The Four Major Application Components

Personal Statement(s)
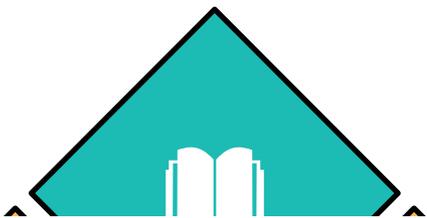
Undergraduate Transcripts

Deceptively Simple: Need to Create Your Story

Letters of Recommendation

GRE Test Scores

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Learning Objectives

Describe What Schools Want

- Application logistics
- Evidence of experience
- Evidence of skill set
- Evidence of mindset

Brainstorm What You Have

- Research & industry experiences
- Advisors/mentors/bosses
- Technical skills
- Work personality
- Your research story & passion

Application Materials

- *Transcripts and GREs*
  - Demonstrate technical knowledge and learning capabilities
- *Resume (1-2 pages)*
  - Highlights research and work experiences
  - Specifies learned skills (hard and soft)
  - References to online portfolio of technical projects
- *Personal statement (1 page)*
  - Document your experiences
  - Describe your technical skills
  - Explain path to research interest and specific area of interest
  - Discuss work characteristics and growth experiences
- *Letters of recommendation (3-4 people)*
  - People who can vouch for your intelligence, accomplishments, creativity, perseverance, and other desirable attributes

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What Are Grad Schools Looking For?

- Do you have basic CS knowledge?

Have you taken courses on expected topics, such as
- data structures,
- algorithms,
- architecture, and
- various electives?

Have you taken advanced, grad-level, or challenging courses?

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1 Minute Exercise:

Write down courses you have completed and categorize

What Are Grad Schools Looking For?

- Do you have basic CS knowledge?
- Do you know what research is?

Have you
- worked on a research project during ugrad,
- taken an independent study during ugrad,
- researched techniques for solving a complicated technical problem at work, or
- created a side project learning about state of the art approaches?

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1 Minute Exercise:

Write down your research or other investigative activities

What Are Grad Schools Looking For?

- Do you have basic CS knowledge?
- Do you know what research is?
- Are you creative?

Have you
- recognized bigger implications of results for some technical solution,
- designed new technical solutions for a project at work,
- made connections between two unrelated topics to solve a problem?

1 Minute Exercise:

Write down problems you identified or solutions you designed

What Are Grad Schools Looking For?

- Do you have basic CS knowledge?
- Do you know what research is?
- Are you creative?
- Are you self-motivated, hard-working, and persistent?

Have you
- taken independent study courses or advanced courses,
- identified key problems that need to be solved on a project,
- shown a commitment to learning specific topics,
- dedicated significant time and energy to a project,
- seen a project through to completion,
- continued working to find a solution after a first approach failed?

1 Minute Exercise:

Write down projects you completed and/or initial failures you overcame

What Are Grad Schools Looking For?

- Do you have basic CS knowledge?
- Do you know what research is?
- Are you creative?
- Are you self-motivated, hard-working, and persistent?
- Can you work independently and collaborate with others?

Have you
- taken on a specific piece of a project as your own,
- worked as a leader of a group for a specific piece of a project,
- worked collectively with others on a larger project?

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1 Minute Exercise:

Write down projects you took initiative on or were a group leader

What Are Grad Schools Looking For?

- Do you have basic CS knowledge?
- Do you know what research is?
- Are you creative?
- Are you self-motivated, hard-working and persistent?
- Can you work independently and collaborate with others?
- Do you have a research area that excites you?

Have you

- worked on a research project in an area that excites you,
- worked on a technical problem at work that makes you want to dig deeper,
- worked on a personal project whose topic you want to research formally?

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1 Minute Exercise:

Write down research topics that excite you and why

Let's Look More Closely At Individual Application Parts

What a Resume Should Include

Academic background
- CS courses in college, course work or certifications since college

Projects/employment/research
- Description of work topic
- Specific tasks and any leadership roles or independent tasks
- Outcomes - software applications, training materials, publications, web pages

Technical competitions and awards
- CSGrad4US Fellow, including years and level of funding
- ACM Programming contest, Math Olympiad, Putnam exam (incl. scores)

Skills
- Technical skills (e.g., programming languages, tools, libraries, etc.)

Personal Portfolio and Activities
- Links to web pages for open-source or personal projects
- CS outreach or volunteer work

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Creating an online professional persona

- A LinkedIn page is a good way of making yourself visible
- A personal webpage gives you a place to provide more details about you and your work. Include:
  - Research interests
  - Publications and projects
  - Link to CV/bio
  - Teaching materials (if you have any)
  - Media coverage (if any, no worry if you don't)
  - Some personal information (if you want to share, not required)

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Creating a Strong Resume

- ***Opportunity to provide more information than just the personal statement***
  - Can provide more information on specific job activities
  - Can provide information about technical extracurricular activities
    - Including links to online presence and portfolio
  - Can provide information about specific technical skills
- ***Be succinct and use active words***
  - Own your contributions and successes
  - Discuss independent and creative work
  - Specify leadership and collaborative experiences

Resumé vs CV

- A resume is concise, brings up skills and experiences.
- A CV (curriculum vitae) is longer and includes more details. Academics use CVs, which can be many pages long and cover their research, teaching and service activities.
- Both have to be kept up to date. Everything relevant should be added regularly to the CV to keep it up to date. The resumé is tailored to the specific recipient (industry, academia, granting agency, etc).
- There are many career centers that provide examples and guidelines for resumes for different levels.

Discuss Example Resume - Grad

Discuss Example CV - UGrad

Writing an Effective Personal Statement

- Describe your prior research experience

- Describe your future research interests

- Describe your reason for wanting to get a PhD

- Demonstrate that you have ideas for interesting and important problems to study

- Personalize your statement with at least one paragraph about why the department and/or specific faculty interest you

- Discuss any discrepancies or rough patches on your path

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What is Motivating You?

- ***Why did you go to industry after college?***
  - Tired of studying
  - Didn't know what interested you
  - Family commitments
  - Student loan repayment
- ***What is motivating you to now want to pursue a PhD?***
  - You discovered a topic you're passionate about
  - You want to work on different, more open-ended problems
  - You want to be the person determining questions being studied
  - You enjoyed research while in college and always intended to return to graduate study

1 Minute Exercise: Motivation

Write down your motivations for going to industry and now for pursuing a PhD

3 Minute Exercise

Read over sample personal statement

Breakout Rooms

Discuss Features of Personal Statement Schools are Looking For

Breakout Room Summary

Weaving Pieces Together to Tell Your Research Path Story

Use answers to earlier questions:
- How have your experiences (in research, industry, extra-curricular activities) shaped your motivation to get a PhD?
- How have your experiences shaped what interests you?
- How have your experiences helped you develop skills needed to get a PhD in chosen area?
  - Technical skills
  - Soft skills (e.g., leadership, collaboration, communication)
  - Personal characteristics (e.g., persistence, initiative)
- How has recovery from failure strengthened your ability or commitment to pursuing research?

3 Minute Exercise: Reflections

Reflect on the questions listed on the previous page, making connections

Getting Strong Letters of Recommendation

3-4 Letters Typically Required
Have at least one letter from a faculty member with whom you worked closely. No letters from TAs. Limit letters from lower-level instructors.

Make Each Letter Count
A letter that only says *"this student did well in my class"* is not very helpful.

Letters from Other Disciplines
It can be hard to find 3-4 CS professors who know you well. It's okay to have letters from faculty in related fields (e.g., EE, Math, etc.)

Work Supervisors
A letter from a work supervisor is good. They can speak to recent work experience.

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Determining Who to Ask

Letter writers corroborate your story through their observations of you while you worked with them

- Who can attest to criteria being looked for in grad school application?
    - Attest to your problem-solving abilities
    - Attest to your intellectual capability
    - Attest to your creativity
    - Attest to potential to engage in research
    - Attest to your ability to work independently
    - Attest to your ability to work in a group
    - Attest to your ability to lead a group
    - Attest to your written and verbal communication skills
    - Attest to your ability to recover from failure and persevere
    - Attest to your ability to work hard
    - Attest to any challenges you faced along the way

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1 Minute Exercise: Brainstorm People

- Did you work with a faculty member on a research or software development project?
- Did you do a research internship, perhaps at another school, at a lab, or in industry?
- Did you take an advanced class from a faculty member and later serve as its TA?
- Did you work on a development team implementing cutting edge techniques or research ideas? Could the lead on that team speak to your strengths?
- Do you have a work mentor/boss who can speak to your independent work, creativity, perseverance, follow-through, ability to adapt to lack of initial success or challenges, ability to collaborate, ability to lead a group?

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How to Ask for a Recommendation

- *Ask at least a month in advance*
- *Ask if they can write a strong, positive letter and give them a way to say "no"*
  - *"I'm applying to graduate school. Would you feel comfortable writing a positive letter for me? If so, I'd be grateful. If you are not able to do this for any reason, I'll certainly understand."*
- *Provide fodder for their letter*
  - Application - resume, statement of purpose, web presence
  - Reminder of significant events that you participated in and excelled at
  - Offer to have a conversation to update them on your career and goals
- *Provide industry writers with guidance on what to include*
  - Concrete experiences and projects
  - Strengths and weaknesses
  - Personal characteristics - Independence, creativity, motivation, follow-through, communication, leadership, teamwork, etc.

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GRE Exam and Scores

- Check if GRE Scores are required by the institutions that you are applying to

- Investigate the expected GRE score ranges, and the scores importance to the application

- Prepare for the exam! Taking practice tests can help immensely

- You can retake the exam if you feel you could do better. However, the previous scores will still appear on your application

Resources:
- https://www.princetonreview.com/grad/gre-information
- http://www.ets.org/gre

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Questions?