



Award EEC-1560107

Program Application Form

**National Science Foundation (NSF)
Research Experiences for Undergraduates (REU)
Program in Automotive Engineering at the
Technische Universität Darmstadt and Virginia Tech**

Application deadline: February 1, 2019 (postmarked)

Program Contact: Prof. Jan Helge Bøhn, Ph.D., Mechanical Engineering, bohn@vt.edu
Program Locations: Blacksburg, Virginia, USA; and Darmstadt, Hessen, Germany
Program Dates: Blacksburg: June 3 – August 9, 2019 (does not include travel days)
Darmstadt: May 30 – August 10, 2019 (includes travel days)

APPLICATION INSTRUCTIONS

1. Complete Sections 1-10 of this program application. Be sure to put your name on top of each page. Please print and write clearly. Type if necessary (e.g., using the “Typewriter Tool” within *Adobe Acrobat*). Sign and date your application.
2. Fill in and sign, as needed, the top of your *Letter of Reference* forms. Provide each of your academic referees with one of these forms, and ask them to return it to you in a sealed envelope that they have signed across the envelope seal.
3. Be certain to include all the required information in the spaces provided, and to adhere to specific space limitations where noted. Place your complete application, including the proof of passport (required for the students traveling to Germany), an official copy of your undergraduate transcripts, and the letters of reference, in a single envelope.
4. Send this envelope to:
NSF REU: Automotive Engineering
Prof. Jan Helge Bøhn, Ph.D.
Mechanical Engineering (0710)
Randolph Hall, 114-H, Virginia Tech
460 Old Turner Street
Blacksburg, VA 24061, USA
5. The postmark deadline for submission of all materials is February 1, 2019.

APPLICATION CHECKLIST

The following items must be submitted (postmarked) in a single envelope to the above address by February 1, 2019:

- Program Application Form
- Statement of Purpose
- Description of Research Experiences
- Two Letters of Reference (i.e., one from each of your academic references; faculty, not staff), with each signed across the seal of the closed envelope
- Official undergraduate academic transcripts
- Proof that you own, or have applied for, a passport allowing international travel (only required for students that want to be considered for a position in Germany); U.S. permanent residents also need to include a copy of their I-551 (permanent residency card)

If you are admitted into this program, you will be informed of your assigned project and work location (i.e., Blacksburg or Darmstadt). If you accept this offer, you will be required to also submit the following documents:

- **Signed and dated Program Liability Form**
http://www.tud.vt.edu/REU/Program_Liability_Agreement.pdf
- **Emergency Contact Information**
http://www.tud.vt.edu/REU/Emergency_Contact_Information.pdf
- **Direct Deposit Form**
<http://www.tud.vt.edu/REU/DirectDepositForm.pdf>

You will furthermore be required to provide information necessary to facilitate the management and operation of this NSF REU program, such the purchase of airline tickets, the assignment of housing, the registration of optional courses, and the disbursement of funds.

PROGRAM ELIGIBILITY

This NSF REU program is restricted to students that:

- Are U.S. citizens, U.S. permanent residents, or U.S. nationals;
- Are at least 18 years of age on January 1, 2019;
- Have completed their freshmen year (two semester of studies) of an engineering/science bachelor degree program by June 1, 2019; and
- Have at least one full semester left of their engineering/science bachelor degree program (i.e., will not be graduating prior to December 2019).

For further information, please contact:

Prof. Jan Helge Bøhn, Ph.D.
Mechanical Engineering (0710)
Randolph Hall, 114-H, Virginia Tech
460 Old Turner Street
Blacksburg, VA 24061
USA

Telephone: +1-540-231-3276
Fax: +1-540-231-9100
E-mail: bohn@vt.edu
<http://www.tud.vt.edu/REU>

Section 1: GENERAL INFORMATION

Name: _____ Student ID: _____

Academic Department: _____

Department Chair or Academic Advisor: _____

Institution: _____

Institution Address: _____

Telephone: _____ Fax: _____

Which NSF REU program site would you *prefer* to be assigned to?

Check one: Virginia Tech Technische Universität Darmstadt No preference

Which NSF REU program site will you *accept* to be assigned to?

Check all that apply: Virginia Tech Technische Universität Darmstadt

Section 2: ACADEMIC INFORMATION

Class Standing as of June 1, 2019: Sophomore Junior Senior

Official Major(s) / Minor(s): _____

Degree Objective: B.A. B.S. Other: _____

Expected Graduation Date:

Cumulative GPA: _____ out of _____ / 20 _____

Rank in class: _____ out of _____

Academic Reference (letter #1) – Name: _____

Department: _____ University: _____

Email: _____ Phone: _____

Academic Reference (letter #2) – Name: _____

Department: _____ University: _____

Email: _____ Phone: _____

Applicant's Name: _____

Section 3: CONTACT INFORMATION

Local Address

- Check this box if you give permission for your local contact information shown below to be shared with the other NSF REU students in the Summer 2019 cohort.

Street: _____
City, State, ZIP: _____
Telephone: _____ E-mail: _____

Permanent Address

- Check this box if you give permission for your permanent contact information shown below to be shared with the other NSF REU students in the Summer 2019 cohort.

Street: _____
City, State, ZIP: _____
Telephone: _____ E-mail: _____

Section 4: ADDITIONAL INFORMATION

Birthday: ____ / ____ / ____ (MM/DD/YYYY)

Citizenship Status: U.S. Citizen / National U.S. Permanent Resident Other

If Permanent Resident / Other, Country of Citizenship: _____

The following information is being collected to facilitate housing assignments:

Gender: Male Female

How did you learn about this particular NSF REU program? Please be specific:

Applicant's Name: _____

Travel Experience

4a: I have been outside the USA I have never been outside the USA

4b: Some None -- of my siblings have been outside the USA I do not know or N/A

4c: Some None -- of my parents have been outside the USA I do not know

Your travel outside the USA, if any:

Country	Year(s)	Duration	Purpose

Language Proficiency

Proficiency (Excellent, Good, Fair)

Language	Years of Study	Reading	Writing	Speaking

Applicant's Name: _____

Prior Research Experience

Have you ever participated in an NSF REU project before?

NO YES → topic: _____

→ location: _____

YES → topic: _____

→ location: _____

Have you ever participated in undergraduate research project before, other than an NSF REU?

NO YES → topic: _____

→ location: _____

YES → topic: _____

→ location: _____

Future Plans

Do you plan to immediately pursue graduate studies (e.g., MS and/or Ph.D.) in engineering or natural science upon earning your BS degree? Check one answer.

Definitely NO Probably NO Probably YES Definitely YES

Do you plan to eventually pursue graduate studies (e.g., MS and/or Ph.D.) in engineering or natural science upon earning your BS degree? Check one answer.

Definitely NO Probably NO Probably YES Definitely YES

Do you plan to study abroad (one semester or more)? Check one answer.

Definitely NO Probably NO Probably YES Definitely YES

Do you plan to work abroad (six months or more)? Check one answer.

Definitely NO Probably NO Probably YES Definitely YES

Applicant's Name: _____

U.S. Veteran Status

Additional research positions may be available to veterans under Title 5 U.S. Code 2108 that are full or part-time STEM undergraduate or graduate students at U.S. universities, institutes, and colleges.

Are you a veteran under Title 5 U.S. Code 2108? See definition below. Check one answer.

YES NO Prefer not to answer

Under Title 5 U.S. Code 2108, a veteran means an individual who:

- A. served on active duty in the armed forces during a war, in a campaign or expedition for which a campaign badge has been authorized, or during the period beginning April 28, 1952, and ending July 1, 1955;
- B. served on active duty as defined by section 101(21) of title 38 at any time in the armed forces for a period of more than 180 consecutive days any part of which occurred after January 31, 1955, and before October 15, 1976, not including service under section 12103(d) of title 10 pursuant to an enlistment in the Army National Guard or the Air National Guard or as a Reserve for service in the Army Reserve, Navy Reserve, Air Force Reserve, Marine Corps Reserve, or Coast Guard Reserve;
- C. served on active duty as defined by section 101(21) of title 38 in the armed forces during the period beginning on August 2, 1990, and ending on January 2, 1992; or
- D. served on active duty as defined by section 101(21) of title 38 at any time in the armed forces for a period of more than 180 consecutive days any part of which occurred during the period beginning on September 11, 2001, and ending on the date prescribed by Presidential proclamation or by law as the last date of Operation Iraqi Freedom; and, except as provided under section 2108a, who has been discharged or released from active duty in the armed forces under honorable conditions.

Applicant's Name: _____

Section 5: TEAMOLOGY

The purpose of this section is to determine your personality type. We will only use this information to facilitate composing more effective research teams based on the principles of teamology. There are no socially preferable or correct answers to this section, in that it has been found that diverse teams often outperform homogenous ones.

Circle zero, one or two alternatives for each of 20 questions

1. You are more: (A) sociable (B) reserved
2. You are more: (A) expressive (B) contained
3. You prefer: (A) groups (B) individuals
4. You learn better by:..... (A) listening..... (B) reading
5. You are more: (A) talkative (B) quiet
6. You are more: (C) systematic (D) casual
7. You prefer activities: (C) planned (D) open-ended
8. You work better:..... (C) with pressure..... (D) without pressure
9. You prefer: (C) routine (D) variety
10. You are more: (C) methodical (D) improvisational
11. You prefer the: (E) concrete (F) abstract
12. You prefer:..... (E) fact-finding..... (F) speculating
13. You are more: (E) practical (F) conceptual
14. You are more: (E) hands-on (F) theoretical
15. You prefer the: (E) traditional (F) novel
16. You prefer:..... (G) logic..... (H) empathy
17. You are more: (G) truthful (H) tactful
18. You see yourself as more: (G) questioning (H) accommodating
19. You are more: (G) skeptical (H) tolerant
20. You think judges should be: (G) impartial (H) merciful

Applicant's Name: _____

Section 6: OPTIONAL STATISTICAL INFORMATION

The purpose of this section is to facilitate compliance with the REU program reporting requirements of the National Science Foundation (NSF). Answering the questions in this section is voluntary and optional, and the results will not be used in the program selection process. This page will be removed from the rest of the application prior to any admission considerations. The information on this page will be reported, as entered, to NSF, which will use it identify and address any inequities based on gender, race, ethnicity, or disability within its REU program.

Please check this box if you do not wish to provide any or all of the information sought in this section:

OPTIONAL QUESTIONS:

Gender: Male Female

Ethnicity (choose one response): Hispanic or Latino Not Hispanic or Latino

Race (select one or more): American Indian or Alaskan Native; Asian;
 Black or African American; Native Hawaiian or Other Pacific Islander; White

Disability Status (select one or more): Hearing Impairment; Visual Impairment;
 Mobility/Orthopedic Impairment; Other; None

Ethnic Definition:

Hispanic or Latino: A person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race.

Race Definitions:

American Indian or Alaskan Native: A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.

Asian: A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.

Black or African American: A person having origins in any of the black racial groups of Africa.

Native Hawaiian or Other Pacific Islander: A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

White: A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

Applicant's Name: _____

Section 7: PROOF OF PASSPORT

This section is only required by those that want to be considered for one of the NSF REU positions in Germany: Provide proof that you own, or that you have applied for, a passport that will permit you to travel to Germany for the duration of the REU experience. This can be provided in one of two ways:

1. Photocopy of your passport, showing that it is valid through the end of February 2020.
2. Photocopy of a receipt, showing that you have a passport application pending.

Section 8: STATEMENT OF PURPOSE

Provide a concise description of your research interests in the areas of automotive engineering. Describe how participation in this particular NSF REU program will benefit your academic training and how it will further your intended professional career. Describe the research that you would prefer to engage in. If possible, and as applicable, please relate your preferred interest to the project descriptions that are posted online at <http://www.tud.vt.edu/REU/> (in the absence of published Summer 2019 project descriptions, you are encouraged to reference the prior summer project descriptions). Please type your response on a separate sheet of paper with your name at the top, and attach it to your program application. Please limit your narrative to one page.

Section 9: RESEARCH EXPERIENCE

Describe your previous research work, and note its relevance to automotive engineering. State explicitly whether the work you describe was part of an undergraduate independent study or honors project, another REU experience, or a research experience acquired through employment. Do not list organized laboratory coursework at your university, but do be certain to identify these laboratory courses as they are listed in your transcript(s). Prior research experience is not a prerequisite for admission to this REU program. Please type your response on a separate sheet of paper with your name at the top, and attach it to your program application. Please limit your narrative to one page.

Section 10: APPLICANT CERTIFICATION AND SIGNATURE

I certify that the information provided in this application to the NSF REU program in automotive engineering at the Technische Universität Darmstadt (TUD) and Virginia Tech (VT) is correct and true to the best of my knowledge.

Applicant's Signature _____

Date _____