An Analysis of Publication Venues for Automatic Differentiation Research

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We present the results of our analysis of publication venues for papers on automatic differentiation (AD), covering academic journals and conference proceedings.

Our data are collected from the AD publications database maintained by the autodiff.org community website (http://www.autodiff.org/). The database is purpose-built for the AD field and is expanding via submissions by AD researchers. Therefore, it provides a relatively noise-free list of publications relating to the field. However, it does include noise in the form of variant spellings of journal and conference names. We handle this by manually correcting and merging these variants under the official names of corresponding venues. We share the raw data we get after these corrections, at the end of this report.

In the final data, we have 535 journal papers published between 1970–2014 and 410 conference papers published between 1979–2012.

Figure 1 shows the distribution of publication years of AD-related papers. Figures 2 and 3 give the ranking of journals and conferences by the number of AD-related published papers. For keeping the size of these ranking figures manageable, we only include venues with 2 or more publications.

Fig. 1: Distribution of publication years of AD-related papers. (a) Journals; (b) Conference proceedings.
Fig. 2: Ranking of journals by the number of AD-related published papers. Journals with less than 2 papers are not shown.
Fig. 3: Ranking of conferences by the number of AD-related published papers. Proceedings with less than 2 papers are not shown.
Aachen Symposium on Signal Theory 2001, 1
ACM International Conference on Supercomputing 2001, 2
ACM SIGPLAN International Conference on Functional Programming 1998, 1
ACM SIGPLAN Workshop on Partial Evaluation and Semantics-Based Program Manipulation 2002, 1
ACM Symposium on Applied Computing 2001, 1; 2003, 3; 2004, 1; 2009, 1
ACM Symposium on Parallel Algorithms and Architectures 1996, 1
ACM Symposium on the Theory of Computing 1983, 1
Advances in Reactor Physics 2012, 1
AIAA Aerospace Science Meeting and Exhibit 2001, 1
AIAA Computational Fluid Dynamics Conference 1993, 1
AIAA Fluid Dynamics Conference 1994, 2
AIAA Symposium on Multidisciplinary Analysis and Optimization 1992, 2; 1994, 7; 1998, 1; 2012, 1
Annual Meeting of the Gesellschaft für Angewandte Mathematik und Mechanik 2002, 2
Array Conference 1984, 1
Colloque Africain sur la Recherche en Informatique 2002, 1
Colloque-Twente Workshop on Graphs and Combinatorial Optimization 2009, 2
Computer Arithmetic and Enclosure Methods 1992, 2
Computers and Information in Engineering Conference 2007, 1
Conference on Atmospheric and Oceanic Fluid Dynamics 2003, 1
Conference on Engineering Applications and Computational Algorithms 2003, 1
Conference on Numerical Weather Prediction 1998, 1; 2001, 2
Conference on Scientific Computing 2000, 1
Conference on the Computation of Electromagnetic Fields 2007, 2; 2009, 2
Conference on Weather Analysis and Forecasting 2005, 1
Dagstuhl Seminar on Combinatorial Scientific Computing 2009, 1
EUMFELDAS Workshop on Land Surface Assimilation 2005, 2
EURECOM Nonlinear Dynamics Conference 2009, 1
European Conference on Computational Fluid Dynamics 2006, 2
European Conference on Modelling and Simulation 2008, 2
European Congress on Computational Methods in Applied Sciences and Engineering 1996, 1
European Congress on Computational Methods in Applied Sciences and Engineering 2004, 5
European Simulation Multiconference 2004, 1
EURECOM Congress on Modelling and Simulation 2001, 1
French-German Conference on Optimization 1994, 2
High Performance Computing Symposium 1995, 1
IADIS International Conference on Applied Computing 2007, 4
IAPETUS International Conference on Modelling, Identification, and Control 2002, 1
IEEE Conference on Decision and Control 2012, 1
IEEE International Conference on Cluster Computing 2010, 1
IEEE International Conference on Computer Design 1992, 1
IEEE International Parallel and Distributed Processing 1998, 2
IEEE International Parallel and Distributed Processors Workshop on Parallel and Distributed Scientific and Engineering Computing 2005, 1
IEEE International Workshop on Source Code Analysis and Manipulation 2002, 1; 2004, 1; 2006, 1
IEEE Radar Conference 2010, 1
IEEE Workshop on Numerical Modelling of Processes and Devices for Integrated Circuits 1992, 2
International Carbon Dioxide Conference 2001, 1
International Conference on Modeling and Simulation 2008, 1
International Conference on Architecture of Computing Systems 2002, 1
International Conference on Scientific Computing in Electrical Engineering 2003, 2; 2006, 2; 2013, 3
International Conference on Computational and Mathematical Methods in Science and Engineering 2010, 2
International Conference on Computational Science 2002, 1; 2003, 2; 2005, 2; 2006, 1; 2008, 1
International Conference on Computational Science and Its Applications 2005, 8; 2006, 2; 2009, 1
International Conference on Fuzzy Systems and Knowledge Discovery 2009, 1
International Conference on Heat and Mass Transfer 2007, 1
International Conference on Mathematical Modelling 2003, 1; 2012, 1
International Conference on Metal Forming 2012, 1
International Conference on Parallel and Distributed Processing Techniques and Applications 2002, 1
International Conference on Parallel Computing 2007, 1; 2008, 2
International Conference on Solid-State Sensors, Actuators and Microsystems 2005, 1
International Conference on Underwater System Technology 2008, 1
International Congress on Mathematical Software 2006, 1
International Euro-Par Conference 2000, 1
International Federation for Information Processing Conference 1984, 1
International Heuristic Roundtable 2002, 1; 2004, 1
International Modelica Conference 2004, 1; 2012, 1
International Multiconference of Engineers and Computer Scientists 2009, 1
International Multiconference on Computer Science and Information Technology 2007, 3; 2009, 1
International Scientific Colloquium 2005, 1; 2011, 1
International Symposium on Assimilation of Observations in Meteorology and Oceanography 1990, 2; 1995, 1
International Symposium on Scientific Computing, Computer Arithmetic and Validated Numerics 1996, 1
International Symposium on Symbolic and Algebraic Computing 1991, 1; 1995, 1; 1999, 1; 2002, 1; 2003, 1; 2007, 1
International Symposium on Symbolic and Numeric Algorithms for Scientific Computing 2004, 1
International Workshop on Aircraft Systems Technologies 2007, 1
International Workshop on Automatic Differentiation 2002, 48
International Workshop on Computational Differentiation 1991, 32; 1996, 38
International Workshop on Equation-Based Object-Oriented Modeling Languages and Tools 2011, 1
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International Workshop on Aircraft Systems Technologies 2007, 1
International Workshop on Automatic Differentiation 2002, 48
International Workshop on Computational Differentiation 1991, 32; 1996, 38
International Workshop on Equation-Based Object-Oriented Modeling Languages and Tools 2011, 1
International Workshop on Implementation and Application of Functional Languages 2009, 1
International Workshop on OpenMP Applications and Tools 2005, 2
MCNSYS User’s Conference 1979, 1
Modelling, Simulation and Optimization of Complex Processes 2005, 1; 2008, 1
Modelling, Identification, and Control 2003, 1
North American Power Symposium 1994, 1
PID/NUAR Memoscle Model Users’ Workshop 2002, 2
Python for Scientific Computing Conference 2010, 1
SAP Training Workshop – Climate Monitoring 2002, 1
Scientific Discovery through Advanced Computing Program 2005, 1
SIAM Workshop on Object-Oriented Methods for Inter-operable Scientific and Engineering Computing 1999, 2
Software Engineering and Applications 2002, 1; 2003, 1; 2004, 1
Symposium on Design Principles of Programming Languages 2007, 1
Symposium on Simulation Techniques 2005, 1
Symposium on Stochastic Algorithms, Foundations and Applications 2001, 1; 2003, 1
Workshop on Applied Parallel Computing in Physics, Chemistry and Engineering Science 1996, 1
Workshop on Automated Data Layout and Performance Prediction 1996, 1
Workshop on High Performance Computing in Geosciences 1994, 1
Workshop on Parallel Systems and Algorithms 1996, 1
Workshop on Stochastic and Numeric Computing 1994, 1
Workshop on Symbolic and Numeric Computing 1994, 1
World Congress on Intelligent Control and Automation 2006, 1