Spotlighting Student Innovation

Greg Byrd, North Carolina State University

This new column provides a space for undergraduates in computer engineering and science to share their capstone project designs.

Welcome to the inaugural installment of a new bimonthly column for *Computer*. Student Design Showcase is intended as a venue for young computer engineers and scientists to show off their stuff. As column editor, my goal is to act as a conduit between these creative budding professionals and the broader IEEE Computer Society membership. To this end, I'll mostly get out of the way and let students tell their own stories.

FOCUS ON SENIOR DESIGN PROJECTS

A primary focus of the column will be the capstone project of the undergraduate computing curriculum, generally called "Senior Design." With this project, students take one or two semesters to pull together everything they've learned and apply their knowledge to a substantial design problem. Along the way, they practice other skills that will serve them well in the workplace: project management, group dynamics, and communication, to name a few.

Senior Design experiences vary as widely as the schools that offer them. In many cases, local industries provide projects and mentors. In others, faculty members sponsor such projects as an extension of, or introduction to, their own research. Sometimes, student projects are inspired by a desire to benefit society; the National Academy of Engineering's Grand Challenges contests, for example, encourage participants to show how "engineering will create a more sustainable, healthy, secure, and/or joyous world in the future" (www.engineeringchallenges.org). And in programs that emphasize entrepreneurship, students may be required to propose a product themselves, then research the market and design and build a prototype.

Whatever their structure, we want to honor the hard work, creative juices, and long caffeinated hours that go into these projects.

SOME GROUND RULES

I have only a few ground rules about submitting projects:

❯ The design and implementation parts of the projects must be performed by students only. The idea can be generated elsewhere, and professionals can serve as mentors and advisors, but the bulk of the work must be done by students.
❯ As noted, I'm primarily interested in undergraduate student work. I won't reject an interesting graduate project out of hand, but that's not my focus for this column.

SUBMISSION INFORMATION

To submit a project for consideration, visit the Student Design Showcase page at https://computingnow.computer.org/web/computingnow/computer/student-showcase. There you'll find a summary of the requirements, along with a link to a submission form. The form is easy to complete—just some basic information and a brief description of the project.

Once I've selected a project, I'll ask the author or authors to provide a detailed design document and be willing to collaborate actively over the following three or four weeks, with me and *Computer*'s editorial staff, to produce the final column.

And, members: spread the word to your students, colleagues, interns, and university contacts. This column will be driven by submissions, and I need your help to beat the bushes for the most creative and interesting design projects.

See the sidebar for submission information.

Student Design Showcase will begin in earnest with the April issue (sneak peak: elephant collars), and will appear every other month thereafter. I look forward to hearing about lots of innovative designs—and sharing the best of them with *Computer* readers.

❭ The project must include a significant computational component. It can be software only, or a combination of software and hardware, but this is a magazine for the Computer Society, and we want to see some computing!

❭ The project must be complete (preferably, within the past year) or nearly complete at the time it's submitted.

❭ The submission must be initiated by the student team, and at least one team member must be willing to be the primary contact.

❭ While Computer Society membership isn't a requirement, I certainly encourage it.

Given a set of submissions, how will I choose the projects to showcase in the column? Here are some criteria:

❭ Most importantly, the problem, the solution, or both must be interesting to *Computer* readers.

❭ Because I don't want projects all from the same institutions or in the same disciplines, I'll consider geographic and topical diversity in the selections.

❭ I'll favor projects that have some multimedia content: photos, videos, animations, software demos, and the like.

CALL FOR PROJECTS

So, students: I want to hear your stories, your inspirations, your challenges, and your innovative solutions. This is a technical magazine, so feel free to "let your geek flag fly"—give us some details, and show us old fogeys the skills and tools we need to learn to keep up with you.

GREG BYRD is a professor and associate head of Electrical and Computer Engineering at North Carolina State University. Contact him at gbyrd@computer.org.

Selected CS articles and columns are also available for free at **http://ComputingNow.computer.org**.