Bayh-Dole as a Barrier to Scientific Transparency: Patents, the University, and the Scientific Method

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Computing is emerging as central in the practice of science. From the ability to capture data, create simulations, enable collaboration, and provide dissemination mechanisms, science has gone digital. In this paper we examine the interaction between the digitization of science and the incentives created by the Bayh-Dole Act to patent inventions associated with university-based research. We show that the number of software patents granted to faculty researchers has more than doubled over the last ten years among top patenting universities and colleges. Incentives to patent academic code are at odds with scientific norms of transparency and reproducibility. In a traditional scientific setting methods are usually openly shared in the methods section of a scientific publication, but it is now commonplace that deep intellectual contributions to science are captured in the software and codes that generate published computational results. In computational science reproducibility of results can typically only be effected with access to the underlying code and data – the traditional methods section is insufficient for computational science. Recent policy initiatives are moving toward mandates of open data for federally funded research, and we must reconsider the implications for the scientific method of university incentives to patent the software associated with scientific discoveries.