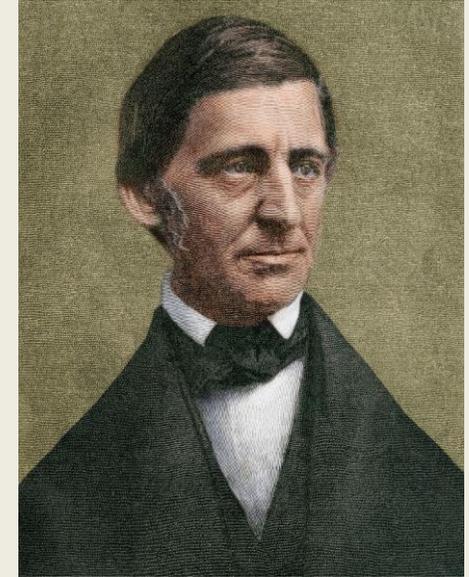
John Wheeler



# Develop Your Writing Skills

---

- “Eloquence is the power to translate a truth into language perfectly intelligible to the person to whom you speak” Ralph Waldo Emerson
- As science/engineering majors in school, we seldom have the chance to write meaningfully
- I was lucky to have a mentor who gently but sternly helped me improve my writing skills
- Some of my early reports came back to me looking like someone bleed out over them!
- Your writing reflects upon you as well as your organization
- Simple Tips
  - Learn to write precisely and concisely.
  - Avoid cliches and unnecessary language.
  - Make the paragraph the unit of composition.
  - Use the active voice.
  - Put statements in positive form
  - Use definite, specific, concrete language.



# Scholarships, Fellowships, Honors, Awards

- Needs to tell your story, and be tailored for the opportunity
- What have you done?
- What was the “impact” of it?
  - Put another way: Why should anyone care about what you did?
- Have strong references (different from employment references, these are references that actually help build/strengthen your case and story)

# Scholarships, Fellowships, Honors, Awards

- What have you done and what was its 'impact'?

Example:

- I was a member of a service organization. **Ok. Not great. Not a word on YOU.**
- I helped the organization feed 300 people. **Bit better, but still not great. It only tells me the organization is good**
- I personally organized people to distribute food and solicited sponsors to raise over \$5000. **Strong personal impact. Tells what YOU did.**

# Scholarships, Fellowships, Honors, Awards

- What have you done and what was its 'impact'?

Example:

- Faculty Member: I advised 20 graduate students to the completion of Masters and Ph.D. degrees **OK... But faculty are expected to do this, so it doesn't stand out**
- Non-faculty person: I co-advised 10 graduate students to the completion of Masters and Ph.D. degrees **Stronger... Why? Because it is above and beyond the expectation for this person's position.**

# Scholarships, Fellowships, Honors, Awards

- Who should you get for a recommendation
- OK – Someone in a good position (CEO, Dean, President)
- Better – Know you personally **Has a personal relationship w/you**
- Best – Know you and are familiar with your work  
**... And can validate the impact of your work**
- Extra bonus – From outside your organization  
**... Can show your work has impact beyond your organization**

# No time like the present...

- Start right now!
- Step up and actively participate (when the call comes, answer it)
- Break out of your bubble – Engage outside your organization
- These are lessons you can live by for life, not just right now

---

# Back-up

# Presume incompetence until malice is clearly demonstrated

---

- Most of the evil in this world is done by people with good intentions. (T.S. Elliott)
- Large organizations run on rules even if no one understands them
- “When push comes to shove you gotta do what you love even if it's not a good idea!”
- Think of the Chernobyl Nuclear Disaster (more on that later)
- These types of situations will impact you throughout your career (Conservation of Bureaucracy)
- Just keep trying to do good despite these impediments and good things will happen
- Beware of pessimists but also know that “discretion is the better part of valor”
  - ❑ When a distinguished but elderly scientist states that something is possible, he is almost certainly right. When he states that something is impossible, he is very probably wrong. (Arthur C Clarke)



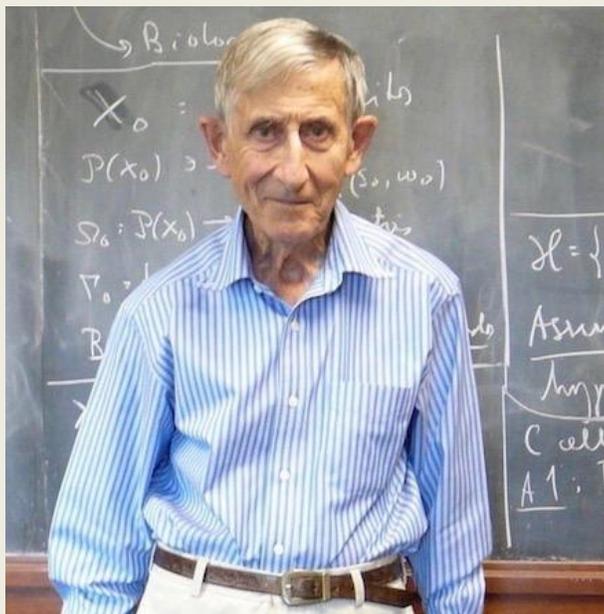
# Choose your Friends Wisely

---

- Whoever walks with the wise becomes wise, but the companion of fools will suffer harm. Proverbs 27:17 ESV
- Within most organizations you'll find two types of people
  - The Can-Do-ers
  - The We're Doomed-ers
- When I look back to the start of my career the positive people have all had great work experiences
- Not a single member of the “Doomers” was successful!

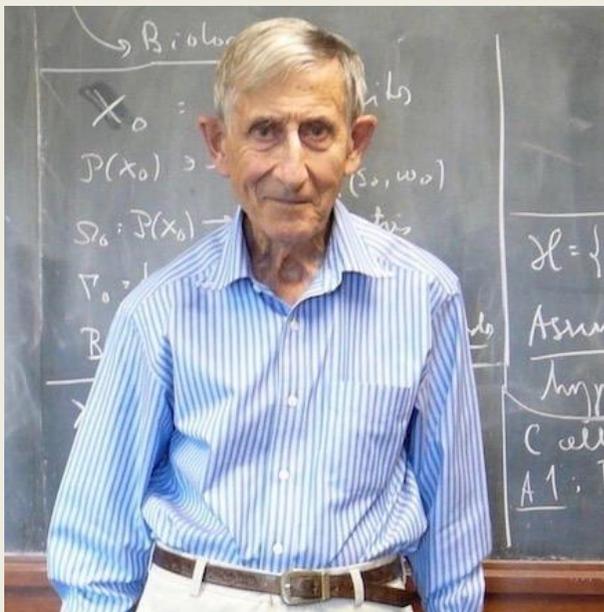


## Choose Your Own Enemies





## Choose Your Own Enemies



Freeman Dyson

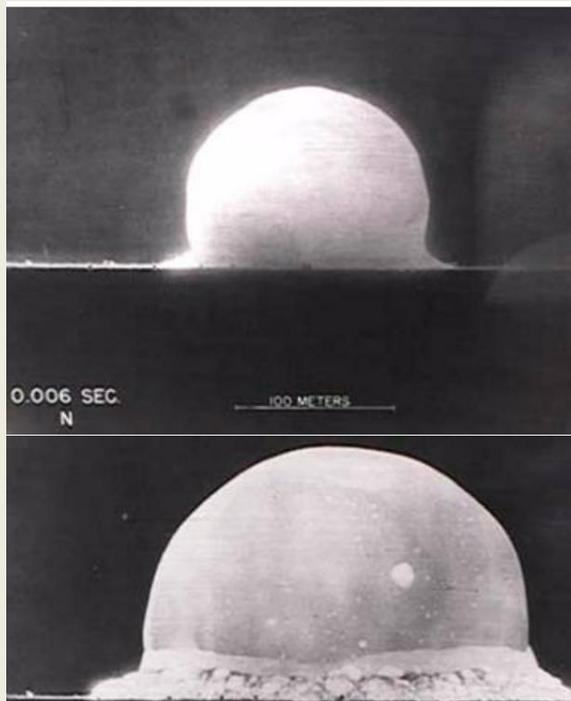


Edward Teller



Werner Heisenberg

## G.I. Taylor's Yield Estimate

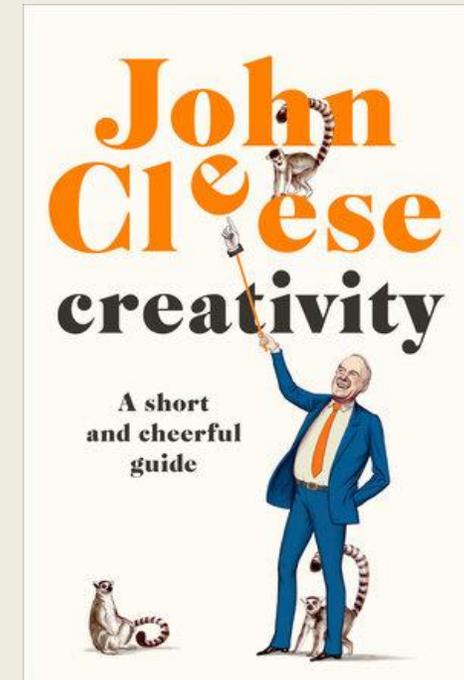


- We know that the radius  $R$  with dimensions  $[R] = L$  should depend on
  - The energy released  $E$  with dimensions  $[E] = \frac{ML^2}{T^2}$
  - Atmospheric density  $\rho$  with dimensions  $[\rho] = \frac{M}{L^3}$
  - The time  $t$  with dimensions  $[t] = T$
- From the Buckingham- $\pi$  theorem we know that
  - $[L] = \left[ \left( \frac{ML^2}{T^2} \right)^a \left( \frac{M}{L^3} \right)^b (T)^c \right]$
- Solving these algebraic equations yields  $\left( a = \frac{1}{5}; b = -\frac{1}{5}; c = \frac{2}{5} \right)$
- Thus  $R = const * (E\rho^{-1}t^2)^{\frac{1}{5}} \Rightarrow E = const * \frac{R^5\rho}{t^2}$ 
  - Two Photographs are enough to estimate the yield at 25 kilotons TNT!

---

# Make Sure to Enjoy Your Work

- John Cleese tells the story of people shown Chinese symbols one week and then were asked to identify the ones they remembered the following week
- This was hopeless and the positivity no better than random
- But when asked to identify their favorite symbols the recall rate drastically improved!
- Your brain functions better when you are happy!
- Do what's in your best interests (Within reason, Work is after all a form of social contract)
- If you try your best and things just aren't working out your feet are your freedom
- People do what is in their best interests. Find a job where you and your employer are each others best interest.



---

# Pay Attention to The Economics of What You Are Doing

- As a fresh-out I had no idea about any of this
- The first contract I won I needed to conduct a wind tunnel test with a university
- Well, the university has its own overhead as well as the company
- What was left to pay salaries what considerably less than I naively imagined
- How you organization funds its business operations is a key component to how far a contract dollar will go
- As you grow in your career be aware of these issues





AMERICAN INSTITUTE OF  
AERONAUTICS AND ASTRONAUTICS