

## Annual call for translational design projects

- Have you identified a clinical problem that might benefit from technology development?
- Do you have an idea for a device or process to improve patient care?
- Do you have a need for a device to support your clinical research program?

The *Clinical and Translational Science Center (CTSC)* and the *College of Engineering (COE)* are soliciting project ideas that originate in an unmet clinical need. Since 2008 undergraduate students in the COE's Capstone Senior Design courses have been collaborating with clinicians and researchers in the School of Medicine to complete projects with clinical, translational, or point-of-care emphasis. Student teams work to conceptualize, implement, and test a functional prototype by the end of the course.

### Recent projects with the School of Medicine faculty have included:

- Spinal protective implant for neonatal enhancement in Spina Bifida
- Neurological virtual assistant
- Radiolucent hand and wrist fixation device for intraoperative fluoroscopy
- Bone tensioning device
- Newborn CCHD screening
- Insulin pen dose tracking
- Stethoscope earpiece adaptor for hearing impaired physicians
- Travel diagnostic eye prescription instrument

Please see additional examples and highlights of previous projects in the accompanying materials.

Approximately 10 proposals will be selected by a committee comprised of College of Engineering and School of Medicine faculty. The committee will attempt to match student teams of appropriate background across departments. Seed funding for the chosen projects will be provided by the *CTSC Pilot Translational and Clinical Studies Program*. Selected projects will be provided with approximately \$600 toward construction of a physical prototype, or establishing proof-of-concept, depending on project scope and fabrication costs. The best projects are appropriate in scope for a team of undergraduate students to make meaningful progress in a 9-month time frame (typically October to June). The design process also requires significant creative input from the students. The capstone projects provide opportunities for students to engage in projects with well-articulated goals as well as opportunities for students to foster effective team dynamics to facilitate career development and bring new ideas and perspectives to impact human health. Projects that simply seek to implement a preconceived idea or manufacture an already determined design are not suitable.

Please concisely address the following in a 1-page proposal:

- Clinical problem: (Brief background sufficient to describe an unmet clinical need and the affected population).
- Desired outcome: (What is the desired change or improvement? It is best if this is independent of preconceived solutions. e.g., *There is a need for a less invasive means for interventional radiologists to biopsy mediastinal lymph nodes in cancer patients*).
- Translational importance: (How would the proposed project enhance human health and well-being)?
- Contact information: (Generally the PI. One or more persons willing to provide *clinical mentorship*. Should be available to periodically meet with students to provide feedback and serve as subject matter experts. They will partner with engineering faculty who will provide mentorship on the design process).

Please forward your proposal to Dr. Nicholas Kenyon ([njkenyon@ucdavis.edu](mailto:njkenyon@ucdavis.edu)).

For questions about the design process or the suitability of potential projects, please contact the COE representative and course instructor: Dr. Jennifer Choi ([jhkchoi@ucdavis.edu](mailto:jhkchoi@ucdavis.edu)).

The proposal submission deadline has been extended to **5 p.m. on Friday, August 19, 2022**.

Thank you for supporting translational medicine and engineering education!