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Freesurfer

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Set of tools for brain morphometry analysis. First started distributing in 1999. fMRI, PET, microscopic imaging. 41k licenses distributed. Began funding through NIH R01s. At the time, hard to get grants for software development. Tools development became somewhat more acknowledged with more recent open source software development efforts. Supporting software is hard! Engineers command high salaries, support and maintenance is a lot of work. Brought modern software practices to the lab. Had a series of SBIRs and STTRs that helped on the engineering side, but not as much money as for the R01 for engineering.

CD: Retaining programmers is difficult. What is your experience?

BF: We’ve had more success than we deserve, with people interested in the brain. But have lost a lot of engineers. We have 3-ish full time engineers. Finding GPU programmers has been particularly difficult

Minor institutional support, mainly in terms of scanner time

GH: You spun out part CorTechs through SBIR?

BF: CorTecks started by Anders Dale at MGH. For many years, had radiologists come to us for help. But this was not sustainable. Started company to support clinical analysis.

GH: Does MGH receive any benefit from the companies? – Some from their STTRs.

BF: Fair amount of knowledge transfer that comes back to them, but not code specifically.

CD: Do you get external contributions to code?

BF: Some, but it’s dicey. Got one from WashU HTP a few years ago and at the time didn’t have sufficient regression testing and it broke some things. Requires a lot of testing effort to support external contributions.

GH: We are trying to create a main fork supported through extension capabilities. Hope that it would not affect the main core.

BF: A bit dicey…hard to get resources to generate the necessary tests.

HL: Could have free version vs paid version. What do you think of this strategy?

BF: Concerned this could be a disservivce to the scientific community. Considered but decided not to.

HL: We have similar concerns. What about the R model, with a core library and extensions?

GS: Interested in the setup of Corticometrics – how did this work? How did you work with your institution? Consulting agreements? COI?

BL: Have a conflict plan in place with MGH. Do have some restrictions in place with the company. Another person manages the company. MGH doesn’t have any equity.

GS: How do you separate Freesurfer and the company?

BL: Company builds FDA approved product. Not too much relation to Freesurfer. Company is a clinical conduit to the research.

CD: How difficult was FDA approval?

BF: Has taken the company years before they could get to the point of a submission. Was just kicked back for revisions.

DM: How have you managed to keep things from forking between the company and the academic?

BF: There is not a common code base – don’t think this would work. Code flows in one direction. We give code to them and it goes to FDA approval. They do find bugs and let us know. Most of the changes they made are not algorithmic, but more basic. Haven’t had the issue where the company needs a bug fix that’s not high priority for the academic group.

MR: Question about your OS license -looks like a custom license. Philosophy? MIT/BSD-type license (from 3D slicer). Intent was to make it as open as possible.

GH: Do you have any advice/recommendations about how to support long term sustainment?

BF: Would like to have an RFA for sustainment. There are benefits to industry to have well tested, supported software. So there are benefits to involving industry.

GH: We had wanted a mechanism for industry to support our OS software. Initially formed a non-profit for this. But maintaining structure, paperwork, corporate governance…decided to let it go because no contributions. OSRIX has a successful charitable foundation.

CD: Community-based effort to jointly support, to minimize unnecessary replication. Ideas for how to pursue this?

MR: NumFOCUS foundation – umbrella organization for open source projects. May make sense to look at their model. NumFOCUS: <https://numfocus.org/>

GS: Running a foundation and raising funds is a full time job!