CONTACT INFORMATION

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WORK HISTORY

2017--: Owner, Board Member, Developer, Senior Wind Resource Analyst, Karlstad Modern Energy AB
2012-2017: Senior Wind Resource Analyst, Statkraft AS
2010-2012: Data layer responsible, StormGeo (former Storm Weather Center)
2008-2012: R&D in applied Meteorology, Storm Weather Center
08.2007-2008: Developer and Market Manager Sweden, Storm Weather Center
01.2007-07.2007: Product & marketing manager, Met.no
08.2005-01.2007: Project meteorologist (developer and forecaster), Met.no
12.2003-07.2005: Product manager, SMHI
10.2001-12.2003: Weather forecaster (energy & media), SMHI

ACADEMIC POSITIONS

2001: MSc in physics/meteorology. Uppsala University.
1998: Mechanical Engineering, Applied Mechanics. Luleå Technical University.

RESEARCH, TRAINING, EXPERIENCE

2016, supporting Måns Håkansson in the development of Triton Knoll wind farm.

2016, implemented DWM (dynamic wake meandering model) in a high performance multi-threaded C++ environment.

2016 -2017, R&D project aimed at reducing ice-loss due to smarter turbine control strategy based on a combination of weather forecasts and cloud measurements using a ceilometer. High resolution WRF modelling and setup of new HPC Linux cluster at Statkraft.

2015, development of new methods for estimation of site specific turbine power performance which led to a state of the art power performance script. Fully transient time series based which considers wind shear performance, turbulence performance, dynamic yaw performance, air density performance and high wind hysteresis losses.

2015, development of post-construction yield estimation capabilities in Statkraft. Comparisons with pre-construction data and tuning of model setups to better match actual production.

2013, seconded to Statoil (mainly November 2012 – May 2014) to work in the Statoil/Statkraft co-project Dudgeon Offshore Wind Farm. Responsible for field layout, wind resource, production and site suitability. Involved in turbine selection.
2013, setup and usage of ANSYS WindModeller (both Linux and Windows).

2013-2015, work for the Dogger Bank project. Using new ways of creating look up tables divided in stability classes from FUGA. Long range wake loss simulations using WRF. Added a power curve reader to the WRF model. Studied model data and met mast data for Dogger Bank as well as from the Cavendish LIDAR where also wind shear was studied (to estimate shear performance).

2012-2016, studied close to 100 tall met masts, onshore and offshore. CFD modelling of a large amount of wind farms and possible wind farm areas. Also WRF modelling and creating in-house hindcasts. Participating in several turbine tender processes.

2012-2016, through Statkraft member of *Forewind* group for *Dogger Bank*, extensive testing of wake loss for thousands of offshore layouts.

2012-2016, through Statkraft member of *Offshore Wind Accelerator* group for *Wake Effects*.

2012, setup of the IT infrastructure for Wind&Site at Statkraft (Linux and Windows servers/clusters). Setup and usage of WRF (meso-scale weather forecast model), WindSim, WaSP, WindPRO. Data handling for conversion/extraction of data and long term correction routines.

2011, setup of the IT infrastructure in Houston for new StormGeo Inc. Focus on Hurricane forecast products for Gulf of Mexico. A lot of data processing and visualization for the StormGeo Hurricane web portal.

2010-2011, responsible for the complete data layer at StormGeo - most of the data used, post processed or visualized (~ 1 TB per day). Responsible, and single developer, of the software used.

2010, new grib reader to DIANA (http://diana.met.no), new projection types for geotiff in DIANA, shape file output in DIANA, added qt framebuffer in bdiana (batch Diana), added observation reader for MySQL stored data.

2010, development and operationalization of a software for reading different data types, grib1,grib2, geotiff, into MySQL database, text files, XML, files or output to grib1,grib2,geotiff. Point wise or grid. Software is C++, multithreaded, and makes a lot of meteorological computations. Interpolation made available for polar stereographic, lambert, geographic grids.

2009, wind assessment reports (10-20) by using Wind Suite planner (see below). Several different customers and a lot of observations to use for model verifications.

2009, development and operationalization of the visualization software DIANA, developed by Met.no, but now released as open source and further developed by SMHI and Storm Weather Center.

2009, development of StormGeo WindSuite – a web based service that in just a couple of minutes extracts huge amounts of meso-scale weather data, long term corrects and height corrects it and compute statistics and expected energy output. Single developer of this tool.

2008-2009, ongoing work with methods for the use of WRF 1 km data for wind siting purposes. Also tests in nesting WRF data into micro scale CFD models (project together with WindSim).

2008, development of new methods for post processing of meteorological data based on terrain information.

2008, development of a customized meteorological production system for Agder Energi in Kristiansand. Including new methods, especially extremely customized methods.

2006-2007, development of a new automatic system for newspaper weather graphics, a new production system and new methods for post processing of meteorological data.
2004-2005, project manager for 4 large projects at SMHI.

2004, development of a new system for automatic weather forecast texts and advanced algorithms for weather symbols.

EDUCATION

2015: Python for programmers. 3 days course. Programutvikling AS, Fornebu Norway.
2015: WindPRO LoadResponse. 3 days course. EMD, Aalborg Denmark.
2015: WindSim advanced course. 2 days course. Statkraft.
2013: ANSYS WindModeller. 2 day course. ANSYS, Milton Park Office, UK.
2012: OpenFOAM, 5 days. Chalmers University of Technology, Göteborg.
2010: Computer training course ECMWF, grib_api library C/Fortran. ECMWF, Reading, UK.
2009: C++ for embedded developers, intermediate level. Programutvikling, IT Fornebu, Oslo.
2007: Techniques for creative thinking. 2 days course. Felix Conference Center, Oslo.
2006: Web course in R programming. Met.no.
2004: Marketing and processes for product development. 16 days, NERCIA/SMHI.
2001: Practical forecasting meteorology. 4 months, Swedish Military School, Halmstad.
2001: MsC in physics/meteorology. Uppsala University.
1999-2000: Chamber Music, Piano. Uppsala University.
1995-1998: Mechanical Engineering, Applied Mechanics. Luleå Technical University.

PROFESSIONAL QUALIFICATIONS

- Wake modelling.
- Flow modelling.
- Site suitability.
- Wind farm energy yield estimation.
- Post construction yield analyses.
- Turbine power performance (estimation, analysis, testing).
- Turbine tender processes.
- Met mast design.
- Met mast data analyses.
- Numerical modelling.
- General knowledge of OpenFoam (CFD) modelling.
- WRF modelling.
- Weather forecasting.
- Statistics.
- Meteorological data and formats.
- Post processing of meteorological data.
- Meteorological methods and algorithms.
- Marketing and product development processes.
- Languages - Swedish (mother tongue), Norwegian, English, German and some Spanish.

COMPUTER SKILLS

Software:

- Eclipse.

- Microsoft Office.
- Open Office.
- Grass/QGIS open source GIS software.
- WindSim.
- WindPRO.
- ANSYS WindModeller.
- FUGA - a linearised CFD model tool for offshore wind farm wakes (Risø DTU).
- WaSP (the software, not the model).
- R statistics.
- WRF

Programming:

- PHP, R statistics, C, C++, Bash, Perl, Python
- Ecaccess scripting for ECMWF data archive servers (MARS archive).
- Database language MySQL.
- General knowledge in the programming languages Fortran, JavaScript, HTML.
- General knowledge in the visualization tool GMT.
- Visualization and digital analyses software DIANA (for meteorological data). Usage level and source code level.
- GIS formats (been writing c-code software for writing shapefiles and geotiff as an example).

Linux / Unix, Microsoft Windows.

PUBLICATIONS

- Master thesis in Meteorology: The wind field in coastal area. http://www.geo.uu.se/luva/exarb/2002/niklas.pdf
- Storm Weather Center, internal report: N. Sondell, K. Jääskeläinen. Operational weather forecast data system for distributed hydrological models calibrated and customized. Oslo, 2008.

CONFERENCES AND EXHIBITIONS

IBC, IFRA (exhibitor), IABM, EPS workshop at MetOffice, User meeting at ECMWF (as speaker), EWEC 2009 (exhibitor), Vind 2008 (exhibitor), Winter Wind 2008, StormGeo seminars 2009-2010 (speaker), 2012/2013/2015 Wind Resource Assessment (by Wind Power Monthly), 2015 Wind Farm Data Analysis (by Wind Power Monthly), EWEA 2015, WinterWind 2016.