Curriculum vitae for Eivind Fonn

ROLE IN THE PROJECT ☐ Project manager ☐ Work package leader ☑ Project participant

PERSONAL INFORMATION

Family name, First name:	Eivind Fonn		
Date of birth:	02.11.1984	Sex:	Male
Nationality:	Norwegian		
Researcher unique identifier:	ORCID: 0009-0008-6385-2469		
URL for personal website:	https://www.sintef.no/en/all-employees/employee/eivind.fonn		

KEY EXPERTISE FOR MY ROLE IN THE CURRENT APPLICATION

Software Development: Managing multiple open-source projects with regular updates and automated error detection. Packaging for internal and external users.

Digital Infrastructure: Development of sophisticated digital infrastructure with a wide variety of clients on different devices, programming languages, and networks. Key focus on reliability, automated fault detection, continuous integration and hardware control.

Digital Twins: Key participant and task leader in several projects on digital twins, in particular the PoroTwin and PoroTwin 2 projects, as well as EDINAF and dTHOR.

EDUCATION

	Degree/Name of faculty/department, name of university
2013	**PhD - Computational Sciences**, ETH Zürich, Switzerland
2009	**Master of Technology - Industrial Mathematics**, NTNU, Trondheim, Norway

POSITIONS

Current Position

	Job title - Employer - Country
2014–	**Research Scientist**, SINTEF Digital, Dept. of Mathematics and Cybernetics, Norway

Previous positions held

	Job title - Employer - Country
2016	**Associate professor**, NTNU, Dept. of Mathematical Sciences, Trondheim, Norway

FELLOWSHIPS, AWARDS AND PRIZES

	Name of institution/country
2009	**Winne and Ragnar Mathisen's Award**, best student of technology or architecture at NTNU
2009	**Norwegian Computing Center's Award**, best master thesis in mathematics or ICT at NTNU
2009	**The Stubban Award**, most promising master candidate in mathematics at NTNU
2004, 2007	**National Record holder**, Rubik's Cube speedsolving

MOBILITY

	Name of faculty/department/centre, name of university/institution/country
2017	**Research collaboration**, Dept. of Mechanical Engineering, Eindhoven University of Technology, Prof. E. H. v. Brummelen

PROJECT MANAGEMENT AND PARTICIPATION EXPERIENCE

	Project and role (WP: Work-package leader, TL: Task leader, P: Participant)/funding from
2022–	**PoroTwin 2** (Flow in Porous Media Matters), **P**, Wintershall DEA
2022–2025	**EDINAF** (European Digital Naval Foundation), **TL**, EDF, 29MEUR
2022–2025	**dTHOR** (Ship Structural Health Monitoring), **TL**, EDF, 14.5MEUR
2021–2022	**Porotwin** (Flow in Porous Media Matters), **P**, Wintershall DEA, 2.5MNOK
2021–	**FME Northwind** (Norwegian Research Centre on Wind Energy), **P**, RCN, 120MNOK
2020–2024	**RaPiD** (Reciprocal Physics and Data-driven Models), **P**, RCN, 8MNOK
2019–2020	**COSMO** (Combined Opitimization and Scheduling for Marine Operations), **P**, Equinor
2019–2020	**OpenFrac** (Open Simulation for Fracture Propagation), **P**, Equinor
2018	**OPWIND** (Operational Control for Wind Power Plants), **P**, RCN, 12MNOK
2017	**E3WM**, **P**
2016	**Living Lab**, **P**
2016	**eSushi**, **P**, RCN, 9.4MNOK
2015–2016	**HF-PFC** (Hydraulic Fracture Phase Field Code), **P**
2014	**FFG** (Fracture, Flow and Geomechanics), **P**
2014	**LS-TES** (Large-Scale Thermal Energy Storage), **P**
2014	**FSI-WT** (Fluid-Structure Interaction for Wind Turbines), **P**, RCN, 20MNOK

SUPERVISION OF GRADUATE STUDENTS AND RESEARCH FELLOWS

	No. of	Type of Students	University/institution - Country
2025	1	Summer student	Co-supervisor at Dept. of Math. and Cyb., SINTEF, Norway
2024	1	Summer student	Co-supervisor at Dept. of Math. and Cyb., SINTEF, Norway
2023	1	Summer student	Co-supervisor at Dept. of Math. and Cyb., SINTEF, Norway
2022	1	Summer student	Co-supervisor at Dept. of Math. and Cyb., SINTEF, Norway
2022	1	Master's student	Co-supervisor at Dept. of Math. Sci., NTNU, Norway
2022	2	Summer student	Co-supervisor at Dept. of Math. and Cyb., SINTEF, Norway
2018–2023	1	PhD student	Co-supervisor at Dept. of Math. Sci., NTNU, Norway

KEY SOFTWARE DEVELOPMENT

	Name	Role	Description
2024–	AROMA	Architect	Universal generation of reduced basis models with support for hybrid modeling (web)
2022–	PoroTwin 2	Architect	Digital infrastructure for multi-component remote lab, digital twin of the PoroTwin 2 project
2022–	Gold	Architect	Programmable configuration language for escaping the "YAML curse" (web)
2020–	Geomaker	Architect	Map-based graphical interface for generating high-fidelity terrain models of locations in Norway, with accompanying satellite image mapping (web)
2019–	Cosmo	Frontend manager	Optimization tool for the orchestration of ships during the installation of offshore wind parks (web)
2017–	SISO	Architect	Universal file format converter for numerical simulation results (web)

	Name	Role	Description
2016–	Splipy	Maintainer	"Splines in Python" is a NURBS library for the creation and manipulation of 3D geometries (web)
2015–	Grevling	Architect	Highly configurable batch runner for parametrized code execution, output interpretation, accumulation and interpretation (web)

TEACHING ACTIVITIES

	Teaching position - topic, name of university/institution/country
2017	Practical Machine Learning, Geilo Winter School
2016	Introduction to Supercomputing, Dept. of Mathematical Sciences, NTNU, Norway

INSTITUTIONAL RESPONSIBILITIES

	Name of university/institution/country - and role
2008–2009	**Lead organizer**, Norwegian Rubik's Cube Speedsolving Championship
2007–2009	**Problem author**, Norwegian Mathematical Olympiad
2006	**Organizer**, Conference for Mathematics Students in Norway

MAJOR COLLABORATIONS

Name of institution	Topic
Eindhoven University of Technology	Reduced Order Methods, Hybrid Modelling

RESEARCH COMMUNICATION, DISSEMINATION OR OUTREACH ACTIVITIES

	Name
2025	Hybrid Real-Time Structural ROM of the RV Gunnerus, DTE-AICOMAS
2022	Interpolated Methods for Non-Intrusive Affinization of Reduced Basis Methods, ECCM
2020	Fast Divergence-Conforming Reduced Basis Methods for Stationary and Transient Flow Problems, EERA Deepwind
2020	Splipy - Spline Modelling in Python, EERA Deepwind
2018	Fast Divergence-Conforming Reduced Basis Methods for Steady Navier-Stokes Flow, ECCM
2018	Fast Divergence-Conforming Reduced Basis Methods for Steady Navier-Stokes Flow, IGAA
2018	Fast Divergence-Conforming Reduced Order Models for Flow, EERA Deepwind
2017	Spline-based Compatible Reduced Basis Methods for Flow Problems, IGA
2017	On Mixed Isogeometric Analysis of Poroelasticity, OMAE
2017	A Step Towards Reduced Order Modelling of Flow Characterized by Wakes using POD, EERA Deepwind
2016	A Mixed-Order Isogeometry Solver for Poroelasticity Problems, WCCM
2015	Spline-based Mesh Generator for High Fidelity Simulation of Flow Around Turbine Blades, EERA Deepwind
2015	Isogeometric Methods for CFD and FSI-Simulation of Flow Around Turbine Blades, EERA Deepwind
2014	Spline-Based Mesh Generator for Wind Turbine Blades, NSCM

Track record

[1] E. Fonn *et al.*, “Least-Squares Projected Models for Non-Intrusive Affinization of Reduced Basis Methods,” *International Journal for Numerical Methods in Engineering*, vol. 126, no. 18, p. e70127, 2025, doi: 10.1002/nme.70127.

[2] E. Keilegavlen *et al.*, “A Digital Twin for Reservoir Simulation,” in *SPE Norway Subsurface Conference*, Bergen, Norway: SPE, Apr. 2024, p. D11S004R001. doi: 10.2118/218461-MS.

[3] E. Keilegavlen *et al.*, “PoroTwin: A Digital Twin for a FluidFlower Rig,” *Transport in Porous Media*, Aug. 2023, doi: 10.1007/s11242-023-01992-8.

[4] Y. W. Bekele, E. Fonn, T. Kvamsdal, A. M. Kvarving, and S. Nordal, “Mixed Method for Isogeometric Analysis of Coupled Flow and Deformation in Poroelastic Media,” *Applied Sciences*, vol. 12, no. 6, p. 2915, 2022.

[5] V. Tsiolakis, T. Kvamsdal, A. Rasheed, E. Fonn, and H. Van Brummelen, “Reduced order models for finite-volume simulations of turbulent flow around wind-turbine blades.,” *Journal of Physics: Conference Series*, vol. 2018, no. 1, p. 12042, Sept. 2021, doi: 10.1088/1742-6596/2018/1/012042.

[6] E. E. Halvorsen-Weare *et al.*, “A computer tool for optimisation and simulation of marine operations for offshore wind farm installation,” *Journal of Physics: Conference Series*, vol. 2018, no. 1, p. 12021, Sept. 2021, doi: 10.1088/1742-6596/2018/1/012021.

[7] K. A. Johannessen and E. Fonn, “Splipy: B-Spline and NURBS Modelling in Python,” *Journal of Physics: Conference Series*, vol. 1669, p. 12032, Oct. 2020, doi: 10.1088/1742-6596/1669/1/012032.

[8] M. S. Siddiqui, E. Fonn, T. Kvamsdal, and A. Rasheed, “Finite-Volume High-Fidelity Simulation Combined with Finite-Element-Based Reduced-Order Modeling of Incompressible Flow Problems,” *Energies*, vol. 12, no. 7, p. 1271, Jan. 2019, doi: https://doi.org/10.3390/en12071271.

[9] E. Fonn, H. van Brummelen, T. Kvamsdal, and A. Rasheed, “Fast divergence-conforming reduced basis methods for steady Navier–Stokes flow,” *Computer Methods in Applied Mechanics and Engineering*, vol. 346, pp. 486–512, Apr. 2019, doi: https://doi.org/10.1016/j.cma.2018.11.038.

[10] M. Tabib, M. S. Siddiqui, E. Fonn, A. Rasheed, and T. Kvamsdal, “Near wake region of an industrial scale wind turbine: comparing LES-ALM with LES-SMI simulations using data mining (POD),” *Journal of Physics: Conference Series*, vol. 854, p. 12044, May 2017, doi: 10.1088/1742-6596/854/1/012044.

[11] M. Tabib, A. Rasheed, and E. Fonn, “A computational framework involving CFD and data mining tools for analyzing disease in carotid artery bifurcation,” *Progress in Applied CFD – CFD2017 Selected papers from 12th International Conference on Computational Fluid Dynamics in the Oil & Gas, Metallurgical and Process Industries*, pp. 125–132, 2017.

[12] M. S. Siddiqui, A. Rasheed, M. Tabib, E. Fonn, and T. Kvamsdal, “On interactions between wind turbines and the marine boundary layer,” *International Conference on Offshore Mechanics and Arctic Engineering*, June 2017, doi: 10.1115/OMAE2017-61688.

[13] E. Fonn, M. Tabib, M. S. Siddiqui, A. Rasheed, and T. Kvamsdal, “A step towards reduced order modelling of flow characterized by wakes using Proper Orthogonal Decomposition,” *Energy Procedia*, vol. 137, pp. 452–459, 2017, doi: https://doi.org/10.1016/j.egypro.2017.10.369.

[14] Y. W. Bekele, E. Fonn, T. Kvamsdal, A. M. Kvarving, and S. Nordal, “On Mixed Isogeometric Analysis of Poroelasticity,” *arXiv*, 2017.

[15] F. G. Fuchs, A. Rasheed, M. Tabib, and E. Fonn, “Wake modeling in complex terrain using a hybrid Eulerian-Lagrangian Split Solver,” *Journal of Physics: Conference Series*, vol. 753, p. 82031, Sept. 2016, doi: 10.1088/1742-6596/753/8/082031.

[16] T. M. van Opstal *et al.*, “Isogeometric methods for CFD and FSI-simulation of flow around turbine blades,” *Energy Procedia*, vol. 80, pp. 442–449, 2015, doi: https://doi.org/10.1016/j.egypro.2015.11.448.

[17] E. Fonn, A. Rasheed, A. M. Kvarving, and T. Kvamsdal, “Spline based mesh generator for high fidelity simulation of flow around turbine blades,” *Energy Procedia*, vol. 80, pp. 294–301, 2015, doi: https://doi.org/10.1016/j.egypro.2015.11.433.

[18] E. Fonn, P. Grohs, and R. Hiptmair, “Hyperbolic cross approximation for the spatially homogeneous Boltzmann equation,” *IMA Journal of Numerical Analysis*, vol. 35, no. 4, pp. 1533–1567, 2015, doi: https://doi.org/10.1093/imanum/dru042.

[19] E. Fonn, “Approximation in space and velocity for kinetic transport equations,” PhD Thesis, 2013.

[20] E. Fonn, “Computing metrics on Riemannian shape manifolds: geometric shape analysis made practical,” Master's thesis, 2009. [Online]. Available: http://hdl.handle.net/11250/258493