***2012 Center for Sensorimotor Neural Engineering SUMMER RESEARCH EXPERIENCE FOR UNDERGRADUATES (REU)***

From **June 18 to August 24, 2012**, the University of Washington Center for Sensorimotor Neural Engineering (CSNE) program will sponsor a summer research program for undergraduate students on the university’s Seattle campus. Students will participate in ongoing research projects with investigators and have the opportunity to take part in training sessions (i.e., communication class, journal club) designed to provide the undergraduate scientist with solid critical thinking and communication skills that will serve as a foundation for graduate study.

The CSNE has a strong commitment to undergraduate education with a mission to increase diversity in the field of engineering. During the summer REU program, the CSNE will take advantage of its unique interdisciplinary research environment at the biology and engineering interface to provide high quality research experiences for undergraduates from around the country. We strongly encourage women, under-represented minorities, and students with disabilities to submit applications.

Applications for the 2012 CSNE Summer Research Experience for Undergraduates Program (REU) must be received by **Monday, January 30, 2012**. Applications received after January 30, 2012 will not be reviewed.

For more information, visit our website: <http://csne.washington.edu/>

or contact:

Dr. Lise Johnson

Education Manager

Center for Sensorimotor Neural Engineering

Box 354880

University of Washington

Seattle, WA 98195-4880

Voice: (206) 685-3134

E-mail: liseaj@u.washington.edu

 ***About the CSNE…***

 In the last decade, neural engineering research has demonstrated that neural control of an external device, such as a computer cursor, a wheelchair, or a prosthetic limb, is possible. While the potential impact of the brain-machine-interface is now clear, existing technologies fall short of achieving that potential. Real-world applications require versatile and highly complex interactions with sophisticated environments, and our best intelligent systems and robots are still no match for biological systems in their ability to sense and move. Furthermore, implanted neural interface systems cannot process the full richness of the neural data robustly, safely, and in a functionally meaningful way. Solving these problems requires a novel approach based on a deep understanding of how biological systems acquire and process information. This is the focus of the Center for Sensorimotor Neural Engineering (CSNE).

***About the REU…***

The University of Washington and laboratories associated with the CSNE have earned a reputation for promoting a richly collaborative research environment. The CSNE will take advantage of these natural opportunities to expose undergraduates to cutting-edge research at the interface of biology and engineering in a team setting that stresses the value of interdisciplinary research. The heart of the program is a mentored research experience that teams the undergraduate with a graduate student or postdoctoral trainee and a professor. Teams will focus on a CSNE project that has been carefully selected as a good example of interdisciplinary research. For a list of participating CSNE labs see: <http://csne.washington.edu>

***REU Program Requirements…***

**Please read the following program requirements carefully before you complete the application form:**

**1.** You **must** be a student at a college or university.

**2.** You **must** be a U.S. citizen or a permanent resident of the U.S. (or its possessions).

**3.** You **must** devote **40 hours per week** to the program.

**4.** You **may not** enroll in classes or hold other jobs during the day. Participants will be paid a stipend and will not receive academic credit for the research experience.

**5.** You **must** attend the weekly communication classes, journal club meetings, and all other required lectures, seminars, focus groups, and workshops.

**6.** You **must** participate in summer research symposiums at the end of the program.

***What participants will receive…***

**1.** Involvement in an interdisciplinary research project with a team where researchers are working together to solve a common science problem.

**2.** Lectures on ethics, communications skills, laboratory safety, and other selected topics.

**3.** An interactive poster session at the end of the summer, where undergraduate researchers present their results to the CSNE scientific community.

**4.** A final research symposium, where undergraduate researchers give a 15-minute oral presentation describing their work and results to the CSNE scientific community.

**5.** A stipend of $5,000 for the 10 week program.

**6.** Housing on the UW campus at no cost.

**7.** Reimbursement of travel expenses to a maximum of $750.

***Application information…***

Application packets for the 2012 CSNE Summer REU Program must be received by **Monday, January 30, 2012.** Applications received after Monday, January 30, 2012 will not be reviewed.

**A complete application consists of:**

1. A completed and signed 2012 CSNE Summer Research Experience for Undergraduates Program application form (see pages 5-6).

**All questions must be answered fully for your application to receive consideration.**

1. The essay questions must be typed.
2. **Two** references one of which must be an individual who can evaluate your potential in a laboratory setting. (Recommendation forms are included in this packet, see pages 7-10.)
3. An official transcript of coursework from your current college or university. Please note: if you have completed coursework at another college or university that is not documented on your current transcript, and you would like to have this work considered by the review committee, you must submit additional transcripts.

**Send the completed and signed application and transcript(s) to:**

Theresa M. Garcia

SDSU MEP Director

Center for Sensorimotor Neural Engineering Education Staff

5500 Campanile Drive

San Diego State University

San Diego, CA 92182-1303

Selection criteria will be based on the quality of the application written materials, letters of recommendation, and academic record. Appropriate science and mathematics courses are required for participants and it is expected that the majority of students will be academic sophomores and juniors who have completed basic chemistry, mathematics, and engineering coursework.

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| **2012 CSNE SUMMER REU PROGRAM – APPLICATION FORM** |
| LAST NAME | FIRST NAME | MIDDLE INITIAL |
| STREET ADDRESS CITY STATE ZIP CODE DATE OF BIRTH |
| **Please type or print clearly** | EMAIL ADDRESS | TELEPHONE NUMBER | GENDER: M \_\_\_ F \_\_\_ |
| PARENTS OR GUARDIANS |
| NAME | LIVING? Yes No  | OCCUPATION | STATE OF RESIDENCE | EDUCATION/COLLEGE (HIGHEST LEVEL) |
| FATHER |  |  |  |  |  |
| MOTHER |  |  |  |  |  |
| GUARDIAN |  |  |  |  |  |
| DEPENDENT? Yes \_\_\_ No \_\_\_ If No, indicate income: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_AVERAGE ANNUAL FAMILY INCOME:UNDER $25,000 \_\_\_\_\_\_ $25,000-$65,000 \_\_\_\_\_\_ ABOVE $65,000 \_\_\_\_\_\_ |
| COLLEGES AND PROFESSIONAL SCHOOLS ATTENDED |
| NAME | LOCATION (CITY, STATE) | DATES OF ATTENDANCE | MAJOR | DEGREE GRANTED/EXPECTED (with date) |
|  |  | to |  |  |
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| HONORS RECEIVED WHILE IN HIGH SCHOOL OR COLLEGE: |
| CURRENT CLASS STANDING: FRESHMAN \_\_\_ SOPHOMORE \_\_\_ JUNIOR \_\_\_ SENIOR \_\_\_  | CUM. GPA:MAJOR GPA:  |  |
| RACE (Check only one. This information is requested by the National Science Foundation for funding purposes however it is voluntary and is strictly confidential.): |
| NATIVE AMERICAN (NA) \_\_\_ PACIFIC ISLANDER (PI) \_\_\_ AFRICAN AMERICAN (AA) \_\_\_ CAUCASIAN (C) \_\_\_ ASIAN (A) \_\_\_ MIXED - NA,PI,AA \_\_\_ MIXED - C,A \_\_\_ Choose not to disclose \_\_\_ |
| ETHNICITY: | US Citizen  |
| NOT HISPANIC \_\_\_\_ HISPANIC \_\_\_\_ Choose not to disclose \_\_\_\_\_  | Yes \_\_\_\_\_ No \_\_\_\_\_ |
| DO YOU HAVE A PHYSICAL, SENSORY, OR MENTAL IMPAIRMENT WHICH SUBSTANTIALLY LIMITS ONE OR MORE LIFE ACTIVITIES (i.e., WALKING, SEEING, HEARING, BREATHING, OR LEARNING? YES \_\_\_ NO \_\_\_ |
| AREAS OF INTEREST |
| EXTRACURRICULAR, COMMUNITY, AND AVOCATIONAL ACTIVITIES: |
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| EMPLOYMENT DURING SCHOOL YEARS (LIST TYPE OF WORK AND APPROXIMATE HOURS PER WEEK) OR OTHER RESEARCH RELATED EXPERIENCES: |
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| HOW HAVE YOU SPENT YOUR SUMMERS DURING YOUR COLLEGE YEARS? (INCLUDE THE YEAR AND LOCATION OF PARTICIPATION IN SUMMER PROGRAMS) |
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|  |
| HOW DID YOU FIND OUT ABOUT THE CSNE SUMMER REU PROGRAM? |

**ESSAY QUESTIONS:** PLEASE ANSWER EACH OF THE QUESTIONS BELOW. TYPE YOUR ANSWERS ON A SEPARATE SHEET OF PAPER. FOR EACH QUESTION, KEEP YOUR ANSWERS to 1-2 SHORT, CONCISE PARAGRAPHS.

**(Maximum: 2 pages total)**

**1. What aspects of the CSNE Program sparked your interest? (For more information about the program, visit our web site at: http://csne.washington.edu/.)**

**2.** **Why do you think that the CSNE Summer REU Program is a good fit for you and your goals?**

**3. If accepted, what do you expect to gain from the program? What will you contribute?**

1. **Tell us something you believe to be unique about you (i.e., hardships you have overcome, a significant personal experience, etc.).**

**CERTIFICATION AND SIGNATURE**

I certify that the information submitted in this application and associated materials are current, complete and accurate to the best of my knowledge.

**SIGNATURE (INK ONLY)**

**DATE**

**SIGNATURE (INK ONLY)**

**DATE**

Send your completed application with a copy of your official academic transcript from the college which you are currently attending (unofficial transcripts will not be accepted) to:

**Theresa M. Garcia**

SDSU MEP Director

Center for Sensorimotor Neural Engineering Education Staff

5500 Campanile Drive

San Diego State University

San Diego, CA 92182-1303

NOTE: official academic transcripts may be mailed separately

***Your complete application (application form, essay questions, official transcripts, all letters of recommendation) must be received by* Monday, January 30, 2012. *Applications received after* Monday, January 30, 2012 *will not be reviewed.***

If you have any questions, contact Director Garcia at (619) 594-5679 or by e-mail at: tgarcia@mail.sdsu.edu

**2012 University of Washington CSNE**

**Summer Research Experience for Undergraduates Program**

**RECOMMENDATION FORM**

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| **To the applicant:** **Two** references are required one of which must be an individual who can evaluate your potential in a laboratory setting**.** Print two copies of the Recommendation Form (pages 7-10). Please fill out the information in this box before this recommendation form is given to the person providing the reference. Applicant’s Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Applicant’s Address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Applicant’s Phone #: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Applicant’s Email Address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **To the person providing the reference:** the CSNE REU program requires recommendation forms in order for the student’s application to be complete. A letter of recommendation is optional and may be attached to the forms provided here. Complete applications for the 2012 CSNE Summer REU Program must be received by **Monday, January 30, 2012.**  Your completed form should be sent to:**Theresa M. Garcia**SDSU MEP DirectorCenter for Sensorimotor Neural Engineering Education Staff5500 Campanile DriveSan Diego State UniversitySan Diego, CA 92182-1303Electronic submissions of letters of recommendation can be sent to tgarcia@mail.sdsu.edu; if an electronic letter is sent, please also send in page 8 of this application by regular mail.If you have any questions, contact Director Garcia at (619) 594-5679 or by e-mail at: tgarcia@mail.sdsu.edu  |

1. How long have you known the applicant? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. In what capacity have you known the applicant? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Please rate the applicant by circling the appropriate number which most accurately represents your opinion of the applicant in comparison with a representative group of individuals you have known who have had the same amount of education and experience.

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| --- | --- | --- | --- | --- | --- |
|  | **Unable to judge** | **Poor**  (Lowest 25%) | **Fair** (26-75%) | **Excellent** (76-90%) | **Outstanding** (Top 10%) |
| Intellectual ability | 0 | 1 | 2 | 3 | 4 |
| Motivation to pursue a research career | 0 | 1 | 2 | 3 | 4 |
| Work habits | 0 | 1 | 2 | 3 | 4 |
| General motivation | 0 | 1 | 2 | 3 | 4 |
| Leadership | 0 | 1 | 2 | 3 | 4 |
| Imagination/Creativity | 0 | 1 | 2 | 3 | 4 |
| Initiative | 0 | 1 | 2 | 3 | 4 |
| Ability to work with others | 0 | 1 | 2 | 3 | 4 |
| Maturity/Ability to take responsibility for actions | 0 | 1 | 2 | 3 | 4 |
| Ability to communicate (written)  | 0 | 1 | 2 | 3 | 4 |
| Ability to communicate (spoken)  | 0 | 1 | 2 | 3 | 4 |

4. What do you consider to be the applicant’s strongest characteristics?

5. What do you consider to be the applicant’s weakest characteristics?

6. To your knowledge, are there any special circumstances relative to the applicant which should be considered during the evaluation of the student’s credentials for this program?

7. Do you believe the academic record of the applicant is a true reflection of her/his intellectual ability?

\_\_\_\_\_ Yes

\_\_\_\_\_ No, please explain

8. In what ways do you believe the CSNE Summer REU Program can be of value to the applicant?

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1. Add any special comments that will help to give a more complete picture of the applicant’s abilities and potential as a candidate for continued work and study in research.

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##  **Please Print**

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| --- | --- |
| **Name:**  | **Phone:**  |
| **Title/Position:**  | **Department:** |
| **Name of College/University:**  |
| **Address:**  |
| **Signature**:  | **Date:**  |