Douglas C. Schuster

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National Center for Atmospheric Research
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Professional Experience

National Center for Atmospheric Research (NCAR), Data Support Section (DSS)
Database Engineer 2011 – Present
Software Engineer III 2006 – 2011
Software Engineer II 2002 – 2006
European Centre for Medium-Range Weather Forecasts (ECMWF)
Consultant (Software Analyst) 2007 - 2007
Foresight Weather LLC.
Research Scientist 2001 – 2002
Department of Atmospheric Science, Colorado State University
Graduate Research Assistant 1998 – 2001

Professional Affiliations

Member, American Geophysical Union 2014 – Present
Member, American Meteorological Society 2014 – Present

Education

Master of Science, Colorado State University, 2001, *Atmospheric Science, William R. Cotton, advisor. Thesis: "Prototype real-time boundary layer prediction in support of the CASES-99 nocturnal boundary layer experiment."*
Bachelor of Science, University of Minnesota, 1998, *Civil Engineering*

Leadership and Supervisory Roles:

- Technical lead for NCAR Research Data Archive maintenance and development activities.
- Supervisor for Software Engineer IIIs. This involves mentoring of supervisees to set project visions and goals.
- External Evaluator for ECMWF managed Copernicus Climate Data Store and Toolbox.
- Representative for NCAR at the WMO TIGGE Working Group. This required negotiating with partners to plan future TIGGE activities.
- Co-wrote and successfully received NSF funding grant for "TIGGE Archive Access Improvements and Validation Data Portal".

Software Engineering and Data Management:

- Establish and maintain RESTful Web API to enable programmatic metadata discovery, data subset request submission, request processing status queries, and request output access.

- Deploy and configure Unidata THREDDS data server to support interoperable access to multi-terabyte GRIB-1, GRIB-2, and NetCDF format dataset collections with role-based authenticated access.
- Develop and sustain components of a generalized system to efficiently process GRIB-1, GRIB-2, and NetCDF data reduction requests on NCAR HPC resources.
- Coordinate with Globus developers to implement and maintain single-sign-on capabilities for RDA users leveraging Globus resources to access RDA holdings.
- Build configurable tools to decode BUFR format observational data using the National Center for Environmental Prediction (NCEP) FORTRAN based BUFRLIB, and the ECMWF FORTRAN based BUFRDC libraries.
- Develop software for, and maintain real-time numerical weather prediction models and output products used in private industry and for field research projects.
- Maintain, support, and document a variety of datasets within the NCAR RDA ranging from near real-time observational and model data, to global re-analysis products spanning the past 2 centuries.
- Provide consulting on data, software, and access as questions arise regarding RDA datasets.

Computer/Software Experience

Languages and Shells

FORTRAN, C, C++,
Perl, Java, Python,
Csh, Bash, Ksh, Tcsh

Scientific Software

ECMWF GRIB_API & BUFRDC,
NCEP BUFR & GRIB Libraries,
Unidata NetCDF Libraries,
Unidata Local Data Manager (LDM),
Unidata THREDDS Data Server,
NCL, NCO, CDO

Web Related Skills

HTML, XML, JSON,
Javascript, PHP
Apache Tomcat,
Apache HTTP

Scientific Data Formats

GRIB-1, GRIB-2, NetCDF,
BUFR, HDF-5, CXML

Operating Systems

Linux, MacOS,
Windows

Databases

MySQL