Justification for Supplement

This request is for an REU supplement to NSF Award 2047297, entitled *Expanding the Interaction Bandwidth between Physicians and AI*. This grant, which ends on 3/31/2026, develops interaction techniques that enable physicians to comprehend AI's findings, control AI's behavior, and collaborate with AI in making medical diagnoses. ← **XAC**: update the macros of meta info in main.tex

We seek this small amount of additional funding to provide an excellent research experience for undergraduates while developing new human-AI collaborative techniques for physicians. This REU supplement plays a critical role in our Broadening Participation in Computing program which uses undergraduate research experiences such as the ones proposed here to increase the percentage of undergraduate women who persist to graduate school. More generally, these research experiences are an important tool for recruitment of future graduate students into HCI research at the PI's institute.

In the Summary of Proposed Work, I have provided the following items:

1. Description of Research and Benefit to Student
2. PI's Prior Experience Involving Undergraduates in Research
3. Description of Mentoring for REU Students
4. The Relationship of the Reu Funding to the Original Award
5. Our Process and Criteria for Selecting Students
6. A statement acknowledging that REU students will be US Citizens or Permanent Residents.
7. Specifics about the REU Request

These specific information items were requested in the Dear Colleague Letter NSF24-048 entitled "Research Experiences for Undergraduates (REU) and Research Experiences for Teachers (RET) Supplemental Funding in Computer and Information Science and Engineering".

The Budget Justification provides the program specifics including the duration, our stipend rate, and the description of the benefits of the UCLA Engineering Summer Undergraduate Research Program and the associated fee.

The NSF REU program is ideally suited for exposing undergraduate students to HCI research through this project. The REU scope of work is well defined and the undergraduate student will have excellent mentors to help them learn research methodology and how to present their results. They will be exposed to forefront research and will have opportunities to present their findings in weekly meetings and at a research symposium.

Summary of Proposed Work

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Description of Research and Benefit to Student

This REU request would support two undergraduate researchers during the summer to participate in the design, development, and study of interactive systems xx... ← **XAC**: add detailed descirption here

Previous REU support of this project contributed to the development of novel human-AI collaborative techniques published at xx... ← **XAC**: (top HCI venue) with (student) as a co-author

This REU will benefit the undergraduate researchers by developing their research skills and their understanding of human-centered design methods. The upcoming summer project is extremely well-suited for undergraduates because the scope is well-defined, the approach has been grounded in sufficient preliminary work, yet important questions remain to be answered. Furthermore, the project provides an ideal introduction for an undergraduate to rich intersections of HCI + AI. The expectation is that a conference paper (most likely CHI whose deadline is often in September) will result from this research.

PI's Prior Experience Involving Undergraduates in Research

The PI has over a decade of experience mentoring undergraduate students in research and HCI Research Group has a reputation for providing excellent opportunities for undergraduates to participate in HCI research. Other then regular REU programs, the PI also frequently hosted independent study courses (*e.g.*, two students' project resulted in a demo at IUI 2019) and the *Learning by Research* program that provides opportunities for non-computing students (*e.g.*, in Psychology and CogSci) to participate in quarter-long research projects (*e.g.*, two recent students contributed to and co-authored an IEEE ICHI paper).

Description of Mentoring Provided for each REU student

This REU experience is part of an overall undergraduate retention activity in the UCLA Electrical & Computer Engineering Department to increase the participation of undergraduates in our research programs.

The REU students will be fully integrated in the research life of the PI's lab. Each new undergraduate researcher is paired with a graduate student mentor and has the opportunity to participate in the weekly meeting with the PI.

Additionally, the UCLA Samueli School of Engineering provides a Summer Undergraduate Research Program (SURP) that supports undergraduate researchers new to research with training in the basic skills of research including how to present technical material to a variety of audiences, how to prepare a research abstract, how to read and discuss journal papers, and how to prepare and present an effective research poster. The SURP culminates with a research symposium in which all participants will present posters on their research to faculty, corporate representatives, and fellow students. The students supported under this grant will participate in this symposium and present their research.

Relationship of the REU Funding to the Original Award

This request is for an REU supplement allows additional researchers to contribute to the design, development, and study of techniques proposed in the original award, thus bringing in positive impact on making further overall progress.

Process and Criteria for Selecting Students

The undergraduate researchers will be selected from a pool of applications including the new Fast Track Cohort (The ECE retention program for top applicants). REU positions are widely advertised on the departmental website and through campus-wide research portal. This year we will also expand recruitment to undergraduate research fairs sponsored by the UCLA School of Engineering and engagement with student clubs (*e.g.*, Bruin AI, ACM, and IEEE). As soon as our REU awards are confirmed we will select our summer 2024 participants.

The PI's team will interview both Fast Track students as well as others who have applied for the positions. Students are selected based on their interest in the project, their academic ability, prior experience, as well as social, communication, and computer/software skills. In addition to gender balance, every effort is made to recruit minority students. We will make every effort to consider students from a diverse background, especially those that are traditionally underrepresented in the computing community and/or have limited resources to participate in computing education and research.

All REU students supported by this funding will be US citizens or Permanent residents.

Specifics About the REU Request

As described in the Budget Justification section, this is a request for two undergraduate researchers to receive a stipend of $7000 each and the registration fee of $500 each to participate in the UCLA Samueli Summer Undergraduate Research Program. The stipend and registration fee is for a 10-week program.

Budget Justification

The budget for this supplement has two entries. The main expense is $7,000 for stipends for each summer undergraduate researcher. Each undergraduate researcher will be paid a stipend of $7000 for a ten-week research project so that the stipend is $700 per week, as recommended in the program solicitation NSF 23-601: Research Experiences for Undergraduates (REU).

The second line item is for registration fees for the UCLA Summer Undergraduate Research Program (SURP). SURP provides undergraduate researchers with training in the basic skills of research including how to present technical material to a variety of audiences, how to prepare a research abstract, how to read and discuss journal papers, and how to prepare and present an effective research poster. The SURP culminates with a research symposium in which all participants will present posters on their research to faculty, corporate representatives, and fellow students.

The specific registration fees are $500 for each student, which includes the Orientation, Poster Symposium, Poster Workshops, Technical Presentation Workshops, and Industry Engagement Workshops.