



BETHEL
UNIVERSITY

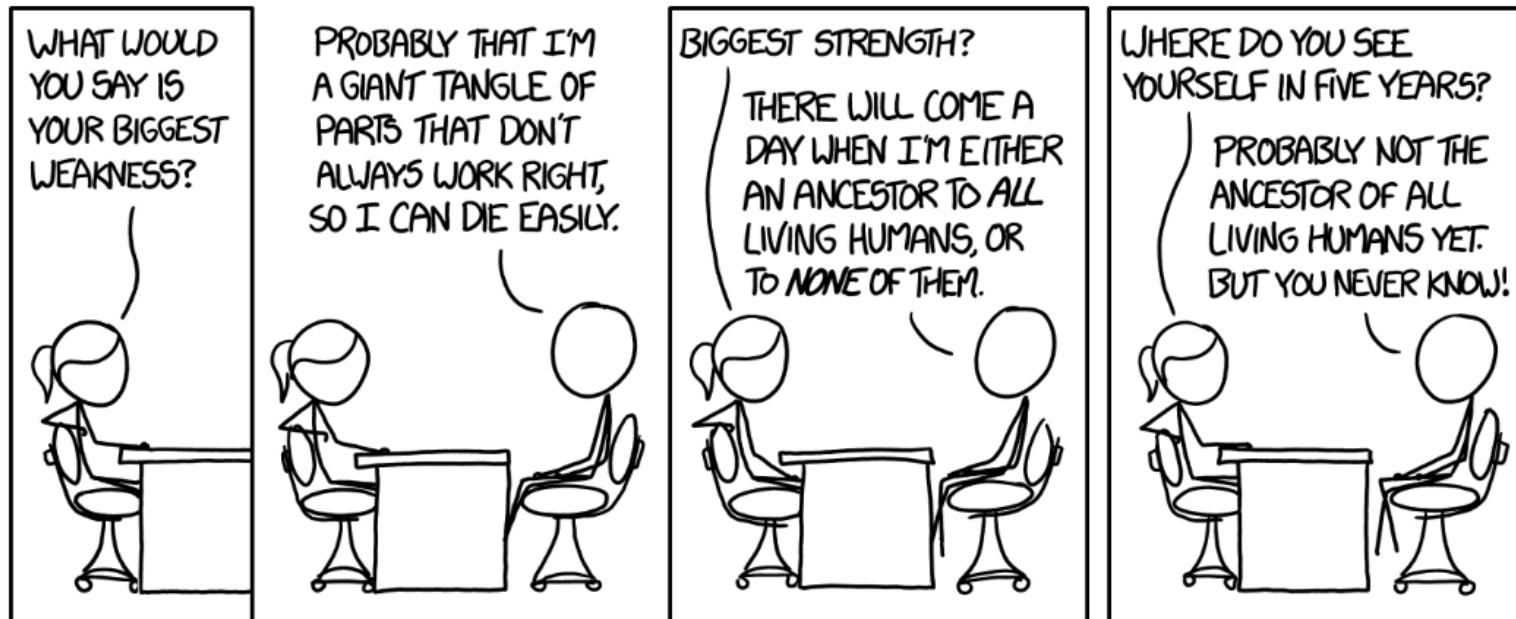
Graduate school

Interviewing & Personal Statements

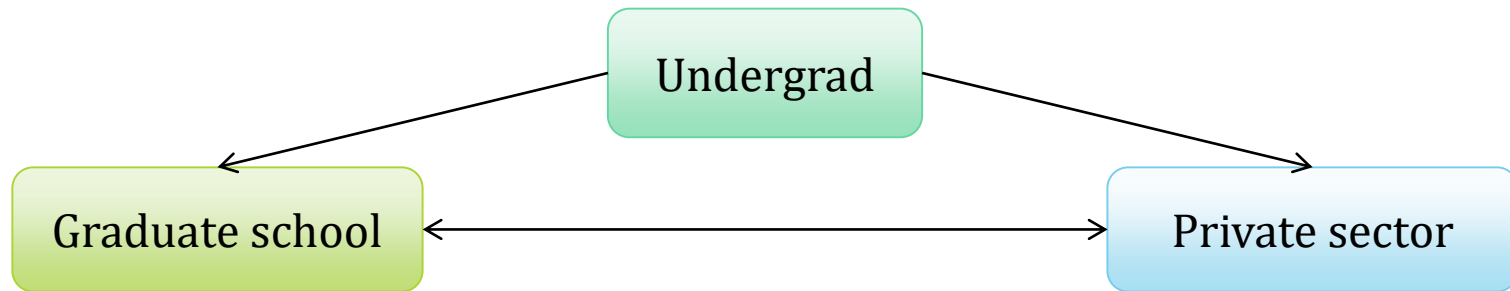
JULIE HOGAN

7/11/24

- ▶ Industry or Graduate School?
- ▶ STAR method
- ▶ Personal Statements

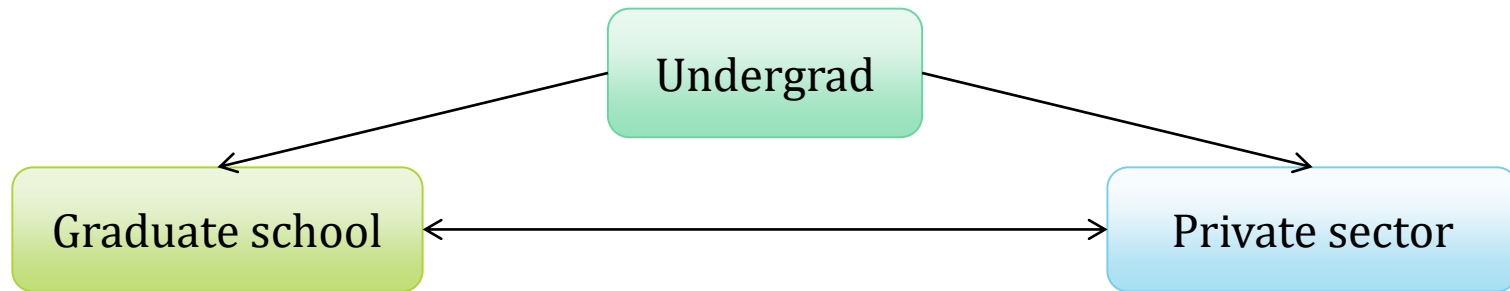


What do I actually want?



- ▶ **Deep exploration & expertise building**
- ▶ **Foundations of tomorrow's applications**
- ▶ Coursework or "non-thesis" Master's
 - ▶ Not common in STEM!
 - ▶ You pay \$\$
- ▶ "Thesis" Master's (Eng, CS) or Ph.D (Phys)
 - ▶ Students funded as TA's or by research grant
 - ▶ No cost, lower pay in school, higher later
 - ▶ **Admissions sculpted by which groups have funding for more students this year**
- ▶ **In-the-field experience building**
- ▶ **Today's applications guided by company profit**
- ▶ Typically lower \$\$ starting, but you start earlier
- ▶ Salary bumps nowadays come mostly from moving to a new company

How do I pursue one of these?



▶ **Search university websites!**

- ▶ Most departments have a page for each research concentration
- ▶ Find faculty doing research you like in multiple concentrations

▶ **Talk to current students**

- ▶ In any of your summer experiences
- ▶ On a campus visit

▶ **Maximize your transcript**

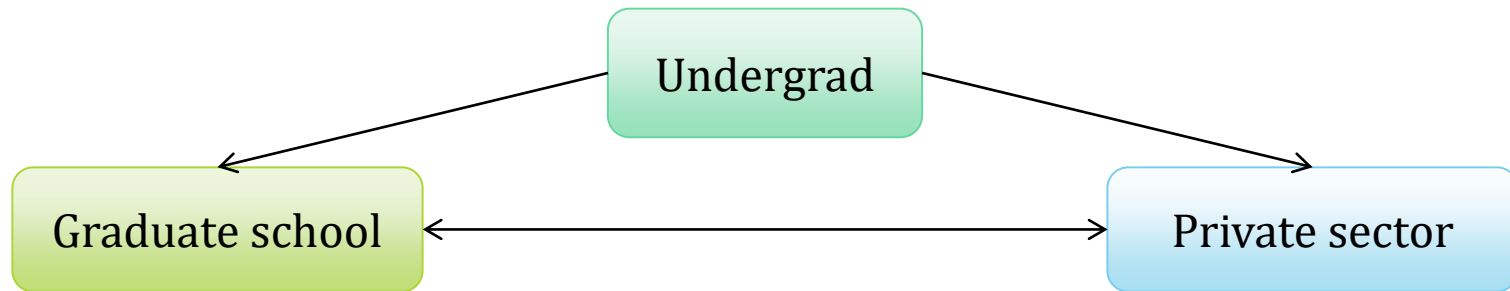
▶ **Network with letter writers**

▶ **Search company websites and sites like LinkedIn**

▶ **Talk to current employees! Do informational interviews**

▶ **Maximize your summers!**

▶ **Maximize your network!**



- ▶ Good transcript!
- ▶ Resume
- ▶ **Personal Statement**
 - ▶ **STAR stories**
- ▶ References that can speak to your research skills
- ▶ **Interviewing skills** (though likely “informal”)
 - ▶ **STAR stories**

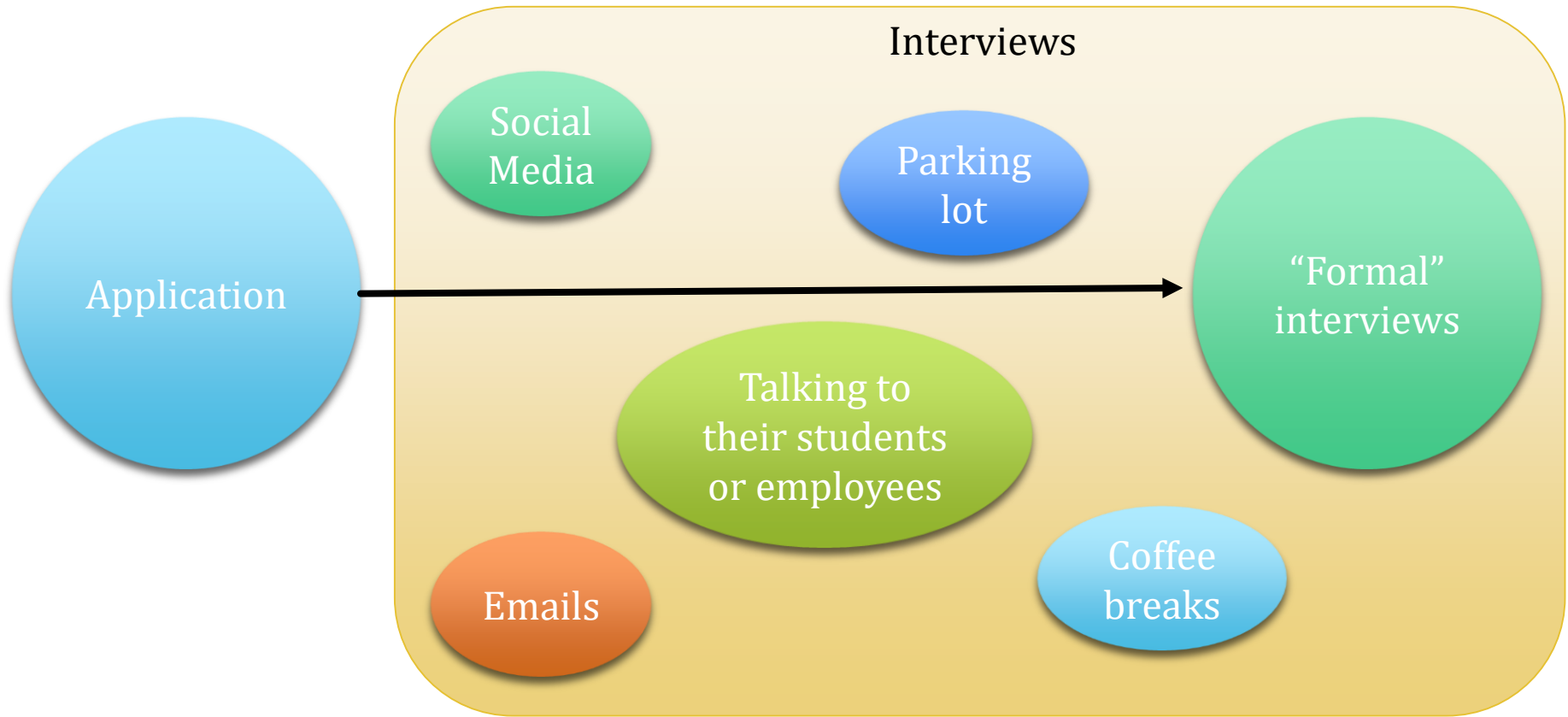
- ▶ Good portfolio!
- ▶ Resume
- ▶ **Interviewing skills** (likely “formal”)
 - ▶ **STAR stories**
- ▶ References that can speak to your technical and “soft” skills

- ▶ Early stages:
 - ▶ Screening
 - ▶ Phone interviews
- ▶ You passed! What's next:
 - ▶ Zoom interviews
 - ▶ In-person interviews
- ▶ Structures:
 - ▶ Rounds of interviews
 - ▶ “Whiteboard” interviews
 - ▶ Campus visits

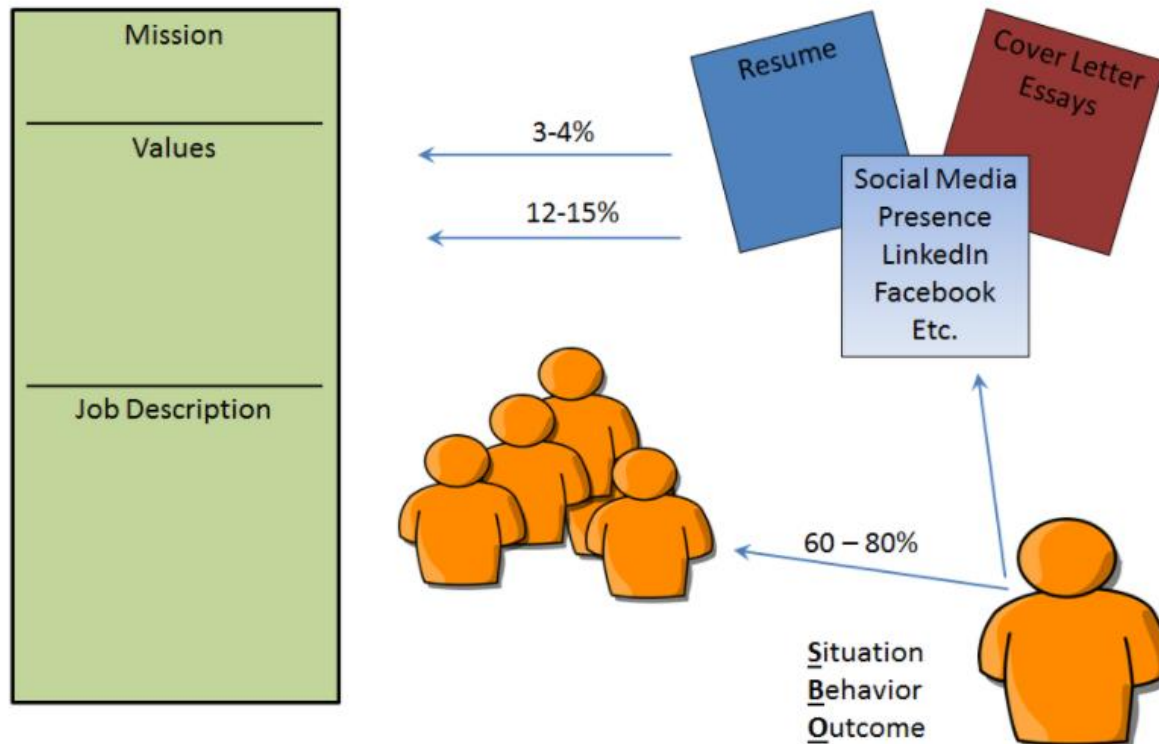


When does your interview begin?

When does your interview begin?



- ▶ **History is the best predictor of future success**
- ▶ Employers write jobs based on their mission & values
- ▶ How do your experiences help you fit their needs?





Situation

Describe an episode or situation that relates to the area they want to explore



Task

Your responsibilities and assignments for that situation



Action

How did you react to or handle that situation? What did you say and what did you do?



Response

What was the consequence? How did the situation resolve?



Situation

▶ Think about their mission/values



Task

▶ Shine your qualifications and experience in practical ways



Action

▶ Share knowledge/education background



Response

▶ Focus on professional or educational experience

▶ Try to see why they are asking...

Situation

Need: Someone who can develop relationships with clients

Q: Tell me about a specific time you've built and nurtured a professional relationship?

Task

Need: Ability to handle stressful people

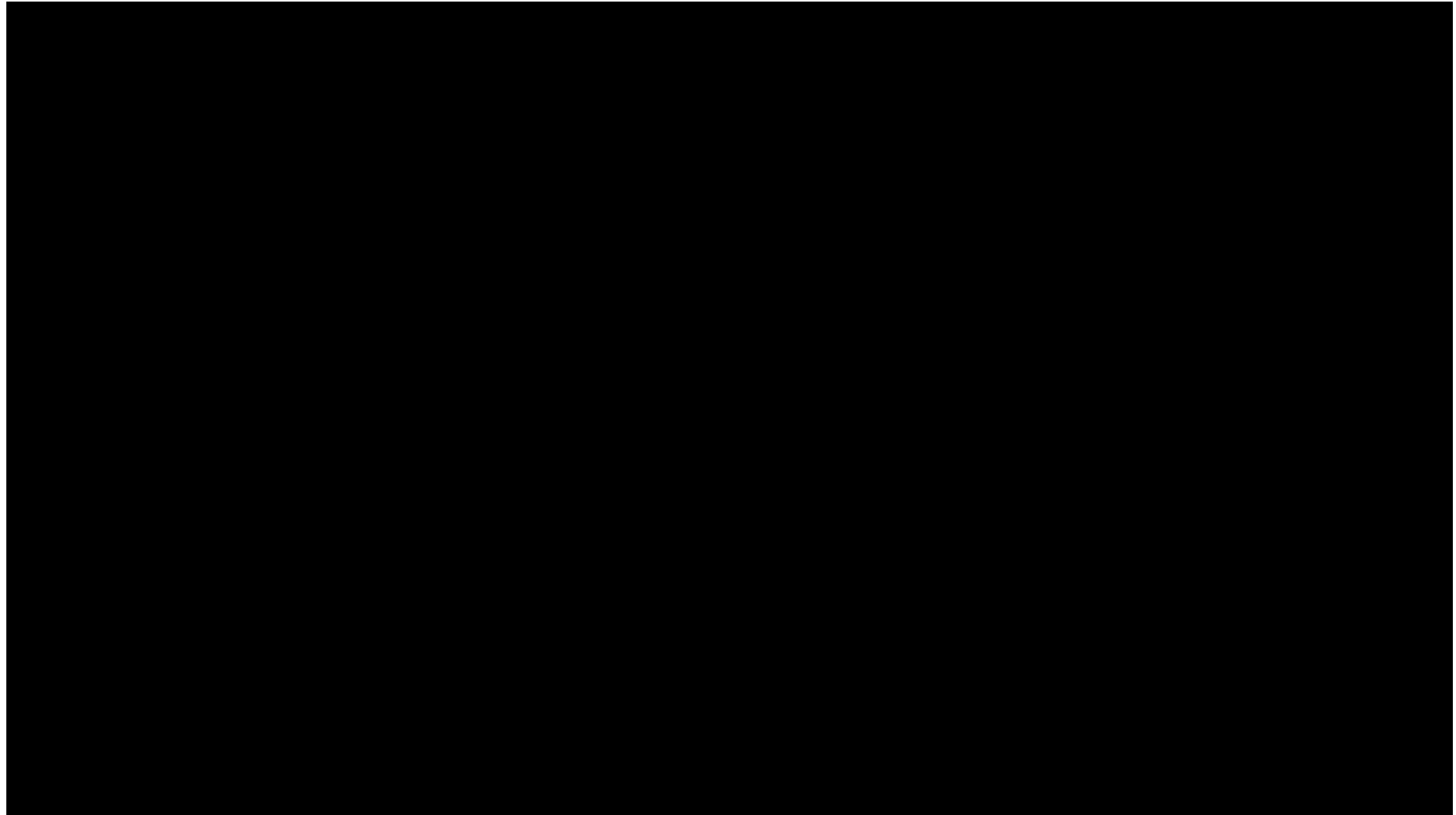
Q: Tell me about your worst customer / client / coworker / boss

Action

Need: Team player

Q: Tell me about how you get along with fellow students?

Response



► What did he do well?

► What was weaker?



What is wrong with this interview story? Choose all that apply.

"My lab group decided to use the ping pong cannon for our lab project. We studied the muzzle velocity of the cannon by using a laser and photodetector to determine the speed of the ball as it left the cannon. We then went to the football field to take range measurements. By doing some computational modeling with MATLAB we could match the ranges we observed to drag coefficients. It was a great team experience."

Select one or more:

- a. Too much "we" language instead of "I" language.
- b. The scientific description is too technical for most interviewers.
- c. The results of the project are not mentioned.
- d. People outside Bethel might not know what "the ping pong cannon" is.

What is good about this interview story? Choose all that apply.

"My lab group decided to use the ping pong cannon for our lab project. We studied the muzzle velocity of the cannon by using a laser and photodetector to determine the speed of the ball as it left the cannon. We then went to the football field to take range measurements. By doing some computational modeling with MATLAB we could match the ranges we observed to drag coefficients. It was a great team experience."

Select one or more:

- a. It shows experimental design skills.
- b. It shares details of the measurement techniques and programming skills used in the project.
- c. It highlights teamwork, so it doesn't sound too boastful.
- d. It gives good details about the soft skills acquired during the project.

- ▶ A “personal statement” serves as a written interview for many academic positions that do not hold formal interviews
- ▶ Summer positions
- ▶ Graduate school



CPP REU
NAVIGATION

CPP UAS REU Home

Application
Instructions

Research Experience for Undergraduates in UAV Technologies

1. A completed [Application Form](#).
2. A **Two-page Essay** addressing the participant’s academic background, professional experiences, interest in UAV technologies, autonomy, artificial intelligence, computer vision, robotics, unmanned systems, career goals, and plans for graduate studies. Essays should be single-spaced with a blank line between paragraphs. Use 12 point Times New Roman or Arial font with 1 inch margin in all sides.
3. Unofficial copies of your **Academic Transcript(s)**. If selected for the REU program, participants will be required to provide an official copy before the start of the summer program.
4. **Two** Letters of Recommendation from Individuals who are able to comment on the applicant’s academic ability including faculty advisors at the student’s home institution or mentors from previous research activities. Letters must be sent by the recommenders directly to cppuasreu@cpp.edu.



2. Application Requirements & Deadlines

PLEASE NOTE GRADUATE ADMISSIONS DECISIONS ARE ONLY MADE FOR THE FALL SEMESTER, WHICH BEGINS IN SEPTEMBER.

- **PhD in Mechanical Engineering.** - The PhD application requires submission of an unofficial transcript, 3 letters of recommendation, TOEFL or IELTS scores for non-native English speakers, a single personal/research statement noting specific areas of research interest, and a resume/C.V. Applicants are also required to report their GPA using the scale provided by their university (or universities); **international applicants should not convert their GPA to the US 4.0 scale.** International applicants are also strongly encouraged to list their class rank as part of their resume/C.V., and to append official documentation from their University noting this class rank.
- **MSME Thesis (Plan A)** - Similar to PhD applications, MSME Plan A applications require submission of an unofficial transcript, TOEFL or IELTS for non-native English speakers, and a single personal/research statement noting specific areas of research interest. Submission of a resume/C.V. is optional, and applicants are encouraged to have 3 recommenders submit letters on their behalf, but may have less (at least one is required). All materials are required by the Dec. 15 deadline to be considered for financial support.

- ▶ In the research world, your statement is how they get to know you and decide if you fit their team
- ▶ Same content would also fit in a “cover letter”



3. Personal Statement

Your personal statement should include:

- Professional and academic background, skills, and accomplishments
- If you are an international student, please provide the rank of your undergraduate University compared with other engineering universities in your home country
- Research interests
- Future career goals

Sample Personal Statement

Education has always been an important foundation upon which I build my goals and dreams. Without education, I would not be able to achieve my greatest ambition: to help children develop to their fullest potential. Throughout my life, my teachers and professors have helped me gain insights into our ever-changing world and also introduced me to the field of Psychology. These educators have helped me to pursue studies in Psychology and find a career match that best suits me. Throughout this process, I have known that graduate school would play an integral role in furthering my education and helping me achieve my goals. I feel that my academic work and field experiences have prepared me to engage in graduate studies in Psychology at Western Michigan University. I am fulfilling a goal I set for myself four years ago.

As an undergraduate, I immersed myself in the resources at Bradley University and especially in its Psychology Department. As a result, I have received numerous academic honors and have been given additional opportunities to work directly with professors on research projects. I performed research my senior year on impression formation, and will present the results at the annual Research Symposium upon concluding the study. This spring, a professor, who has contributed greatly to both my education and interest in behavior analysis, has asked me to work with her using behavior management techniques helping an autistic child. This will be a great opportunity to broaden and apply my academic knowledge.

It was Justice O.W. Holmes who said, “Your education begins when what is called your education ends.” Outside of my formal education, I have worked for the past four years with children of all ages. I had my first encounter with behavior analysis two years ago while I was a counselor at a summer camp, and I realized then that I wanted to make a career in this field. One of my campers, Brandon, was diagnosed with ADHD. I worked with his psychologist and his mother to learn the “stoplight” technique, which I have continued using on other children with whom I work. The experience helped me realize how much progress can be made with children that are diagnosed and treated effectively.

I have also spent the past year working for Catholic Social Services where I have gained experience working in a social services agency that helps families in crisis situations by providing counseling and other assistance. My work experiences have desired me to help children with developmental disorders progress to their greatest ability.

- ▶ “Describe your personal, educational and/or professional experiences that motivate your decision to pursue a STEM field.”
 - ▶ Why are you fascinated by your research area?
 - ▶ What leadership skills and unique characteristics do you bring to your chosen field?
 - ▶ What personal and individual strengths do you have that make you qualified?
 - ▶ How will receiving (job, internship, etc) contribute to your career goals?
- ▶ “Include specific examples of any research and/or professional activities in which you have participated. Highlight the results and specify your role in the activity.”
 - ▶ What were the key questions, methodology, findings, and conclusions?
 - ▶ Did you work in a team and/or independently?
 - ▶ How did you assist in the analysis of results?

Read Dr. Lemke's personal statement!

(check Indico...)

Box off “Who are you?” statements

Box off “Soft skills” statements

What is he sharing in the non-boxed statements?

Example: Dr. Lemke

self / goals

experiences / skills

soft skills

I intend to study optics or laser/atomic physics at Colorado. My experiences in this field includes research at NIST (Boulder) in the Time and Frequency Division, interning with Honeywell Aerospace in the Ring Laser Gyro Design Engineering group, and research done at Bethel with Dr. Richard Peterson, both in class and over the summer.

My work at NIST during the summer of 2005 was with the Student Undergraduate Research Fellowship program. I worked in Dr. Leo Hollberg's group, known as the Optical Standards Group, building an optical atomic clock based on laser-cooled Ytterbium atoms. My part of this large project was to frequency-characterize and -stabilize the laser that will serve as the local oscillator in the clock. Through this summer research, I gained much experience working with laser-cooling and trapping, laser linewidth measurements, feedback stabilization methods, and general optics and physics lab skills. **Additionally, the summer showed me what physics research looks like in a professional research lab, and energized me to pursue research in graduate school.**

Example: Dr. Lemke

I spent my junior year (including one summer) working at Honeywell in Minneapolis with the ring laser gyro design team. My role was with the life team, working to design a longer-lived laser. Some of my duties included basic intern tasks (data acquisition and presentation) but many of them **allowed me to get into the lab to conduct my own experiments**. The most significant project I conducted was to monitor the spontaneous emission of the laser as a function of run current and gas mix ratio. While at Honeywell, I was able to learn about laser physics, develop skills of data interpolation and presentation, **learn about working in an applied physics industry, and improve my oral communication skills by giving talks to teams of scientists and engineers about my projects**. I left Honeywell to pursue my fellowship at NIST.

I have taken two courses at Bethel in my chosen field: Optics and Lasers. In the traditional Optics course, my semester-long project involved heterodyne interferometry of an expansion tube (or “ping-pong cannon”). The interferometer was used to track the rapid pressure change as a function of time near the end of the tube. Some of the work done in this course led to a month-long summer project that I was involved in, and it included such things as pulsed-Schlieren photography of the same expansion tube. In addition to these projects, I also performed a shorter project dealing with time-average holography of a resonating organ pipe. In the Lasers course, my project involved taking high-speed photographs and shadowgraph images of moving bullets with a pulsed-dye laser as the light source. Other lab exercises in this course included aligning the mirrors on a homemade Helium-Neon laser and using a scanning Fabry-Perot cavity to diagnose the mode spacing and fast linewidth of a laser.

My plans for grad school are to pursue a Ph.D. in optics or atomic physics. Initially, I would welcome a teaching assistantship (**I have served as an undergraduate teaching assistant at Bethel for 3 years**), but ultimately I would like to find an interesting research project, and there are plenty such projects at CU that I think are very fascinating. *My career goals are, like many individuals', a bit uncertain*. I do have an interest in working with students as a teacher, but I have a greater interest in working in research, especially in an applied physics industry. Thus, I have chosen to pursue the industrial researcher track *for now*, and optics is my industry.

- ▶ He has lots more blue than green or orange! Your statements will start off heavier on the green/orange and transition over time toward blue.
- ▶ Class projects are a significant facet of his experience
- ▶ He makes all the discussion of classes and internships point in the same direction, toward his goal for graduate school

- ▶ Last time: think of bullet points to describe your summer experience on a resume

- ▶ Interviewing skills: email has a sheet of example questions
 - ▶ How can you answer some of the experience questions from this summer's work?
 - ▶ How can you use the STAR format for those stories?
 - ▶ Write some down!

- ▶ Personal Statement: write a paragraph about this summer's experience!