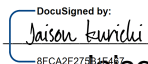


Research Subaward Agreement Amendment

Pass-through Entity (PTE)		Subrecipient	
PTE Temple University - Of The Commonwealth System of Hig		Subrecipient The University of Texas At Dallas	
Address 3340 North Broad Street, Student Faculty Center 4th Floor, Suit		Address 800 W. Campbell Rd. MS EC31	
City, State, Zip+4 (Country): Philadelphia, PA 19140-5104		City, State, Zip+4 (Country): Richardson, TX 75080-3021	
PTE Principal Investigator (PI): Joseph Picone		Subrecipient Principal Investigator (PI): Sanda Harabagiu	
PTE Federal Award No: 5U01HG008468-03	FAIN: U01HG008468	Federal Awarding Agency: NIH/National Human Genome Research Institu	
Project Title: Automatic discovery and processing of EEG cohorts from clinical records			
Subaward Period of Performance: Start Date: Jun 1, 2015 End Date: May 31, 2018	Amount Funded This Action: \$ 143,675.00	Amendment No: 002	Subaward No: 255929-UTAD
Effective Date of Amendment: Jun 8, 2017	Total Amount of Federal Funds Obligated to date: \$ 433,372.00	Subject to FFATA <input checked="" type="checkbox"/> Yes or <input type="checkbox"/> No	
Amendment(s) to Original Terms and Conditions This Amendment revises the above-referenced Research Subaward Agreement as follows:			
Action:			
1. The Subaward Period of Performance is extended through May 31, 2018. The revised performance period is June 01, 2015 through May 31, 2018.			
2. The funded amount of this Subaward is hereby increased by \$143,675 which includes \$93,905 Direct Costs and \$49,770 Indirect Costs for a total funded amount of \$433,372.			
3. Applicable provisions of the Current Prime Award, which is attached hereto as Attachment 1, are hereby incorporated.			
4. Applicable provision of the Current Subrecipient Commitment Short Form, which is attached hereto as Attachment 2, are hereby incorporated.			
All other terms and conditions of this Subaward Agreement remain in full force and effect.			
By an Authorized Official of Pass-through Entity:		By an Authorized Official of Subrecipient:	
DocuSigned by:  Name Jason G. Kurichi Title Associate Vice President for Budget		Digitally signed by Emily Lacy DN: postalCode=75080, ou=General, o=The University of Texas at Dallas, street=800 West Campbell Road, st=TX, l=Richardson, c=US, cn=Emily Lacy, email=elf102020@utdallas.edu Date: 2017.08.03 10:21:19 -0500 Aug 3, 2017 Name Emily Lacy Title Associate Director, Office of Sponsored Projects	
8/16/2017 12:34 EDT		Date	



NATIONAL HUMAN GENOME RESEARCH INSTITUTE

THIS AWARD IS FUNDED AS AN NIH ROADMAP INITIATIVE

Grant Number: 5U01HG008468-03

FAIN: U01HG008468

Principal Investigator(s):

Sanda Maria Harabagiu

Iyad Obeid, PHD

Joseph Picone (contact), PHD

Project Title: Automatic discovery and processing of EEG cohorts from clinical records

Karen Mitchell

Senior Director, Grants Management

Temple University -

Of the Commonwealth System of Higher Education

3340 North Broad Street, Rm 427C- SFC - 4th Floor

Philadelphia, PA 191405104

Award e-mailed to: nih@temple.edu

Period Of Performance:

Budget Period: 06/01/2017 – 05/31/2018

Project Period: 06/01/2015 – 05/31/2018

Dear Business Official:

The National Institutes of Health hereby awards a grant in the amount of \$435,047 (see "Award Calculation" in Section I and "Terms and Conditions" in Section III) to TEMPLE UNIV OF THE COMMONWEALTH in support of the above referenced project. This award is pursuant to the authority of 42 USC 241 31 USC 6305 42 CFR 52 and is subject to the requirements of this statute and regulation and of other referenced, incorporated or attached terms and conditions.

Acceptance of this award including the "Terms and Conditions" is acknowledged by the grantee when funds are drawn down or otherwise obtained from the grant payment system.

Each publication, press release, or other document about research supported by an NIH award must include an acknowledgment of NIH award support and a disclaimer such as "Research reported in this publication was supported by the National Human Genome Research Institute of the National Institutes of Health under Award Number U01HG008468. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health." Prior to issuing a press release concerning the outcome of this research, please notify the NIH awarding IC in advance to allow for coordination.

Award recipients must promote objectivity in research by establishing standards that provide a reasonable expectation that the design, conduct and reporting of research funded under NIH awards will be free from bias resulting from an Investigator's Financial Conflict of Interest (FCOI), in accordance with the 2011 revised regulation at 42 CFR Part 50 Subpart F. The Institution shall submit all FCOI reports to the NIH through the eRA Commons FCOI Module. The regulation does not apply to Phase I Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) awards. Consult the NIH website <http://grants.nih.gov/grants/policy/coi/> for a link to the regulation and additional important information.

Sincerely yours,

Monika Christman
Grants Management Officer
NATIONAL HUMAN GENOME RESEARCH INSTITUTE

Additional information follows

Award Calculation (U.S. Dollars)

Salaries and Wages	\$120,610
Fringe Benefits	\$23,417
Personnel Costs (Subtotal)	\$144,027
Consultant Services	\$25,000
Materials & Supplies	\$1,750
Travel	\$16,000
Subawards/Consortium/Contractual Costs	\$143,675

Federal Direct Costs	\$330,452
Federal F&A Costs	\$104,595
Approved Budget	\$435,047
Total Amount of Federal Funds Obligated (Federal Share)	\$435,047
TOTAL FEDERAL AWARD AMOUNT	\$435,047

AMOUNT OF THIS ACTION (FEDERAL SHARE) \$435,047

SUMMARY TOTALS FOR ALL YEARS		
YR	THIS AWARD	CUMULATIVE TOTALS
3	\$435,047	\$435,047

Fiscal Information:

CFDA Name: Trans-NIH Research Support
CFDA Number: 93.310
EIN: 1231365971A1
Document Number: UHG008468A
PMS Account Type: P (Subaccount)
Fiscal Year: 2017

IC	CAN	2017
OD	8018959	\$435,047

NIH Administrative Data:

PCC: X4HS / **OC:** 414P / **Released:** CHRISTMANM 06/07/2017
Award Processed: 06/08/2017 12:34:36 AM

SECTION II – PAYMENT/HOTLINE INFORMATION – 5U01HG008468-03

For payment and HHS Office of Inspector General Hotline information, see the NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm>

SECTION III – TERMS AND CONDITIONS – 5U01HG008468-03

This award is based on the application submitted to, and as approved by, NIH on the above-titled project and is subject to the terms and conditions incorporated either directly or by reference in the following:

- a. The grant program legislation and program regulation cited in this Notice of Award.
- b. Conditions on activities and expenditure of funds in other statutory requirements, such as those included in appropriations acts.
- c. 45 CFR Part 75.
- d. National Policy Requirements and all other requirements described in the NIH Grants Policy Statement, including addenda in effect as of the beginning date of the budget period.
- e. Federal Award Performance Goals: As required by the periodic report in the RPPR or in the final progress report when applicable.
- f. This award notice, INCLUDING THE TERMS AND CONDITIONS CITED BELOW.

(See NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm> for certain references cited above.)

Research and Development (R&D): All awards issued by the National Institutes of Health (NIH) meet the definition of "Research and Development" at 45 CFR Part§ 75.2. As such, auditees should identify NIH awards as part of the R&D cluster on the Schedule of Expenditures of Federal Awards (SEFA). The auditor should test NIH awards for compliance as instructed in Part V, Clusters of Programs. NIH recognizes that some awards may have another classification for purposes of indirect costs. The auditor is not required to report the disconnect (i.e., the award is classified as R&D for Federal Audit Requirement purposes but non-research for indirect cost rate purposes), unless the auditee is charging indirect costs at a rate other than the rate(s) specified in the award document(s).

This institution is a signatory to the Federal Demonstration Partnership (FDP) Phase VI Agreement which requires active institutional participation in new or ongoing FDP demonstrations and pilots.

Carry over of an unobligated balance into the next budget period requires Grants Management Officer prior approval.

This award is subject to the requirements of 2 CFR Part 25 for institutions to receive a Dun & Bradstreet Universal Numbering System (DUNS) number and maintain an active registration in the System for Award Management (SAM). Should a consortium/subaward be issued under this award, a DUNS requirement must be included. See <http://grants.nih.gov/grants/policy/awardconditions.htm> for the full NIH award term implementing this requirement and other additional information.

This award has been assigned the Federal Award Identification Number (FAIN) U01HG008468. Recipients must document the assigned FAIN on each consortium/subaward issued under this award.

Based on the project period start date of this project, this award is likely subject to the Transparency Act subaward and executive compensation reporting requirement of 2 CFR Part 170. There are conditions that may exclude this award; see <http://grants.nih.gov/grants/policy/awardconditions.htm> for additional award applicability information.

In accordance with P.L. 110-161, compliance with the NIH Public Access Policy is now mandatory. For more information, see NOT-OD-08-033 and the Public Access website: <http://publicaccess.nih.gov/>.

This award represents the final year of the competitive segment for this grant. See the NIH Grants Policy Statement Section 8.6 Closeout for complete closeout requirements at: <http://grants.nih.gov/grants/policy/policy.htm#gps>.

A final expenditure Federal Financial Report (FFR) (SF 425) must be submitted through the eRA Commons (Commons) within 120 days of the period of performance end date; see the NIH Grants Policy Statement Section 8.6.1 Financial Reports, <http://grants.nih.gov/grants/policy/policy.htm#gps>, for additional information on this submission requirement. The final FFR must indicate the exact balance of unobligated funds and may not reflect any unliquidated obligations. There must be no discrepancies between the final FFR expenditure data and the Payment Management System's (PMS) quarterly cash transaction data. A final quarterly federal cash transaction report is not required for awards in PMS B subaccounts (i.e., awards to foreign entities and to Federal agencies). NIH will close the awards using the last recorded cash drawdown level in PMS for awards that do not require a final FFR on expenditures or quarterly federal cash transaction reporting. It is important to note that for financial closeout, if a grantee fails to submit a required final expenditure FFR, NIH will close the grant using the last recorded cash drawdown level. If the grantee submits a final expenditure FFR but does not reconcile any discrepancies between expenditures reported on the final expenditure FFR and the

award at the lower amount. This could be considered a debt or result in disallowed costs.

A Final Invention Statement and Certification form (HHS 568), (not applicable to training, construction, conference or cancer education grants) must be submitted within 120 days of the expiration date. The HHS 568 form may be downloaded at: <http://grants.nih.gov/grants/forms.htm>. This paragraph does not apply to Training grants, Fellowships, and certain other programs—i.e., activity codes C06, D42, D43, D71, DP7, G07, G08, G11, K12, K16, K30, P09, P40, P41, P51, R13, R25, R28, R30, R90, RL5, RL9, S10, S14, S15, U13, U14, U41, U42, U45, UC6, UC7, UR2, X01, X02.

Unless an application for competitive renewal is submitted, a Final Research Performance Progress Report (Final RPPR) must also be submitted within 120 days of the period of performance end date. If a competitive renewal application is submitted prior to that date, then an Interim RPPR must be submitted by that date as well. Instructions for preparing an Interim or Final RPPR are at: https://grants.nih.gov/grants/rppr/rppr_instruction_guide.pdf. Any other specific requirements set forth in the terms and conditions of the award must also be addressed in the Interim or Final RPPR. *Note that data reported within Section I of the Interim and Final RPPR forms will be made public and should be written for a lay person audience.*

NIH strongly encourages electronic submission of the final invention statement through the Closeout feature in the Commons, but will accept an email or hard copy submission as indicated below.

Email: The final invention statement may be e-mailed as PDF attachments to: NIHCloseoutCenter@mail.nih.gov.

Hard copy: Paper submissions of the final invention statement may be faxed to the NIH Division of Central Grants Processing, Grants Closeout Center, at 301-480-2304, or mailed to:

National Institutes of Health
Office of Extramural Research
Division of Central Grants Processing
Grants Closeout Center
6705 Rockledge Drive
Suite 5016, MSC 7986
Bethesda, MD 20892-7986 (for regular or U.S. Postal Service Express mail)
Bethesda, MD 20817 (for other courier/express deliveries only)

NOTE: If this is the final year of a competitive segment due to the transfer of the grant to another institution, then a Final RPPR is not required. However, a final expenditure FFR is required and should be submitted electronically as noted above. If not already submitted, the Final Invention Statement is required and should be sent directly to the assigned Grants Management Specialist.

This award is funded by the following list of institutes. Any papers published under the auspices of this award must cite the funding support of all institutes.

Office Of The Director, National Institutes Of Health (OD)

In accordance with the regulatory requirements provided at 45 CFR 75.113 and Appendix XII to 45 CFR Part 75, recipients that have currently active Federal grants, cooperative agreements, and procurement contracts with cumulative total value greater than \$10,000,000 must report and maintain information in the System for Award Management (SAM) about civil, criminal, and administrative proceedings in connection with the award or performance of a Federal award that reached final disposition within the most recent five-year period. The recipient must also make semiannual disclosures regarding such proceedings. Proceedings information will be made publicly available in the designated integrity and performance system (currently the Federal Awardee Performance and Integrity Information System (FAPIIS)). Full reporting requirements and procedures are found in Appendix XII to 45 CFR Part 75. This term does not apply to NIH fellowships.

Treatment of Program Income:
Additional Costs

SECTION IV – HG Special Terms and Conditions – 5U01HG008468-03

The requested budget was considered and determined not to represent significant rebudgeting. Therefore, categorical amounts reflect the direct and facilities and administrative cost levels previously recommended for the current year.

This award is issued as a Cooperative Agreement, a financial assistance mechanism in which substantial NIH scientific and/or programmatic involvement is anticipated in the performance of the activity. This award is subject to the Terms and Conditions of Award as set forth in the Section VI. Award Administration Information of RFA-HG-14-020 "Development of Software and Analysis Methods for Biomedical Big Data in Targeted Areas of High Need", released on 2/19/14 which are hereby incorporated by reference as special terms and conditions of this award.

This RFA may be accessed at: <http://grants.nih.gov/grants/guide/index.html> or obtained from the Grants Management Contact referenced in the award.

These special Terms and Conditions of Award are in addition to, and not in lieu of, otherwise applicable OMB administrative guidelines, Federal Regulations, including DHHS Grant Administration Regulations at 42 CFR Part 52, 45 CFR Parts 74 and 92, other DHHS and NIH grant administration policies, and the NIH Grants Policy Statement.

Dissemination of software will be in accord with the Grantee's Software Dissemination Plan as stated on page 77 of the application. Failure to adhere to the sharing plan as mutually agreed upon by the Grantee and the National Cancer Institute may result in Enforcement Actions as described in the NIH Grants Policy Statement under Administrative Requirements. A link to the NIH GPS is available through the following NIH Guide

Notice:<http://grants.nih.gov/grants/guide/notice-files/NOT-OD-15-087.html>

This award includes funds awarded for consortium activity with The University of Texas at Dallas in the amount of \$143,675 (\$93,905 direct costs + \$49,770 facilities and administrative costs). Consortia are to be established and administered as described in the NIH Grants Policy Statement (NIH GPS). The referenced section of the NIH GPS is available at: http://grants.nih.gov/grants/policy/nihgps/HTML5/section_15/15.1_general.htm

STAFF CONTACTS

The Grants Management Specialist is responsible for the negotiation, award and administration of this project and for interpretation of Grants Administration policies and provisions. The Program Official is responsible for the scientific, programmatic and technical aspects of this project. These individuals work together in overall project administration. Prior approval requests (signed by an Authorized Organizational Representative) should be submitted in writing to the Grants Management Specialist. Requests may be made via e-mail.

Grants Management Specialist: Anneliese B. Galczynski
Email: galczynskia@mail.nih.gov **Phone:** 301-443-4935 **Fax:** 301-451-5434

Program Official: Heidi J Sofia
Email: heidi.sofia@nih.gov **Phone:** 301.496.7531 **Fax:** 301.480.2770

SPREADSHEET SUMMARY

GRANT NUMBER: 5U01HG008468-03

INSTITUTION: TEMPLE UNIV OF THE COMMONWEALTH

Budget	Year 3
Salaries and Wages	\$120,610
Fringe Benefits	\$23,417
Personnel Costs (Subtotal)	\$144,027
Consultant Services	\$25,000
Materials & Supplies	\$1,750

Travel	\$16,000
Subawards/Consortium/Contractual Costs	\$143,675
TOTAL FEDERAL DC	\$330,452
TOTAL FEDERAL F&A	\$104,595
TOTAL COST	\$435,047

Facilities and Administrative Costs	Year 3
F&A Cost Rate 1	56%
F&A Cost Base 1	\$186,777
F&A Costs 1	\$104,595



SUBRECIPIENT COMMITMENT SHORT FORM

Office of the Vice President for Research Administration,
Division of Grants Management

Complete and return a signed copy to Grants Management at
subawards@temple.edu

RESET FORM

RETURN BY: 06/16/17. All Subrecipients must complete and return this form for renewal and continuation awards issued by TEMPLE UNIVERSITY. It provides a checklist of documents and certifications required by sponsors and it must be endorsed by the Subrecipient's Authorized Official.

Prime: Temple University-Of The Commonwealth System of Higher Education

SPONSOR AWARD #: 5U01HG008468-03	TEMPLE PI NAME: Joseph Picone	eRA#: 255929-03	SUB AWARD #: 255929-UTAD
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Title of Proposal: Automatic Discovery and Processing EEG Cohorts from Clinical Records

Period of Performance: FROM: 06/01/2017 TO: 05/31/2018

Sponsor: National Human Genome Research Institute

B. SUBRECIPIENT INFORMATION

Subrecipient's Legal Name: The University of Texas at Dallas

PI Name: Sanda Harabagiu

Address where work will be performed: 800 W. Campbell Rd., ECSS-3.411, Richardson, TX 75080-3021

DUNS# 800188161 EIN #: 75-1305566 Congressional District: TX-032

C. PROPOSAL DOCUMENTS

The following documents are required from the subrecipient and covered by the certification below. Return all documents .

STATEMENT OF WORK

BUDGET AND BUDGET JUSTIFICATION: TOTAL AMOUNT REQUESTED FOR THIS PERIOD:\$

PROGRESS REPORT:

CARRY FORWARD REQUEST:

REGULATORY APPROVALS (IRB, IACUC, IBC, etc.):

ADMINISTRATOR NAME & EMAIL: Lela Paksoy, Grants Specialist, osp@utdallas.edu

OTHER:

D. SPECIAL REVIEW & CERTIFICATIONS

Subrecipient organization/institution hereby certifies that it has an active and enforced conflict of interest policy and all identified conflicts of interest have or will have been satisfactorily managed, reduced, or eliminated in accordance with subrecipient's conflict of interest policy prior to the expenditure of any funds. **(Check box if statement is true)**

What year is the most recent fiscal year audit complete? 2016 Were there any findings? Yes No

If there are findings, submit a copy of the most recent report that describes the finding and steps to be taken to correct the finding. **(Provide URL or attach the most recent audit):**

Is the PI or any other employee or student participating in this project debarred, suspended or otherwise excluded from or ineligible? Yes No
(If yes please explain:

SUBRECIPIENT CERTIFIES: The information, certifications, and representations above have been read, signed and made by an authorized official of the subrecipient named herein. Authorized official affirms all statements are true.

Signature of Authorized Official for Subrecipient

Rafael Martin +

Type or Print Name
Interim VP for Research

Title of Authorized Official

Date
osp@utdallas.edu

Email Address of Authorized Official

Statement of Work

A consortium/contractual arrangement will be established between the Temple University and the University of Texas at Dallas (UTD). Dr. Harabagiu will lead activities at UTD. Dr. Harabagiu will lead the development of the system capable of automatically recognizing critical concepts in the EEG reports as well as the patient cohort retrieval system. She will collaborate with Professors Joseph Picone and Iyad Obeid from Temple University that will provide her with (a) the EEG reports and the annotations required for training the various classifiers she will develop for automatically detecting in EEG reports (1) clinical events, (2) their attributes, (3) their types, (4) polarity and (5) modality, as well as (6) medical concepts; (7) spatial expressions; (8) temporal expressions; (9) temporal relations and (10) spatial relations; and (b) EEG events that are derived automatically from the EEG signal as well as the features used at Temple University for processing such events. Prof. Harabagiu will also develop an active-learning framework that will accelerate the annotations on EEG reports produced at Temple University. Professor Harabagiu will also collaborate with Professors Joseph Picone and Iyad Obeid from Temple University to evaluate the patient cohort retrieval system that she will develop at UTD by designing the evaluation protocol and using the feedback to improve the system.

Budget

Salaries	
S. Harabagiu	\$ 42,612
TBD, Graduate Student	\$ 33,714
Total Salaries	\$ 76,326
FRINGE BENEFITS	\$ 13,580
TOTAL SALARIES AND FRINGE BENEFITS	\$ 89,906
TRAVEL	
Domestic	\$ 3,000
OTHER DIRECT COSTS	
Publications	\$ 1,000
TOTAL OTHER DIRECT COSTS	\$ 1,000
TOTAL DIRECT COSTS	\$ 93,906
INDIRECT COSTS @ 53% MTDC	\$ 49,770
TOTAL COSTS	\$143,675

Salaries and Wages: Salaries for all personnel are based upon current University of Texas at Dallas academic and staff salary scales.

Prof. Sanda Harabagiu, Principal Investigator, will provide the overall direction and management of the Aim 2: Automatically Critical Clinical Concepts in EEG Report, and Aim 3: Automatic Patient Cohort Retrieval of the project entitled “Automatic Processing and Discovery of Patient Cohorts from EEGs and EEG Reports” as well as participating in the technical research and publication activities. Prof. Sanda Harabagiu, will collaborate closely with Professors Joseph Picone and Iyad Obeid from Temple University as well as the physicians from Temple Hospital involved in the project. She will work closely with Prof. Picone and Obeid to design the annotations required for Aim 2 as well as to integrate the results from Temple University in her work. In addition, she will collaborate on the evaluation of the patient cohort retrieval system as well as the evaluation of the results of the automatic processing of critical clinical concepts that she will develop at UTD. Prof. Harabagiu will also supervise the research of two graduate PhD students. This research will form the core of two PhD dissertations. We request summer salary support for Prof. Sanda Harabagiu at a level of 3 months each year for the duration of the project. However, Prof. Harabagiu shall direct the research of this project throughout the year.

We request salary support for 1.5 graduate research assistants. One graduate assistant will have a support each year at 50% time during the academic year, and at 50% time during the summer months. The role of this graduate research assistant includes conducting original research in Clinical Natural Language Processing for Aim 2. The second PhD student will focus on developing the patient cohort retrieval system with the clinical information that is going to be derived in Aim 2 as well as in Aim 1 of the project. In addition, both PhD students will participate in the design and testing of the patient cohort retrieval system as well as the clinical processing developed in Aim 2. The two PhD students that will be assigned to work on this project will be paid at \$1883/month for their activity.

Benefits: Employee benefits were estimated using the published University of Texas at Dallas rates. Benefit rates used in this proposal are 20% of salary of the PI and 15% for graduate students during the academic year and summer months.

Travel: A total of 2 domestic trips are requested yearly to attend technical meetings and workshops that are relevant to the project’s overall research, and for scientific exchange. Domestic trips are estimated at \$1500 each roundtrip. Expenses include estimates for airfare, ground transportation, hotel accommodations, registration for conferences and workshops (if applicable), and per diem. Relevant conferences where we anticipate publishing the results are the annual AMIA symposium and the annual AMIA Summit on Clinical Research..

Materials and Supplies: No costs for materials and supplies are requested.

Publications Costs/page charges: A total of \$3000 is requested for the cost of preparing and publishing the results of the work conducted under the award. We are requesting for \$1000 in year 1 and in each subsequent year.

Other: Tuition reimbursement is requested for the graduate research assistants at a level of \$0 per year. Under agreement by The University of Texas at Dallas, tuition for “doctorally qualified” PhD students, who are supported by an RA on an externally funded grant, will have their tuition paid by the Provost. The students proposed to be used on this project qualify for this benefit, and therefore, no tuition is being requested.

Indirect Costs: Indirect costs were estimated in accordance with UTD’s rate agreement, which was approved by DHHS, the Federal Cognizant Audit Agency for UTD on 02/04/2016. The organized research F&A cost rate of 53% MTDC was used based on the nature of the proposed work.