

**Title: Computing for the Greater Good
through Humanitarian Free and Open Source Software
in a Liberal Arts Computer Science Curriculum**

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Abstract: Most students readily see the value of studying computing as a path to a good job and know that the application of computing can generate business value. At the same time, we now face a world where pervasive computing is enabling a misalignment between business value and social value. However, computing also holds the potential to drive positive social change and to serve the greater good. This talk will discuss how some of the recent revisions to the computer science major at Dickinson College elevate this potential. A thread emphasizing computing for the greater good that now runs through our courses engages students in Free and Open Source Software (FOSS) with explicit humanitarian goals (HFOSS). The missions of these HFOSS communities provide real examples of ways in which computing can be focused intentionally on creating a positive social impact. At the same time, learning and working with HFOSS tools, processes, artifacts and community members builds the hard and soft skills that students and employers want. Students are exposed to FOSS concepts and examples of HFOSS in our first course. A sequence of two ½ courses at the intermediate level familiarize students with FOSS communities and build their technical skills by engaging them in an authentic HFOSS project. This project is FarmData2, which we manage in collaboration with the Dickinson College organic farm. In a year-long senior capstone students research FOSS and HFOSS projects/communities that are of interest to them. They then form teams, choose projects and engage with their selected project communities “in the wild.” Details on some of the activities that students complete and examples of the types of contributions they have made both to FarmData2 and to the projects they have chosen in the capstone will be given. Analyses of pre/post course survey data and the types of projects selected in the capstone will be presented. These analyses suggest that (1) students gain an appreciation that they can use computing to contribute to the greater good, (2) that they become more likely to continue contributing to FOSS or HFOSS projects and (3) that engaging students in HFOSS holds potential for broadening participation in computing.

Intended Audience: Undergraduate computer science faculty.

Materials Provided: A list of references and pointers to relevant resources and organizations will be provided for those wanting to learn more about using FOSS or HFOSS in their courses.

A/V/C Requirements: Computer projection for Power Point presentation.

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