

# Guidelines for Collaboration

Zhiyang Ong \*

March 31, 2016

## Abstract

This is a set of guidelines for conduct while collaborating on open source projects. It also includes guidelines for creating a shared BibTeX database.

## Revision History

Revision history:

1. Version 1, October 2, 2014. Initial version of the guideline (for another project).
2. Version 1.1, December 23, 2014. Version ported for this boilerplate code project.
3. Version 2, October 20, 2015. Added guidelines for Doxygen-supported, Javadoc-based coding standard. This coding standard is also known as coding style, coding style guide, coding guideline, coding scheme, code convention, code documentation guideline, programming guideline, or programming style.
4. Version 2.1, October 21, 2015. Finished guidelines for Doxygen-supported, Javadoc-based coding standard for C++.

## 1 Guidelines for Conduct

Members of the open source software and/or hardware projects should follow the *Code of Conduct* of the Institute of Electrical and Electronics Engineers (IEEE) and the Association for Computing Machinery (ACM) [1, 8–10]. Also, actions of discrimination are not acceptable [11]. An additional guideline is “Dave Packard’s 11 simple rules” [2].

In addition, when there is a dispute about which technology, algorithm, design paradigm/style/pattern, process, or methodology to use, follow the “Code Wins Arguments” philosophy [13, 17]. Also, when considerable effort has been invested in an automated regression testing/verification infrastructure, do not be afraid to “move fast and break things” [6, 7].

## 2 Guidelines for Creating a Shared BibTeX Database

Guidelines for creating BibTeX entries and the BibTeX database, which is used for writing the paper, are given as follows:

1. Each BibTeX key should be unique:

---

\*Email correspondence to: ✉ [ongz@acm.org](mailto:ongz@acm.org)

- (a) Check if your desired B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> key already exists in the B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> database.
  - (b) Use the following format for creating B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> keys: [first] author’s last name, appended by the year of publication. E.g., my first conference paper would have the B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> key Ong2014. If the year of publication is not known, use an approximate year, with XY for the last 2 digits in the year (e.g., 20XY). Alternatively, if you cannot determine if it was published this millennium or the previous millennium, use UNKNOWN. For example, use Smith20XY, or KleinbergUNKNOWN.
  - (c) Remove duplicate entries in the B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> database. **WARNING! Before doing this, perform a union operation on the fields of the B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> entries. For example, if a B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> entry has information that the other B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> entry does not have, and vice versa, merge the information to a B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> entry.**
  - (d) **Rational: Duplicate B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> entries will cause problems in typesetting.**
  - (e) Regarding hash collision of B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> keys, such as multiple instances of Gratz2014, distinguish them by appending a letter to them. E.g., use Gratz2014a, Gratz2014b, Gratz2014c, and so on. If we run out of letters, append it with “a” followed by a number. The use of the letter “a” separates the year from the instance of B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> key. That is, Gratz2014a1 tells me that it is the 28<sup>th</sup> instance of Gratz2014, as opposed to Gratz201428.
2. For terms that should be typeset as is, place them in between braces (i.e., curly brackets). That is, put curly braces around acronyms and mixed-case names.
    - (a) For example, terms in upper or mixed cases (upper and lower cases), such as names (e.g., McMullen) and acronyms (e.g., SIGDA), place them in between braces (i.e., {McMullen} and {SIGDA}). This prevents the titles (or another B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> field) from changing the term into lower case, with exception for the first term/word. E.g., “ICCAD Update: A Report from SIGDA” may typeset into “ICCAD Update: A report from sigda”.
  3. For special symbols that are typeset with L<sup>A</sup>T<sub>E</sub>X in the `math` mode, such as  $\alpha$ , place them in between a pair of dollar signs (i.e.,  $\alpha$ ).
  4. For each B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> entry, check if all required fields are complete. See pages 8 and 9 in §3.1 of [15] for a list of B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> entry types; alternatively, refer to the *Wikipedia* entry for , or [12, §12.2.1, pp. 230–231]. In this/these list(s), the required fields are listed for each B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> entry.
  5. For the `pages` field, ensure that all page ranges are indicated with double hyphens. E.g., “page = {11–34},”. This makes the page range looks more pretty.
  6. For the `pages` field, ensure that multiple pages and/or page ranges are separated by commas. E.g., “page = {11–34, 57, 88, 109–187},”.
  7. For books and journal articles that have an associated digital object identifier (DOI), ensure that the `doi` field is included in the B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> entry with the DOI of the publication. This makes it easier for people to access the web page for the book or journal/conference paper.
  8. Stylistic validation of the references can be carried out as follows:
    - (a) Include all B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> keys in one citation in your L<sup>A</sup>T<sub>E</sub>X document.
    - (b) Typeset the L<sup>A</sup>T<sub>E</sub>X document.
    - (c) Check that the font and style of the reference list is correct.
    - (d) If there are errors, correct the errors as appropriate.
    - (e) Finally, the B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> database should be correct.
  9. Information that I would include when citing common sources of information, such as *Wikipedia*, using the Harvard Referencing Style:
    - (a) Wikipedia contributors, “TITLE\_OF\_THE\_ARTICLE,” in {\it Wikipedia, The Free Encyclopedia: CATEGORY}, Wikimedia Foundation, San Francisco, CA, MONTH DATE, YEAR. Available online at: \url{URL}; last accessed on August 26, 2014.

- (b) Wikibooks contributors, “CHAPTER\_NAME,” in {\it TITLE\_OF\_THE\_BOOK}, Wikibooks: Open books for an open world, Wikimedia Foundation, San Francisco, CA, MONTH DATE, YEAR. Available online at: \url{URL}; last accessed on August 26, 2014.
  - (c) Wikibooks contributors, “TITLE\_OF\_THE\_BOOK,” Wikibooks: Open books for an open world, Wikimedia Foundation, San Francisco, CA, MONTH DATE, YEAR. Available online at: \url{URL}; last accessed on August 26, 2014.
  - (d) Wiktionary contributors, “TITLE,” Wiktionary, Wikimedia Foundation, San Francisco, CA, MONTH DATE, YEAR. Available online at: \url{URL}; last accessed on August 26, 2014.
  - (e) Dictionary.com, “WORD,” IAC, Oakland, CA, MONTH DATE, YEAR. Available online at: \url{URL}; last accessed on August 26, 2014.
  - (f) AUTHOR, “TITLE,” in {\it The New York Times: The Opinion Pages: Op-Ed Contributor}, The New York Times Company, New York, NY, MONTH DATE, YEAR. Available online at: \url{URL}; last accessed on August 26, 2014.
  - (g) When BIB<sub>T</sub>E<sub>X</sub> entries are created for the aforementioned sources of information, populate the appropriate fields so that each information in the aforementioned sources are included in the BIB<sub>T</sub>E<sub>X</sub> entries.
10. Refer to the file “bibtex-template.txt” for templates for selected BIB<sub>T</sub>E<sub>X</sub> entry types. The more information that you can put in, the easier you can protect yourself from accusations of plagiarism and to make it easier for people (including yourself) to find the reference again. This is especially true for web-based references/resources.

### 3 Recommended Fields for BIB<sub>T</sub>E<sub>X</sub> Entries

The recommended fields for BIB<sub>T</sub>E<sub>X</sub> entries are:

- 1. techreport:
  - (a) Address
  - (b) Author
  - (c) Howpublished
  - (d) Institution
  - (e) Keywords
  - (f) Month
  - (g) Number
  - (h) Title
  - (i) Url
  - (j) Year
- 2. proceedings:
  - (a) Address
  - (b) Doi
  - (c) Editor
  - (d) Keywords
  - (e) Month
  - (f) Organization
  - (g) Publisher
  - (h) Series
  - (i) Title
  - (j) Volume

(k) Year

3. manual:

- (a) Address
- (b) Author
- (c) Howpublished
- (d) Keywords
- (e) Month
- (f) Organization
- (g) Title
- (h) Url
- (i) Year

4. incollection:

- (a) Address
- (b) Author
- (c) Booktitle
- (d) Chapter
- (e) Doi
- (f) Edition
- (g) Howpublished
- (h) Keywords
- (i) Pages
- (j) Publisher
- (k) Series
- (l) Title
- (m) Url
- (n) Volume
- (o) Year

5. inproceedings:

- (a) Address
- (b) Author
- (c) Booktitle
- (d) Doi
- (e) Keywords
- (f) Month
- (g) Organization
- (h) Pages
- (i) Publisher
- (j) Series
- (k) Title
- (l) Volume
- (m) Year

6. article:

- (a) Address
- (b) Author
- (c) Doi

- (d) Journal
- (e) Keywords
- (f) Month
- (g) Number
- (h) Pages
- (i) Publisher
- (j) Title
- (k) Volume
- (l) Year

7. phdthesis (or mastersthesis):

- (a) Address
- (b) Author
- (c) Howpublished
- (d) Keywords
- (e) Month
- (f) Number
- (g) School
- (h) Title
- (i) Url
- (j) Year

8. misc:

- (a) Address
- (b) Author
- (c) Howpublished
- (d) Keywords
- (e) Month
- (f) Publisher or School
- (g) Title
- (h) Url
- (i) Year

9. book:

- (a) Address
- (b) Author
- (c) Doi
- (d) Edition
- (e) Keywords
- (f) Month
- (g) Pages
- (h) Publisher
- (i) Series
- (j) Title
- (k) Volume
- (l) Year

## 4 Coding Standard

This is a guideline for *Doxygen*-supported, *Javadoc*-based coding standard that shall be used for this boilerplate code project. This coding standard is also known as the coding style, coding style guide, coding guideline, coding scheme, code convention, code documentation guideline, programming guideline, or programming style. The documentation generator that shall be supported is: *Doxygen*. Since I am using *Doxygen* for generating documentation, I can use  $\text{\LaTeX}$  to provide richer markup.

### Document the known bugs for each function/method.

My indent style would be the *1TBS* variant of the *K&R* style, which is an abbreviation of “*The One True Brace Style*”. It is also equivalent to the *Kernel Normal Form style* (or *BSD KNF style*).

Classes, functions/methods, constants, macros, and static and instance variables shall be named using complete words or well-known abbreviations that are concatenated with an underscore in *C++*; this is a deviation from the *Hungarian notation* that uses an upper case letter to distinguish words/abbreviations in the name (i.e., the Start case style of writing; see letter case).

For *C++* programs, the following tags shall be used in the comments:

1. @author *Author's\_Name*: indicate the author (*Author's\_Name*) of the file/function
2. @version *X.Y*: indicate the version (*X.Y*) of the file
3. @section *SECTION\_NAME*: indicate the section (*SECTION\_NAME*) of the file, which can be: *LICENSE* or *DESCRIPTION*
4. @param *x*: indicate the parameter (*x*) of the constructor or function
5. @exception *Exception\_Name*, or @throws *Exception\_Name*: an exception that a function/method can throw
6. @return *Return\_Statement*: indicate the return (type and) action of the function
7. @see *reference*: a link to another element in the documentation; e.g., @see *Class\_Name*, or @see *Class\_Name#member\_function\_name*
8. @since *X.Y: Month-Day-Year*: This functionality has been added since version *X.Y* (and on the date *Month-Day-Year*)
9. @deprecated *description*: Describe an outdated function/method, and indicate when the function/method has deprecated
10. “@link ... *URL*... @endlink” is used to include hyperlinks in the generated documentation for Doxygen
11. ##### IMPORTANT NOTES: Notes that are critical for helping the reader understanding assumptions and decisions made while developing the software
12. @todo(<message>, <version>) (or ##### TO BE COMPLETED): Task to be finished at a later time
13. ##### TO BE FIXED: Task to be debugged at a later time
14. @migration(<message>, <version>): Code is being migrated to another function/method, or class.
15. See <http://www.stack.nl/~dimitri/doxygen/commands.html> for more information of tags that are recognized by Doxygen.
16. @pre (or @precondition): Precondition(s) of the function.
17. @assert (or @assertion): Assertion(s) of the function.
18. @post (or @postcondition): Postcondition(s) of the function.

The order of tags in different sections of the *C++* code is given as follows:

1. Headers/Interfaces and Classes: @version, @author, @since, @link, @todo, @deprecated, @migration, and @see
2. Constructors: @param, @throws, @since, @link, @todo, @deprecated, @migration, and @see. For collaborators modifying or extending my code, they should include the @version and @author tags before the @param tag(s).
3. Functions/Methods: @param, @pre, @assert, @post, @return, @throws, @since, @link, @todo, @deprecated, @migration, and @see. For collaborators modifying or extending my code, they should include the @version and @author tags before the @param tag(s).
4. Variables can use the @see tags.
5. The @deprecated tag can be used for headers/interfaces, classes, constructors, functions/methods, and variables.

For a suggested coding style for *Python* and *Ruby* scripts, see [16] and [14], respectively.

## 5 Additional Guidelines

Please kindly use the Markdown language for writing text documents. This is because Bitbucket will treat my text file as a file written in the Markdown syntax. That said, the raw file looks a lot better than the represented Markdown files. Their (Bitbucket) formatting for Markdown is messed up.

In addition, tools for working with source code and L<sup>A</sup>T<sub>E</sub>X source files include:

1. git: [5]
2. latexdiff: “determine and markup differences between two latex files”
  - (a) Evan Driscoll, “Latexdiff notes,” from *Evan Driscoll’s web page: Writings on Software: L<sup>A</sup>T<sub>E</sub>X*, the Department of Computer Sciences, University of Wisconsin-Madison College of Engineering, University of Wisconsin-Madison, Madison, WI. Available online at: <http://pages.cs.wisc.edu/~driscoll/software/latex/latexdiff.html>; last accessed on February 15, 2016 [3].
3. SCons: [4]

## References

- [1] ACM Council. ACM code of ethics and professional conduct. Available online at: <http://www.acm.org/about/code-of-ethics>; September 27, 2014 was the last accessed date, October 16 1992.
- [2] Hewlett-Packard Company. Dave packard’s 11 simple rules. Available online in *Hewlett-Packard Company: Retiree Home: History: Founders & early contributors–Dave Packard* at: <http://www.hp.com/retiree/history/founders/packard/11rules.html>; March 15, 2014 was the last accessed date, 2012.
- [3] Evan Driscoll. A description of the *c++* `typename` keyword. Available online from *Evan Driscoll’s web page: Writings on Software: C++*, the Department of Computer Sciences, University of Wisconsin-Madison College of Engineering, University of Wisconsin-Madison at: <http://pages.cs.wisc.edu/~driscoll/typename.html>; February 15, 2016 was the last accessed date.

- [4] Evan Driscoll. Scons documentation recommendatitons. Available online from *Evan Driscoll's web page: Writings on Software: SCons*, the Department of Computer Sciences, University of Wisconsin-Madison College of Engineering, University of Wisconsin-Madison at: <http://pages.cs.wisc.edu/~driscoll/software/scons/index.html>; February 15, 2016 was the last accessed date.
- [5] Evan Driscoll. Version control. Available online from *Evan Driscoll's web page: Writings on Software*, the Department of Computer Sciences, University of Wisconsin-Madison College of Engineering, University of Wisconsin-Madison at: <http://pages.cs.wisc.edu/~driscoll/software/vcs/>; February 15, 2016 was the last accessed date, February 22 2012.
- [6] Benny Evangelista. Facebook's hacker way – “move fast and break things”. Available online in *The San Francisco Chronicle: The SF Gate: Blogs at SFGate.com: The Technology Chronicles* at: <http://blog.sfgate.com/techchron/2012/02/01/facebook-hacker-way-move-fast-and-break-things/>; October 9, 2014 was the last accessed date, February 1 2012.
- [7] Rachel Fong. Move fast and break things. Available online in *MIT Admissions: Blogs: Academics & Research* at: [http://mitadmissions.org/blogs/entry/move\\_fast\\_and\\_break\\_things](http://mitadmissions.org/blogs/entry/move_fast_and_break_things); October 9, 2014 was the last accessed date, June 25 2011.
- [8] IEEE Board of Directors. IEEE code of ethics. Available online at: [http://www.ieee.org/about/ieee\\_code\\_of\\_conduct.pdf](http://www.ieee.org/about/ieee_code_of_conduct.pdf); October 2, 2014 was the last accessed date, June 2014.
- [9] IEEE Board of Directors. IEEE code of ethics. In *IEEE Policies*, page 7.3. Institute of Electrical and Electronics Engineers, New York, NY, 2014.
- [10] IEEE Board of Directors. IEEE policies. Technical report, Institute of Electrical and Electronics Engineers, New York, NY, August 2014.
- [11] IEEE Board of Directors. Nondiscrimination policy. In *IEEE Policies*, page 9.8. Institute of Electrical and Electronics Engineers, New York, NY, 2014.
- [12] Helmut Kopka and Patrick W. Daly. *Guide to L<sup>A</sup>T<sub>E</sub>X*. Addison-Wesley Series on Tools and Techniques for Computer Typesetting. Addison-Wesley, Boston, MA, fourth edition, 2004.
- [13] David Kushner. Facebook philosophy: Move fast and break things – hacker culture is alive and well at Facebook. Available online in *IEEE Spectrum* at: <http://spectrum.ieee.org/at-work/innovation/facebook-philosophy-move-fast-and-break-things/0>; October 9, 2014 was the last accessed date, June 1 2011.
- [14] Ian Macdonald. The unofficial Ruby usage guide. Available online from *Caliban – Opinion and Righteous Anger: Ruby Projects: Recommended Tutorials* at: <http://www.caliban.org/ruby/rubyguide.shtml>; October 20, 2015 was the last accessed date.
- [15] Oren Patashnik. BIB<sub>T</sub>E<sub>X</sub>ing. Available online at: <http://mirrors.ctan.org/biblio/bibtex/base/btxdoc.pdf>; September 24, 2014 was the last accessed date, February 8 1988.
- [16] Guido van Rossum, Barry Warsaw, and Nick Coghlan. Style guide for Python code. Available online as *Python: Python Developer's Guide: Python Enhancement Proposals: Python Enhancement Proposal 0* at: <https://www.python.org/dev/peps/pep-0008/>; October 20, 2015 was the last accessed date, August 1 2013.



- [17] Mark Zuckerberg. Letter from Mark Zuckerberg. Available online as *Form S-1 REGISTRATION STATEMENT Under The Securities Act of 1933, Facebook, Inc.* at: [http://www.sec.gov/Archives/edgar/data/1326801/000119312512034517/d287954ds1.htm#toc287954\\_10](http://www.sec.gov/Archives/edgar/data/1326801/000119312512034517/d287954ds1.htm#toc287954_10); October 9, 2014 was the last accessed date, February 1 2012.