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Towards Defining Lifecycles and Categories of Research Software

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There is a large variety of types of research software at different stages of evolution. Due to the nature of research and its software, existing models from software engineering often do not cover the unique needs of RSE projects. This lack of clear models can confuse potential software users, developers, funders, and other stakeholders who need to understand the state of a particular software project, such as when deciding to use it, contribute to it, or fund it. We present work performed by a group consisting of both software engineering researchers (SERs) and research software engineers (RSEs), who met at a Dagstuhl seminar, to collaborate on these ideas.

Through our collaboration, we found many of our terminologies and definitions often vary, for example one person may consider a software project to be early-stage or in maintenance mode, whilst another person might consider the same software to be inactive or failed. Because of this, we explored concepts such as software maturity, intended audience, and intended future use. In this poster, we will present a working categorization of research software types, as well as an abstract software lifecycle that can be applied and customized to suit a wide variety of research software types. Such a model can be used to make decisions and guide development standards that may vary by stage and by team. We also are seeking community input on improvements of these two artifacts for future iterations.

I want to participate in the youngRSE prize

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