

FOSS: Road to a Quality Technical Resume

Computer Tech 2018

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AUDIENCE EXPECTATIONS

What do you expect from this presentation?

OBJECTIVE

My purpose is to give you an introduction to collaboration with Free and Open Source Software (FOSS) as a means of gaining real technical experience.

I hope the parents and grandparents of children interested in a technical career can benefit from the information and pass that on.

Background

- Retired USAF fighter pilot, retired engineer with ManTech Corporation
- Programmed computers since 1961, had my own programmable computer(s) since 1974
- Used Unix and GNU/Linux and FOSS professionally for over 23 years
 - Use them daily in my personal projects as well as my work on FOSS projects
- I'm curious about lots of things, I'm passionate about computer programming

FOSS: An alternative to internships

Software developers are in demand, as are other technical positions.

An internship in an appropriate position is an ideal way to see and be seen working in your desired field.

However, good internships are not easy to come by.

FOSS collaboration can be an alternative, or a supplement, to an internship.

There are many websites where one can find FOSS projects hosted, but the ones I have used are:

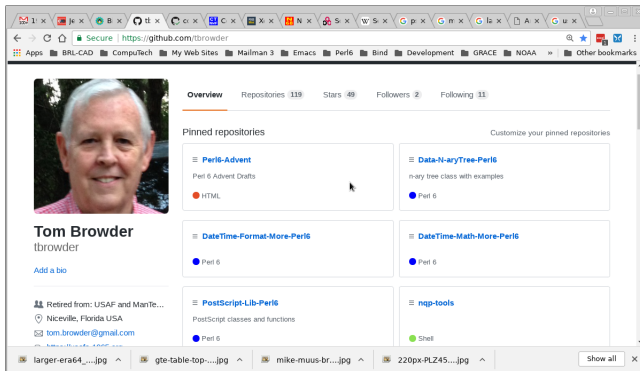
- Github
- Bitbucket
- SourceForge

Github is my favorite, and it is one of the most popular sites.

Note they have been sponsoring a hackathon, called **Hacktoberfest**, for the past several years, and you can win a T-shirt for participation.

Let's look at my home page there.

My Github home screen. . .

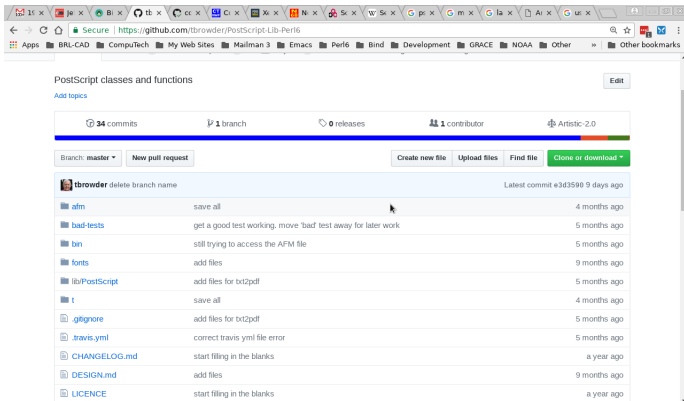


The screenshot shows a web browser window displaying the GitHub profile page for Tom Browder. The browser's address bar shows the URL `https://github.com/tbrowder`. The profile page includes a profile picture of Tom Browder, his name, and his GitHub handle `tbrowder`. Below the profile information, there are statistics for repositories (119), stars (49), followers (2), and following (11). The main content area is titled "Pinned repositories" and features a grid of six repository cards. Each card displays the repository name, a brief description, and the programming language used. The pinned repositories are:

- Perl6-Advent**: Perl 6 Advent Drafts, HTML
- Data-N-aryTree-Perl6**: n-ary tree class with examples, Perl 6
- DateTime-Format-More-Perl6**: Perl 6
- DateTime-Math-More-Perl6**: Perl 6
- PostScript-Lib-Perl6**: PostScript classes and functions, Perl 6
- nqp-tools**: Shell

The browser's taskbar at the bottom shows several open tabs, including `larger-era64_...jpg`, `gte-table-top-...jpg`, `mike-muus-br-...jpg`, and `220px-PLZ45...jpg`.

One of my repositories (*repos*)...



The screenshot shows a web browser window displaying a GitHub repository page. The browser's address bar shows the URL `https://github.com/tbrowder/PostScript-Lib-Perl6`. The repository title is "PostScript classes and functions". Below the title, there are statistics: 34 commits, 1 branch, 0 releases, 1 contributor, and Artistic-2.0 license. A navigation bar includes buttons for "New pull request", "Create new file", "Upload files", "Find file", and "Clone or download". The main content area lists the repository's files and folders, including a deleted branch and folders like `adm`, `bad-tests`, `bin`, `fonts`, `lib/PostScript`, `t`, `.gitignore`, `.travis.yml`, `CHANGELOG.md`, `DESIGN.md`, and `LICENCE`.

PostScript classes and functions Edit

[Add topics](#)

34 commits 1 branch 0 releases 1 contributor Artistic-2.0

Branch: master New pull request Create new file Upload files Find file Clone or download

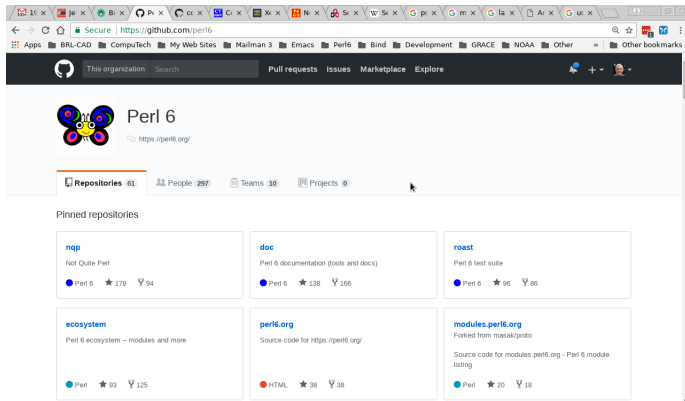
File/Folder	Description	Latest commit	Time ago
tbrowder delete branch name		e3d3590	9 days ago
<code>adm</code>	save all		4 months ago
<code>bad-tests</code>	get a good test working, move 'bad' test away for later work		5 months ago
<code>bin</code>	still trying to access the AFM file		5 months ago
<code>fonts</code>	add files		9 months ago
<code>lib/PostScript</code>	add files for txt2pdf		5 months ago
<code>t</code>	save all		4 months ago
<code>.gitignore</code>	add files for txt2pdf		5 months ago
<code>.travis.yml</code>	correct travis yaml file error		5 months ago
<code>CHANGELOG.md</code>	start filling in the blanks		a year ago
<code>DESIGN.md</code>	add files		9 months ago
<code>LICENCE</code>	start filling in the blanks		a year ago

Joining

After finding a project you want to work with, you will have to join that group's communication channels. That may be one or more mailing lists, wikis, Internet Relay Chat (IRC) channels, or forums. Some projects also use Google Groups.

Some projects have multiple mailing lists with a special one for newcomers.

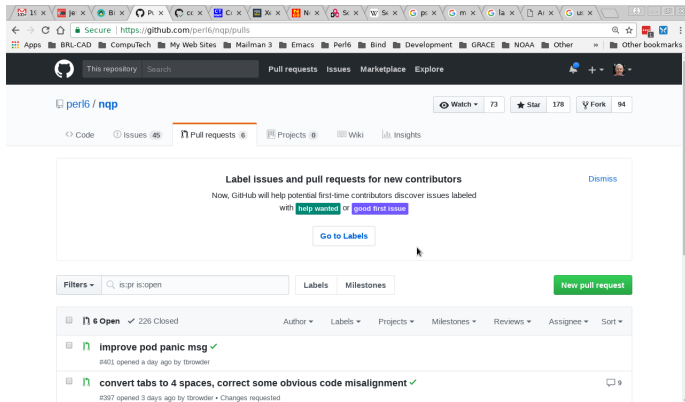
One of the *Rakudo Perl 6* group's page (*perl6*)...



The screenshot shows the GitHub organization page for Perl 6. The browser's address bar displays the URL `https://github.com/perl6`. The organization's profile includes a logo of a colorful butterfly and the name "Perl 6" with the URL `https://perl6.org/`. Below the profile, statistics are shown: 61 Repositories, 297 People, 10 Teams, and 0 Projects. The "Pinned repositories" section features six repository cards:

- nqp**: Not Quite Perl, 178 stars, 94 forks.
- doc**: Perl 6 documentation (tools and docs), 138 stars, 166 forks.
- roast**: Perl 6 test suite, 95 stars, 86 forks.
- ecosystem**: Perl 6 ecosystem – modules and more, 83 stars, 125 forks.
- perl6.org**: Source code for `https://perl6.org/`, 38 stars, 38 forks.
- modules.perl6.org**: Forked from masak/proto, Source code for `modules.perl6.org` - Perl 6 module listing, 20 stars, 18 forks.

The *github/perl6/nqp* repo. . .



The screenshot shows the GitHub interface for the `perl6/nqp` repository. At the top, the browser address bar displays `https://github.com/perl6/nqp/pulls`. The repository name `perl6 / nqp` is visible, along with statistics: 73 Watch, 178 Star, and 94 Fork. The navigation bar includes links for Code, Issues (45), Pull requests (6), Projects (0), Wiki, and Insights. A prominent banner reads "Label issues and pull requests for new contributors" with a "Dismiss" link. Below the banner, a search filter is set to `is:pr is:open`. A "New pull request" button is located on the right. The pull request list shows two items:

- improve pod panic msg** ✓
#401 opened a day ago by tbrowder
- convert tabs to 4 spaces, correct some obvious code misalignment** ✓
#397 opened 3 days ago by tbrowder • Changes requested

Newcomers

Projects vary in reputation for friendliness, but don't be put off if they are too impatient. It's a good idea to lurk unnoticed for awhile so you can get a feeling for how they treat *newbies* (aka *noobs*).

Policies

A good project will have documented policies and procedures. They may have a formal management structure.

Procedures

By procedures I mean documented methods for completing such regular tasks as:

- submitting a pull request (PR)
- reviewing and merging PR's (pull request)
- preparing a release
- publishing a release

Roles

You may work at many roles on a project:

- project leader(s), release managers
 - usually a meritorious position, gained by experience and good work in the trenches
- technical writer
 - always needed (programmers are notorious for lack of documentation)
- programmer
 - submit code changes, often with PR's

Github uses the **git** *distributed* version control system. You will have to learn how to use it and you can practice with it on your own system, whether Windows, Mac, or Linux. See the handout for the Git website where you can get for your system and help for using git.

Github has a pretty good help section, but it's much too fragmented IMHO (in my humble opinion).

The Git website has all its extensive documentation there, and there are lots of ebook and printed books. I have one here you're welcome to peruse.

Git can be used on Windows or Linux, and there are some good graphics interfaces which really help on Windows where the CLI (command line interface) is not so friendly IMHO.

For Windows I use the commercial program *SmartGit* (which is also cross-platform), but I rarely use it on Linux.

Git is usually already installed on most Linux *distros* these days, but you can always install it from the website.

At the Linux CLI, initializing a git repo on your local host in a non-existing subdirectory *foo*...

```
$ pwd
/path/to/dir
$ git init foo
Initialized empty Git /path/to/dir/foo/.git/
$ cd foo
$ echo "This is the home of the 'foo' project." > README.md
$ git add README.md
$ git commit README.md -m"initiate README.md"
[master (root-commit) 9160f05] initiate README.md
 1 file changed, 1 insertion(+)
 create mode 100644 README.md
```

Continuing...

```
$ # edit README.md and add some text
$ echo "The lead developer is Joe." >> README.md
$ git commit -a -m"add lead developer's name."
[master 9501dbf] add lead developer's name.
 1 file changed, 1 insertion(+)
$ git status
On branch master
nothing to commit, working directory clean
```

Continuing...

```
$ git branch
On branch master
nothing to commit, working directory clean
$ git checkout -b fix-widget
Switched to a new branch 'fix-widget'
$ git branch
* fix-widget
  master
```

And so on as we work on branch *fix-widget* and eventually merge it into the *master* branch.

Eventually you could link the local repo to your account on Github, which will provide you a version controlled backup on Github (but it will be public unless you pay for private repos).

While Employed

While still employed as an engineer, our company had to regularly submit employee resumes with proposal packages. My resume always mentioned expertise with vulnerability analysis tools, one of which the US DoD-supported, FOSS CAD program, BRL-CAD (hosted on SourceForge). I had significant contributions to that project that I could reference in my resume and which could be viewed by anyone interested in confirming that.

While “Unemployed”

Although officially retired, I’m actively supporting one major FOSS project (**Rakudo Perl 6**), located on Github and consisting of three major subprojects, each having its own Github project name:

- perl6 (you’ve already seen this one)
- rakudo
- moarvm

Also as you’ve seen, my Github user name is **tbrowder** and I have a lot of *repos* there, including *repo forks*.

Github, as well as other such sites, are popular collaboration platforms for thousands of FOSS projects of all kinds.

By working on one or more FOSS projects with publicly documented contributions, you can have a powerful testament to your technical or managerial skills.

- Please make sure you're on the attendance roster.
- Feel free to contact me at any time regarding this session or any other of my sessions (please mention CTech '18 in the subject):
 - Tom Browder
 - tom.browder@gmail.com