

Work Experience

FOUNDER, ENVICONNECT

Technology Transfer Initiative, U. Stuttgart, Germany.
08/2020 –

Founded a startup to bring novel wind energy measurement techniques and data services to market.

- Develop business plan and strategy
- Identify and pursue business opportunities
- Manage and deliver consultancy services.

MANAGING DIRECTOR WINDFORS

Stuttgart Wind Energy, U. Stuttgart, Germany. 06/2017 –

Leader of the WindForS wind energy research cluster:

- Mentor 25 research groups across 8 universities and research organisations
- Total project portfolio of around €20M (2011-2020)
- Identify, formalise, and execute WindForS strategy in partnership with members and stakeholders
- Promote WindForS internationally through publications, presentations, conferences, and other events
- Develop and execute ideas for new national, EU, and international projects.

Operating Agent for IEA Wind Task 32 "Wind Lidar for Wind Energy Applications":

- Manage a 400-person collaborative R&D Task
- Develop and formalize multi-year R&D strategy roadmap
- Create and execute communications strategy
- Conceive, define, and execute technology-transfer workshops and annual meeting
- Obtain funding from 12 partner countries and manage budget and expenses

Operations Manager for Stuttgart Wind Energy:

- Support wind energy PhD student learning at SWE
- Coaching staff and teams
- Developing OpenScience and other innovation programs

FOUNDER, NEW ENERGY PERSPECTIVES

Technology Transfer Initiative, U. Stuttgart, Germany.
06/2018-09/2019

Founded a network of independent consultants to help clients at the intersection of weather, energy, and society.

GROUP MANAGER, SENSING, MEASUREMENT & FORECASTING GROUP

Power Systems Engineering Center, National Renewable Energy Laboratory (NREL), Golden, CO, USA. 02/2016-04/2017

Leader of a 7-person group:

- Responsible for obtaining funding and managing an annual budget of around \$2M
- Led group adoption of FAIR data management and agile software development approaches

SENIOR ENGINEER

National Wind Technology Center, National Renewable Energy Laboratory, Golden, CO, USA. 12/2011-02/2016

World-leading research on the effect of weather and climate on turbine and plant performance and economics:

- Develop the use of machine learning for wind energy resource, performance, and loads applications
- Support the deployment of wind lidar for wind energy applications directly and through IEA Wind Task 32
- Manage around \$1M of projects with 3-5 people p.a.
- Support to U.S. Government (e.g., Department of Energy, NOAA) and Governments and NGOs abroad.

RESEARCH PROGRAM PARTICIPANT

National Renewable Energy Laboratory, Golden, CO, USA.
1/2011-12/2011

Initiated NREL research on the use of remote sensing for wind energy applications, including commissioning two, 135-m meteorological towers.

SCIENTIFIC OFFICER

WSL Institute for Snow and Avalanche Research, Davos, Switz..
10/2009-12/2010

Research into the interaction of weather and energy in the Swiss Alps.

TECHNICAL SALES MANAGER

Natural Power, Vancouver, Canada. 07/2008-09/2009

Selling lidar, flow models, and wind resource assessment campaigns to the wind energy industry in North America.

POSTDOCTORAL FELLOW

U. Northern British Columbia, BC, Canada. 09/2007-07/2008

Research into the effects of wind on snow hydrology in the mountains of British Columbia.

DOCTORAL STUDENT

WSL Institute for Snow and Avalanche Research, Davos, Switz..
12/2003-05/2007

Field and laboratory research into the onset of snow drift and its effect on avalanche hazard.

DEVELOPMENT ENGINEER

Alstom Power, Baden, Switzerland. 08/2001-12/2003

Gas turbine cooling system research & development. Reduced test duration by 50% using new equipment and through new test methods (patented).

Education

DOCTOR OF SCIENCES

ETH Zürich, Switzerland. 2004 – 2007
Understanding, measuring, and modeling the start of snow drift, which contributes to avalanche hazard.

MASTERS OF ENGINEERING (1ST CLASS)

University of Durham, UK. 1996 – 2001
Direct-entry 4-year Masters degree with focus on thermodynamics, turbomachinery, and management.

Self-directed Education & Training

START-UPS

2018 –
Participant in the M.Tech startup accelerator programme. Created business plans for several early-stage startups. Advised a UK-based startup on a 500k seed-round investment process.

OPEN SCIENCE

2018 –
Conceived, initiated and taught a new course to train new PhD students in open science ideas and tools. All materials are available on [Github.com](https://github.com).

SOFTWARE DEVELOPMENT

Python, R, Django, Wordpress. 2015 –
Developing software tools, websites & creating content to visualise new products or business ideas

LATEX ACCESSIBILITY PACKAGE MAINTAINER

CTAN.org, International. 2017 –
Deploy and maintain a LaTeX package to create machine-readable PDFs for partially-sighted and blind users. Currently setting up a publically-funded project to scope, rewrite, and distribute a completely new version

Leadership

IEA WIND TASK 32 'WIND LIDAR'

2012 –
Task 32 manager and leader since 2018. Advisory board member and work package leader since 2012. Helping guide collaborations in wind lidar research and development for wind energy by 400 experts in 20 countries.

CO-CHAIR, POWER CURVE WORKING GROUP

2017 – 2020
Directing and enabling collaboration and exchange of experience between industry leaders to better understand and predict real-world performance of wind turbines

- Provide a link between academics and the PCWG to help ensure visibility and relevance of research.
- Lead PCWG Machine Learning subgroup

CO-CHAIR, AMERICAN METEOROLOGICAL SOCIETY ENERGY CONFERENCE

2013 – 2017
Develop, promote, and lead program and side events for a 4-day conference on the energy-meteorology nexus.

CHAIR AND CO-CHAIR, AM. MET. SOC. RENEWABLE ENERGY COMMITTEE

2013 – 2016
Led an AMS-sponsored committee to foster communication between industry, government, and academia.

CO-CONVENER, ROCKY MOUNTAIN FLUID MECHANICS SYMPOSIUM

2015, 2016
Started a regional symposium for students and early career scientists in US mid-west states

Honours and Awards

OUTSTANDING MENTOR

09/2016
For support of NREL postdocs and PhD students

NREL TEAM OF THE MONTH

07/2015
For commissioning and managing two 135-m towers at the U.S. National Wind Technology Center

NREL OUTSTANDING BUSINESS COLLABORATION AND PARTNERSHIP

05/2015
For partnership with Siemens to collect and analyze data on airfoil and blade performance

NREL PRESIDENT'S AWARD

2013
For leading NREL's acquisition of a multi-million dollar DOE project to redevelop the Chesapeake Bay Coastguard tower as a reference facility for offshore renewable energy

Membership and Licenses

BERUFSBEZEICHNUNG "INGENIEUR"

2019 –
Anerkennung durch Ingenieurkammer Baden-Württemberg

CHARTERED ENGINEER, INSTITUTE OF MECHANICAL ENGINEERING

2010 –
UK-based professional engineering qualification, recognised in Europe and Asia

MEMBER, AMERICAN GEOPHYSICAL UNION

Publications

A list of the 100+ publications I have led or contributed to is available at [Google Scholar](https://scholar.google.com/citations?user=8Y8Y8Y8Y8Y). A list of peer-reviewed journal articles (including open-access papers) can be found at orcid.org/0000-0001-9698-5083. Relevant works include:

- A. Clifton, D. Schlipf, et al. (Sept. 2020). *IEA Wind Task 32: Collaborative R&D Roadmap*. Tech. rep. DOI: [10.5281/zenodo.4030701](https://doi.org/10.5281/zenodo.4030701)
- A. Clifton, P. Clive, et al. (2018). "IEA Wind Task 32: Wind Lidar Identifying and Mitigating Barriers to the Adoption of Wind Lidar". In: *Remote Sensing* 10.3. DOI: [10.3390/rs10030406](https://doi.org/10.3390/rs10030406)
- A. Clifton, A. Smith, and M. Fields (2016). *Wind Plant Pre-construction Energy Estimates: Current Practice and Opportunities*. Tech. rep. NREL/TP-5000-64735. National Renewable Energy Laboratory. URL: <https://www.nrel.gov/docs/fy16osti/64735.pdf>
- A. Clifton, L. Kilcher, et al. (2013). "Using machine learning to predict wind turbine power output". In: *Environmental Research Letters* 8.2, p. 024009. URL: <http://stacks.iop.org/1748-9326/8/i=2/a=024009>
- A. Clifton, D. Elliott, and M. Courtney (2013). *IEA Wind RP 15. Ground-based vertically-profiling remote sensing for wind resource assessment*. Tech. rep. RP 15. IEA wind. URL: http://www.ieawind.org/index_page_postings/RP/RP%5C2015_RemoteSensing_1stEd_8March2013.pdf