Curriculum Vitae

Personal Information

Name: Ingrid Bouwer Utne
Year of Birth: 1975
Marital status: Married

Current position and contact information

Professor of Marine Operation and Maintenance Engineering
Department of Marine Technology, Norwegian University of Science and Technology (NTNU)
Otto Nielsens Veg 10, NO-7491 Trondheim, Norway
Tel: +47 982 22 465
E-mail: ingrid.b.utne@ntnu.no
Web: http://www.ntnu.edu/employees/ingrid.b.utne

Experience and expertise

Risk assessment, operational risk, system safety engineering, and maintenance management

- Focused on marine and maritime systems

Teaching courses

TMR4260 Safe operation and maintenance
TMR4335 Marine machinery, safety and environment (Coordinator. Part: Introduction to RAMS)
TMR4555 Advanced methods in risk analysis
MR8404 System safety engineering and management

Short biography

Ingrid Bouwer Utne earned a PhD degree in Safety, Reliability, and Maintenance at NTNU in 2007. In 1995-1997 Utne attended the Officer Candidate School in the Norwegian Navy and worked as Operations Officer (operasjonsbefal) onboard two frigates (KNM Narvik/Stavanger). Among other things, she signed contract with NATO's Immediate Reaction Force (IRF) and was deployed three months with Standing Naval Force Atlantic (STANAVFORLANT). From 2004-2009, she was a Research Fellow/PhD-student at SINTEF Fisheries and Aquaculture, a Research Scientist at SINTEF Safety Research, and a Post-Doctoral Fellow in the RAMS group at NTNU. In 2009, she entered a Qualification Fellowship of marine operation and maintenance at NTNU (full Professorship from July 2011). In addition, she worked part time as a Researcher on production efficiency/integrated operations in Statoil ASA. In 2010, Utne was a visiting scholar (6 months) in the Ocean Engineering Group at University of California, Berkeley, where she became a member of the Deepwater Horizon Study Group (DHSG) at the Center for Catastrophic Risk Management. The DHSG served as advisor to the US Presidential Commission, the Bureau of Ocean Energy Management, Regulation and Enforcement, and the public on issues related to the Macondo blowout in the Gulf of Mexico. From 2012-2013 she was the Head of the Marine Systems Research Group at NTNU, and from 2014 to July 2017 she was head of the PhD-program at the Department of Marine Technology. Utne has co-authored the book "Risk analysis. Theory and methods" (2009) (In Norwegian), co-edited the book "Risk and interdependencies in critical infrastructures. A guide for analysis" (2012), and published more than 100 scientific articles on risk assessment, safety indicators, system safety engineering, maintenance, and sustainability analyses related to autonomous ships and marine systems, offshore oil and gas installations, fisheries and aquaculture. She is an affiliated Researcher in Centre of Excellence (CoE) Autonomous Marine Operation and Systems (AMOS) where she currently works on supervisory risk control of autonomous systems.

H-index: 26 (Google Scholar, Sept. 2019)

Education

2007	Ph.D. in Safety, Reliability and Maintenance, Department of Production and Quality Engineering, NTNU
2004	MSc in Product Design Engineering, Department of Product Design, NTNU
1997-1999	Basic courses in psychology and philosophy, Department of Psychology/Department of Philosophy, NTNU
1995-1997	Officer Candidate School (BSMA), Horten, Norway

Scientific journal publications

1. Utne, IB, Schjølberg, I, Roe, E. 2019. High reliability management and control operator risks in autonomous marine systems and operations. Ocean Engineering, 399-416.
2. Hegde, J, Henriksen, EH, Utne, IB, Schølberg, I. 2019. Development of safety envelopes and subsea traffic rules for autonomous remotely operated vehicles. Journal of Loss Prevention in the Process Industries, 145-158.
3. Holen, SM, Yang, X, Utne, IB, Haugen, S. 2019. Major accidents in Norwegian fish farming. Safety Science, 120, 32-43.
4. Ramos, MA, Utne, IB, Mosleh, A. 2019. Collision avoidance on maritime autonomous surface ships: Operators' tasks and human failure events. Safety Science, 116, 33-44.
5. Hogenboom, S, Rokseth, B, Vinnem, JE, Utne, IB. 2019. Human reliability and the impact of control function allocation in the design of dynamic positioning systems, Reliability Engineering and System Safety, in press.
6. Holmen, IM, Utne, IB, Haugen, S. 2018. Risk assessments in the Norwegian aquaculture industry: Status and improved practice. Aquaculture Engineering, 83, 65-75.
7. Thieme, CA, Utne, IB, Haugen, S. 2018. Assessing ship risk model applicability to Marine Autonomous Surface Ships. Ocean Engineering, 165, 140-154.
8. Holen, SM, Utne, IB. 2018. A framework based on a systems approach to developing safety indicators in fish farming. Safety, 4 (2), 19.
9. Holen, S., Utne, IB, Holmen, IM, Aasjord, H. 2018. Occupational safety in aquaculture – Part 2: Fatalities in Norway 1982-2015. Marine Policy, 96, 193-199.
10. Holen, S., Utne, IB, Holmen, IM, Aasjord, H. 2018. Occupational safety in aquaculture – Part 1: Injuries in Norway. Marine Policy, 96, 184-192.
11. Hegde, J, Utne, IB, Schjølberg, I, Thorkildsen, B. 2018. A Bayesian approach to risk modeling of autonomous subsea intervention operations. Reliability Engineering and System Safety, 175, 142-159.
12. Rokseth, B, Utne, IB, Vinnem, JE. 2018. Deriving verification objectives and scenarios for maritime systems using the systems-theoretic process analysis. Reliability Engineering and System Safety 169, 18-31.
13. Thieme, CA, Utne, IB. 2017. A risk model for autonomous marine systems and operation focusing on human-autonomy collaboration. Proceedings of the Institution of Mechanical Engineers, Part O. Journal of Risk and Reliability, 231 (4), 446-464.
14. Hassel, M, Utne, IB, Vinnem, JE. 2017. Allision risk analysis of offshore petroleum installations on the Norwegian Continental Shelf – an empirical study of vessel traffic patterns. WMU Journal of Maritime Affairs, 16(2), 175-195.
15. Thieme, CA, Utne, IB. 2017. Safety performance monitoring of autonomous marine systems. Reliability Engineering and System Safety, 159; 264-275.
16. Rokseth, B, Utne, IB, Vinnem, JE. 2017. A systems approach to risk analysis of maritime operations. Proceedings of the Institution of Mechanical Engineers, Part O. Journal of Risk and Reliability, 231 (1), 53-68.
17. Jafarzadeh, S, Paltrinieri, N, Utne, IB, Ellingsen, H. 2017. LNG-fueled fishing vessels: A systems engineering approach. Transportation Research Part D: Transport and Environment 50, 202-222.
18. Hegde, J, Utne, IB, Schjølberg, I. 2016. Development of collision risk indicators for autonomous subsea inspection, maintenance and repair. Journal of Loss Prevention in the Process Industries 44, 440-452.
19. Kim, H, Haugen, S, Utne, IB. 2016. Reliability analysis of the IMO regulation – safe return to port. Ships and Offshore Structures, 11(5), 461-470.
20. Kim, H, Haugen, S, Utne, IB. 2016. Assessment of accident theories for major accidents focusing on the MV SEWOL disaster: Similarities, differences, and discussion for a combined approach. Safety Science 82, 410-420.
21. McGuinness, E, Utne, IB. 2016. Identification and analysis of deficiencies in accident reporting mechanisms for fisheries. Safety Science, 82, 245-253.

22. Vinnem, JE, Utne, IB, Schjølberg, I. 2015. On the need for online decision support in FPSO-shuttle tanker collision risk reduction. Ocean Engineering, 101, 109-117.
23. Dai, L, Stålhane, M, Utne, IB. 2015. Routing and Scheduling of Maintenance Fleet for Offshore Wind Farms. Wind Engineering, 39 (1), 15-30.
24. Akhtar, MJ, Utne, IB. 2015. Common patterns in aggregated accident analysis charts from human fatigue-related groundings and collisions at sea. Maritime Policy & Management, 42 (2), 186-206.
25. Ramirez, P, Utne, IB. 2014. Use of dynamic Bayesian networks for life extension assessment of ageing systems. Reliability Engineering and System Safety, 113, 119-136.
26. Akhtar, MJ, Utne, IB. 2014. Reducing the probability of ship grounding: Which measure to undertake? WMU Journal of Maritime Affairs, 13 (1), 27-42.
27. Akhtar, MJ, Utne, IB. 2014. Human fatigue's effect on the risk of maritime groundings - A Bayesian Network modeling approach. Safety Science, 62, 427 – 440.
28. McGuinness, E, Utne, IB. 2014. A systems engineering approach to implementation of safety management systems in the Norwegian fishing fleet Reliability Engineering and System Safety, 121, 221 – 239.
29. Jafarzadeh, S, Utne, IB. 2014. A framework to bridge the energy efficiency gap in shipping. Energy, 69, 603-612.
30. Ramirez, P, Utne, IB. 2013. Decision support for life extension of technical systems through virtual age modeling. Reliability Engineering and System Safety, 115, 55-69.
31. Ramirez, P, Utne, IB, Haskins, C. 2013. Application of systems engineering to integrate aging management into maintenance management of oil and gas facilities. Systems Engineering, 16(3), 329-345.
32. McGuinness, E, Aasjord, HL, Utne, IB, Holmen, IM. 2013. Injuries in the commercial fishing fleet of Norway 2000-2011. Safety Science 57, 82-99.
33. McGuinness, E, Aasjord, HL, Utne, IB, Holmen, IM. 2013. Fatalities in the Norwegian fishing fleet 1990-2011. Safety Science 57, 335-351.
34. Dai, L, Ehlers, S, Rausand, M, Utne, IB. 2013. Risk of collision between service vessels and offshore wind turbines. Reliability Engineering and System Safety, 109, 18-31.
35. Kjølle, G, Utne, IB, Gjerde, O. 2012. Risk analysis of critical infrastructures emphasizing electricity supply and interdependencies. Reliability Engineering and System Safety, 105, 80-89.
36. Utne, IB, Brurok, T, Rødseth, H. 2012. A structured approach to condition monitoring. Journal of Loss Prevention in the Process Industries.25 (3), 478-488.
37. Utne, IB, Thuestad, L, Finbak, K, Thorstensen, TA. 2012. Shutdown preparedness in oil and gas production. Journal of Quality in Maintenance Engineering, 18 (2), 154-170.
38. Utne, IB, Brurok, T, Larsen, S. 2011. Monitoring the mechanical integrity of heat exchangers. Process Safety Progress 30 (4), 328-333.
39. Skogdalen, JE, Utne, IB, Vinnem, JE. 2011. Developing safety indicators for preventing offshore oil and gas deepwater drilling blowouts. Safety Science 49 (8-9), 1187-1199.
40. Utne, IB, Hokstad, P, Vatn, J. 2011. A method for risk modeling of interdependencies in critical infrastructures. Reliability Engineering and System Safety, 96 (6), 671-678.
41. Øien, K, Utne, IB, Herrera, IH. 2011. Building safety indicators. Part 1 - A theoretical background. Safety Science, 9 (2), 162-171.
42. Øien, K, Utne, IB, Tinmannsvik, RK, Massaiu, S. 2011. Building safety indicators. Part 2 – Application, practices and results. Safety Science, 49 (2), 148-161.
43. Ramirez, P, Utne, IB. 2011. Challenges with ageing plants. Process Safety Progress, 30 (2), pp. 196-199.
44. Standal, D, Utne, IB. 2011. The hard choices of sustainability. Marine Policy, 35 (4), 519-527.
45. Utne, IB. 2010. Maintenance strategies for deep sea offshore wind turbines. Journal of Quality in Maintenance Engineering, 16 (4), 367-381.
46. Lundteigen, MA, Rausand, M, Utne, IB. 2009. Integrating RAMS engineering and management with the safety life cycle of IEC 61508. Reliability Engineering and System Safety, 94, pp. 1894-1903.
47. Rausand, M, Utne, IB. 2009. Product safety. Principles and practices in a life cycle perspective. Safety Science, 47, 939-947.
48. Utne, IB. 2009. Life cycle cost (LCC) as a tool for improving sustainability in the Norwegian fishing fleet. Journal of Cleaner Production, 17, 335-344.
49. Ellingsen, H, Olaussen, JO, Utne IB. 2009. Environmental analysis of the Norwegian fishery and aquaculture industry – A preliminary study focusing on farmed salmon. Marine Policy, 33, 479-488.
50. Utne, IB. 2009. Improving the environmental performance of the fishing fleet by use of Quality Function Deployment (QFD). Journal of Cleaner Production, 17 (8), 724-731.
51. Utne, IB. 2008. Acceptable sustainability in the fishing fleet. Marine Policy, 32, 475-482.

52. Utne, IB. 2008. Are the smallest vessels the most sustainable? Trade-off analysis of sustainability attributes. Marine Policy, 32, 465-474.
53. Standal, D, Utne, IB. 2007. Can cod farming affect cod fishing? A system evaluation of sustainability. Marine Policy, 31, 527-534.
54. Utne, IB. 2007. System evaluation of sustainability in the Norwegian cod-fisheries, Marine Policy, 31, 390-401.
55. Utne, IB. 2006. Systems engineering principles in fisheries management, Marine Policy, 30, 624-634.

Books

- Hokstad, P, Utne, IB, Vatn, J. 2014. (eds) Risk and interdependencies in critical infrastructures. A guide for analysis. National Defense Industry Press/Springer, China. Chinese translation.
- Hokstad, P, Utne, IB, Vatn, J. 2012. (eds) Risk and interdependencies in critical infrastructures. A guide for analysis. Springer Series in Reliability Engineering.
- Rausand, M, Utne, IB. 2009. Risk analysis. Theory and Methods (in Norwegian). Akademika, Trondheim, Norway.

All publications

http://www.cristin.no/as/WebObjects/cristin.woa/4/wa/fres?erNordisk=1&erNasjonalt=1&fornavn=Ingrid&erUkjent=1&action=sok&erInternasjonalt=1&bs=50&erNorsk=1&etternavn=Utne&la=en&visParametre=1

Graduated PhD students (main supervisor)

1. Siri Holen. 2019. Safety in Norwegian Fish Farming. Concepts and methods for improvement.
2. Christoph Thieme. 2018. Risk analysis and modelling of autonomous marine systems.
3. Børge Rokseth. 2018. Safety and verification of advanced maritime vessels: an approach based on systems theory.
4. Jeevith Hegde. 2018. Tools and methods to manage risk in autonomous subsea inspection, maintenance and repair operations.
5. Martin Hassel. 2017. Risk analysis and modeling of allisions between passing vessels and offshore installations.
6. Edgar McGuinness. 2016. Safety in the Norwegian fishing fleet - analysis and measures for improvement.
7. Lijuan Dai. 2014. Safe and efficient operation and maintenance of offshore wind farms.
8. Juned Akhtar. 2014. The effect of human fatigue on risk at sea.
9. Pedro Ramirez. 2013. Aging management and life extension of oil and gas facilities.

Current PhD students and Post Docs (main supervisor)

- Ingunn Marie Holmen. Safety in exposed aquaculture operations. 2016-2019.
- Ruochen Yang. Risk modeling of autonomous marine systems. 2019-2022.
- Thomas Johansen. Supervisory risk control for autonomous ships. 2019-2022.
- Christoph Thieme. Risk modeling of autonomous systems. 2018-2021.
- Børge Rokseth. Risk assessment and control of autonomous ships. 2018-2020.
- Jeevith Hedge. Safety in marine autonomous underwater vehicles. 2018-2020.
- Marilia A. Ramos. Risk assessment of autonomous ships, 2017-2019.
- Xue Yang. Risk management and autonomous operations in exposed aquaculture, 2017-2019.

Current (selected) research projects

- **UNLOCK**: Unlocking the potential of autonomous systems and operations through supervisory risk control, 2018-2022 (**project manager/principal scientist**), funded by FRINATEK/Norwegian Research Council.
- **ORCAS:** Online risk management and risk control for autonomous ships, 2018-2022 (**project manager/principal scientist**). KPN project funded by MAROFF/Norwegian Research Council, DNVGL and Rolls Royce Marine.
- **Reducing Risk in Aquaculture**, 2016-2019 (**project manager/principal scientist**). Researcher project funded by HAVBRUK2/Norwegian Research Council.

Organization of international meetings, conferences and participation in professional networks

- Co-organizer/host of IWASS – The first International Workshop on Autonomous Systems Safety, Trondheim,

Norway, March 2019.
- Co-chair, Technical Committee on Maritime and Offshore Technology, European Safety and Reliability Association (ESRA), 2016->
- Deepwater Horizon Study Group, Center for Catastrophic Risk Management, University of California, Berkeley, USA, 2010-2011.
- Member of Technical Program Committee, ESREL Conferences, 2015->
- Session chair: PSAM 2018, 2014, OMAE 2017, 2014, ESREL conferences from 2015->.
- Member of Scientific committee for SRA-E Conference 2013 (www.srae2013.no)
- Member of Programme committee for IO Conference 2011 and 2012 (http://www.ioconf.no)

Selected invited lectures and presentations

- Invited speaker, Workshop on risk analysis for autonomous vehicles: Issues and Future Directions. April 2019, University of Maryland, USA (could not travel due to family situation).
- Invited speaker, Ocean Week: Online risk management and risk control for autonomous ships, May 2019, Norway.
- Invited speaker, Human Factors in Control Seminar: NTNU Centre for Autonomous Marine Operations and Systems – shipping and digitalization, Oct. 2017, Trondheim, Norway.
- Invited speaker, Maintenance, safety and reliability of marine systems. DNV TopTech - UC Berkeley/Haas School of Business Executive Management Programme, January 20th 2012.

Major Research Communication, Dissemination, Public Conferences

- Invited speaker, Norshipping Conference, June 2019: Maritime risk management - challenges and potential solutions for improvement, Norway.
- Four articles in Norway´s leading industry newspaper, Dagens Næringsliv (2018-2019), regarding the aftermath of the Macondo blowout and the need for risk reduction in the cruise ship traffic in Norway.

Awards

- ICES 2006 Symposium, Boston, U.S.A.: Best PhD-student presentation
- Norwegian Research Council/NTNU School of Entrepreneurship (2004): Award winner - Best master thesis for industrialization, NTNU
- Award winner in Venture Cup 2004 for product developed in master thesis

Duties

- Member of the NTNU Research Ethical Committee, 2014 –2018
- Member of the NTNU Faculty of Engineering Science and Technology Board, 2013-2017
- Member of the NTNU Faculty of Engineering Science and Technology Board, Employment committe, 2013-2017