
A Bibliography of Automatic Differentiation

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Summary. This is a bibliography of scientific literature cited by all chapters in the volume, *Automatic Differentiation: Applications, Theory, and Implementations*, Martin Buecker, George Corliss, Paul Hovland, Uwe Naumann, and Boyana Norris (eds.), Springer, New York, 2005 [78]. The collection contains more than 570 references, mostly related to automatic differentiation.

Key words: Automatic differentiation, autodiff.org

Comments

Following the tradition of the collections devoted to the three previous international conferences on automatic differentiation at Breckenridge [227], Santa Fe [42] and Nice [136], this bibliography represents the common list of references for all chapters in this volume [78]. For each chapter, the authors compiled a separate bibliography; the resulting bibliographies were merged into a single `BIBTEX` database. Since all papers from the three previous volumes [42, 136, 227] are also contained, the present database includes most widely cited work in automatic differentiation (AD) as well as many references from other scientific disciplines that are not directly related to AD, but in which AD applications have been described in [78].

The Web site <http://www.autodiff.org> is currently set up to serve as the central Web-based information resource for the AD community. The `BIBTEX` database of this volume [78] will be available there. While still in its infancy, the community portal tries to be useful for research in AD by providing an extensive AD publication database. To this end, the collected `BIBTEX` bibliographies by Corliss [132, 134, 566] were taken as the starting point, from which all references not directly related to AD were removed. The goal is to provide a collection of AD references that are structured by a coarse classification scheme consisting of the three categories

- application area,
- tools,
- theory and techniques.

Syntactically, the three categories are specified by three additional fields in the database, namely `ad_area`, `ad_tools` and `ad_theotec`, which are ignored by `BIBTEX`. An entry in this database is classified by specifying one or more of these categories. For instance, a paper using the AD tool TAF in a chemical application could be classified by adding the following two fields:

```
@article{key,  
  . . .  
  ad_tools = "TAF",  
  ad_area  = "Chemistry",  
}
```

As a second example, consider a more theoretical paper investigating a checkpointing strategy. Adding the following field would be an appropriate classification:

```
@article{key,  
  . . .  
  ad_theotec = "Checkpointing, Reverse Mode",  
}
```

The benefit of this classification is that, by searching the publication database of `autodiff.org`, the AD research community can find adequate references on a certain topic. Though the number of references that are currently classified is limited, the database is already useful today for finding AD references on, say, parallelism.

More information on `autodiff.org`'s classification system is available at `http://www.autodiff.org/Publications/info.php`. The editors hope that researchers publishing in the field of AD will actively classify and submit `BIBTEX` entries of their work to `autodiff.org`, helping other researchers to find their way through the extensive literature of automatic differentiation.