Bjørnar Lona Svingen

Chief Developer, dr.ing

Medgründer og medeier i Flow Design Bureau AS, Norge.

Basert på lang erfaring fra vannkraftbransjen og forskningsinstitusjoner styrker jeg FDB sin ekspertise på systemanalyse, transiente beregninger, digitale tvillinger og prediktive styringssystemer. Jeg utvikler programvaren LVTrans som brukes av flere store vannkraftoperatører, konsulenter og turbinleverandører. Programvaren benyttes for transiente beregninger, stabilitetsanalyse, FCR-analyse og inngår som et sentralt element i f.eks digitale tvillinger av vannkraftverk.

Jeg er et langvarig medlem av International Advisory Panel for Pressure Surges, hos Deltares, tidligere BHR Group. Jeg deltar også aktivt i standardiseringsarbeid på samme tema i IEC.

Arbeidserfaring

- Chief Developer, Flow Design Bureau (2024-present)
- Principal Engineer/Head of Systems Engineering at Rainpower/Hymatek/Aker Solutions (2008-2024)
- Associate Professor, 20%, NTNU (2015-2022)
- Founder and owner of Svingen Tech (for LVTrans) (2015-present)
- Research Scientist at SINTEF Energy (2003-2008)
- Co founder and CEO of FDB (2001-2003)
- Post.Doc at SINTEF (2000-2001)
- R&D Engineer at Kværner Process Systems (1997-2000)

Utdannelse

- dr.ing in 1996, NTNU – Fluid Structure Interactions in Piping Systems - (1992-1996)
- Master of Science in 1991, NTH, – Undersøkelse av selveksiterende trykksvingninger i rørsystemer tilkoblet en fjærende ventil - (1987-1991)
- Aircraft mechanic, Fenrik, Royal Norwegian Air Force (1985-1987)

Kompetanse

- Development of systems engineering software 100%
- Transient and stability analysis of hydro power pla... 100%
- Systems engineering of hydro power plants 100%
- Design and installation of predictive governors (digital twins) in hy... 100%
- FCR analysis 100%
- Commissioning of turbines and turbine gov... 90%

Profesjonell kompetanse

- LabVIEW (LVTrans)
- C/C++
- Scilab/Xcos
- Python
- Lua

Publications

- Large and rapid set-point adjustment of hydro power plants using embedded transient hydraulic simulations of the plant as a model predictive method, BHR Group, 2015
- A predictive controller based on transient simulations for controlling a power plant, IAHR Symposium, 2016
- First principle approach linear model for hydraulic turbines suitable for use in available simulation platforms, BHR Group, 2028
- Transient Hydraulic Calculations with a Linear Turbine Model derived from a Nonlinear Synthetic Model, IAHR Symposium 2018
- Waterway stability analysis of hydropower plants using a nonlinear numerical method and FFT with focus on the response of hydraulic power, BHR Group, 2023

Portefølje

- Transient- and stability analysis of a whole range of small and large hydropower plants world-wide in connection with turbine and turbine governor deliveries (Rainpower, Hymatek, Aker Solutions). Systems engineering lead on many of these projects.
- Developer and designer of predictive governors for two hydro power plants, one plant being the largest in Norway.
- Developer, designer and distributor of the open-source transient- and stability analysis software LVTrans. This software is also the core of the digital twins/predictive governors.

Copyright © 2025 FDB