



# External Fellowship Application Clinic

September 10, 2019

# PANELISTS



**Steve Bucher**

Professor of Technical Communication Practice and  
Engineering Writing Program Director



**Maja Mataric**

Professor of Computer Science  
and Vice Dean for Research



**Chelsea Applegat**

Aerospace Engineering PhD  
NASA Space Technology Fellow



**Jeffrey Santoso**

Biomedical Engineering PhD  
NSF Graduate Research Fellow



**Emily Anne Vargas**

Materials Science PhD  
NSF Graduate Research Fellow  
GEM National Consortium Fellow

# WHY FELLOWSHIPS?



- **Flexibility**

- Advisor & topic
- Less dependent on an advisor's grant funding

- **Money**

- Fellowship stipends tend to be larger than RA stipends
- Graduate School provides additional top-off stipend

- **Prestige**

- Future opportunities

# OPPORTUNITIES



**NSF, NDSEG, Hertz, DoE**

**DoD, NIH, Soros, URM**

USC Awards and Fellowship Database

<http://awardsdatabase.usc.edu/>

Other Fellowship and Scholarship Resources

<https://viterbigrad.usc.edu/tuition-and-funding/doctoral-funding-2/>

# WEBSITES & ESTIMATED DEADLINES



**NSFGRFP Deadline: October 22, 2019**

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=6201&org=NSF&sel\\_or\\_g=ENG&from=fund](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=6201&org=NSF&sel_or_g=ENG&from=fund)

**Hertz Deadline: October 23, 2019**

<http://hertzfoundation.org/dx/fellowships/application.aspx>

**Soros Deadline: November 1, 2019**

<http://www.pdsoros.org>

**Department of Energy, CSGF: TBA**

The 2018-2019 application will be available late October 2019.

<https://www.krellinst.org/doecsgf/application/>

# WEBSITES & ESTIMATED DEADLINES



**NIH Predoctoral Deadline: September – December 2019**

<http://grants.nih.gov/grants/funding/submissionschedule.htm>

**GEM Deadline: November 12, 2019**

<http://www.gemfellowship.org/gem-fellowship>

**NDSEG Deadline: TBA**

<https://www.ndsegfellowships.org/>

**Ford Predoctoral Deadline: December 17, 2019**

<http://sites.nationalacademies.org/pga/fordfellowships/index.htm>

**NASA Space Technology Deadline: TBA**

<https://www.nasa.gov/strg/nstrf>

# STRUCTURE OF MOST APPLICATIONS



- **Forms**
  - **Transcripts**
  - **Essays**
  - **Letters of Reference**
  - **(GRE scores)**
- 
- **Similar, but **different** from grad school applications**

# APPLICATION CONTENT



## NSF FastLane

- Personal, Relevant Background and Future Goals Statement (3 pages)
- Graduate Research Statement (2 pages)
- Transcripts, uploaded into FastLane
- **Three** letters of reference required
  
- Additional information required for some candidates See Solicitation for eligibility requirements (available on [www.nsfgrp.org](http://www.nsfgrp.org))

# ESSAYS



**Goal:** Convince the agency that you will make an excellent researcher

- Describe a research problem
- Pose some ideas/solutions about the problem
- You do not need to solve the problem
- You can change your mind afterwards

**Differentiate yourself from the other applicants**

- We (faculty) can look over your essays and give suggestions
- Write an early draft and refine/polish based on feedback

# GRADUATE RESEARCH PLAN (2 PAGES)



**Present an original research topic that you would like to pursue in graduate school.**

**Describe the research** idea, your general approach, as well as any unique resources that may be needed for accomplishing the research goal (i.e., access to national facilities or collections, collaborations, overseas work, etc.)

**You may choose** to include important literature citations. Address the potential of the research to advance knowledge and understanding within science as well as the potential for broader impacts on society.

**The research discussed** must be in a field listed in the Solicitation (Section X, Fields of Study).

- [https://www.nsfgrfp.org/applicants/application\\_components](https://www.nsfgrfp.org/applicants/application_components)

# GRADUATE RESEARCH PLAN (2 PAGES)



## Important questions to ask yourself before writing the statement:

- What issues in the scientific community are you most passionate about?
- Do you possess the technical knowledge and skills necessary for conducting this work, or will you have sufficient mentoring and training to complete the study?
- Is this plan feasible for the allotted time and institutional resources?
- How will your research contribute to the "big picture" outside the academic context?
- How can you draft a plan using the guidelines presented in the essay instructions?
- How does your proposed research address the Intellectual Merit and Broader Impacts criteria?

# GRADUATE RESEARCH PLAN (2 PAGES)



## Proposed Research Plan:

- Clearly defined research question or hypothesis
- Show plan of research for time on fellowship
- Reflect your understanding of good research design and methodology, including literature references (space allowing)
- Show any connection to your previous research
- Must reflect both criteria
- Solid anchoring in previous work
  - Innovative and ambitious step forward

# How Do I Pick A Problem?



- **Read Tutorial / Survey / Review Papers**
- **Talk to Faculty / Senior Grad Students**
- **Attend Group Meetings**
- **Do Directed Research**

## What being a Ph.D. Researcher is all about

\*Being pro-active will make you a more successful researcher\*

# PERSONAL, RELEVANT BACKGROUND AND FUTURE GOALS STATEMENT (3 PAGES)



**How do you envision graduate school preparing you for a career that allows you to contribute to expanding scientific understanding as well as broadly benefit society?**

**Describe your personal**, educational and/or professional experiences that motivate your decision to pursue advanced study in science, technology, engineering or mathematics (STEM).

**Include specific examples** of any research and/or professional activities in which you have participated.

**Present a concise description** of the activities, highlight the results and discuss how these activities have prepared you to seek a graduate degree.

**Specify your role** in the activity including the extent to which you worked independently and/or as part of a team.

**Describe the contributions** of your activity to advancing knowledge in STEM fields as well as the potential for broader societal impacts (See Solicitation, Section VI, for more information about Broader Impacts) [https://www.nsfgrfp.org/applicants/application\\_components](https://www.nsfgrfp.org/applicants/application_components)

# PERSONAL, RELEVANT BACKGROUND AND FUTURE GOALS STATEMENT (3 PAGES)



NSF Fellows are expected to become globally engaged knowledge experts and leaders who can contribute significantly to research, education, and innovations in science and engineering. The purpose of this statement is to demonstrate your potential to satisfy this requirement. Your ideas and examples do not have to be confined necessarily to the discipline that you have chosen to pursue.

If you have completed more than 12 months of graduate or post-baccalaureate study or a professional degree and an interruption of at least two consecutive years (fourth option under Completed Study in the NSF GRFP Program Information section), please address the reasons for the interruption in graduate study here. Please refer back to that section for details.

# PERSONAL, RELEVANT BACKGROUND AND FUTURE GOALS STATEMENT (3 PAGES)



## Important questions to ask yourself before writing the statement:

- Why are you fascinated by your research area?
- What examples of leadership skills and unique characteristics do you bring to your chosen field?
- What personal and individual strengths do you have that make you a qualified applicant?
- How will receiving the fellowship contribute to your career goals?
- What are all of your applicable experiences?
- For each experience, 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?
- How did your activities address the Intellectual Merit and Broader Impacts criteria?

# PERSONAL, RELEVANT BACKGROUND AND FUTURE GOALS STATEMENT (3 PAGES)



- **Show skills, potential, and interest in:**
  - Research
  - Education
  - Innovations
- **Don't limit your descriptions to engineering-related efforts only**
- **What's made you interested in research?**
- **What are your strengths?**
- **How have you shown leadership?**
- **Reflect both main criteria**

# REVIEW CRITERIA



**Intellectual Merit:** this criterion encompasses the potential to advance knowledge

**Broader Impacts:** this criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes

# REVIEW CRITERIA



The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
  - A. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
  - B. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

[https://www.nsfgrfp.org/applicants/application\\_components](https://www.nsfgrfp.org/applicants/application_components)

# REQUIRED ESSAYS - CRITERIA



## Intellectual Merit:

- Reflects your intellect
- Demonstrates education
- Shows experience with and potential for research
- Shows you can work in a team
- Shows you can work independently
- Shows you can communicate your findings
- Shows you can be a leader

# REQUIRED ESSAYS - CRITERIA



## Broader Impacts:

- Benefits society
- Contributes to the larger canon of work
- Reflects well on your discipline
- Shows your excitement
- Can be understood by broad audience

# REFERENCE LETTERS



## Who can best speak to your abilities as a researcher?

- Self-starter/independent
- Creative
- Hardworking/diligent
- Raw smarts

## Who should write these letters?

- Faculty at USC
- Faculty from your undergraduate institution
- Summer employers (PhDs?)
- Have faculty help you choose your set of referees

## Help referees write their letters

- If at USC, get to know them well beyond “XYZ did great in my class”

## Provide

- Transcripts
- Drafts of essays
- List of deadlines
- Addressed envelopes (if letters are to be mailed)
- Reminders (send e-mails)

# PREPARING A COMPETITIVE APPLICATION



## Reference Letters

- Choose at least **three** reference writers
- Give them ample time to prepare their letters
- They should know you as a scientist and personally
- Share your application materials and the merit review criteria (good letters address Intellectual Merit and Broader Impacts)
- Track letter submission using FastLane; you must have 3 letters for a complete application
- [https://www.nsfgrfp.org/applicants/application\\_components](https://www.nsfgrfp.org/applicants/application_components)

# EVALUATION OF APPLICATIONS



- Panelists are academic and research experts in general discipline, not necessarily in your research topic
- Panelists rate your application using the two Merit Review Criteria, Intellectual Merit and Broader Impacts
- NSF requests panelists to provide constructive comments (applicants receive anonymous copies of the reviews)
- Panels make recommendations to NSF
- NSF awards fellowships and honorable mentions

# TIPS FROM AWARDEES



- **Start early, taking significant time to compose essays, and rewrite.**
- **Demonstrate your personal motivation and excitement for research.**
- **Spend time to thoroughly research your topic.**
- **Integrate essays to create singular theme, link the content together.**
- **Keep essays clear and simple to read.**
- **Give essays to many people for review.**
- **Get input from professors or university administration.**
- **Get input from previous applicants or winners.**
- **Thoroughly address both [Intellectual Merit and Broader Impacts](#).**
- **Be sure you adequately address the [Broader Impacts](#) criterion.**

# TIPS FROM AWARDEES



- **Be sure to include all volunteer, leadership, and extracurricular activities.**
- **Highlight the significance of your research and how it will impact society.**
- **Pay close attention to language in the [Program Solicitation](#).**
- **Focus on getting strong recommendation letters.**
- **Mention what sets you apart from a typical applicant - be unique!**

[https://www.nsfgrfp.org/applicants/tips\\_for\\_applying](https://www.nsfgrfp.org/applicants/tips_for_applying)

# TIPS FROM REVIEWERS



- **Gain research experience, especially at the undergrad level (for example, see [NSF's REU program](#)).**
- **Become involved in leadership roles and community service.**
- **Write clear and scientifically-sound essays.**
- **Strive for scientific publications and presentations.**
- **Have a strong academic record.**
- **Be sure to demonstrate the [Broader Impacts](#) criteria well.**
- **Select strong recommenders.**
- **Link your teaching and research experiences.**
- **Ensure you display a history of accomplishments.**
- **Thoroughly address both [Intellectual Merit and Broader Impacts](#).**

# TIPS FROM REVIEWERS



- **Highlight any international experience you may have.**
- **Display your passion and motivation in the essays.**
- **Be knowledgeable of your research topic.**
- **Demonstrate the significance of your proposed work.**
- **Make sure the proposed research is realistic.**

[https://www.nsfgrfp.org/applicants/tips\\_for\\_applying](https://www.nsfgrfp.org/applicants/tips_for_applying)

# CONTACT RESOURCES



Your Advisor

Steve Bucher, Director of the Engineering Writing Program – [sbucher@usc.edu](mailto:sbucher@usc.edu)

Jennifer Gerson, Director of Doctoral Programs – [jgerson@usc.edu](mailto:jgerson@usc.edu)

NSF PowerPoint <https://www.nsf.gov/pubs/2019/nsf19590/nsf19590.pdf>

VASE website - Other Fellowship and Scholarship Resources  
<https://viterbigrad.usc.edu/tuition-and-funding/doctoral-funding-2/>