

Title (en)
FATIGUE CRACK GROWTH PREDICTION

Title (de)
VORHERSAGE DER AUSBREITUNG EINES ERMÜDUNGSRISSES

Title (fr)
PRÉDICTION DE CROISSANCE DE FISSURE DE FATIGUE

Publication
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Application
EP 18766900 A 20180306

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Abstract (en)
[origin: WO2018169722A1] Systems and methods for predicting fatigue crack growth are provided. In one example embodiment, a method can include obtaining historical operational data associated with one or more rotatable structures of one or more machines, obtaining data indicative of fatigue crack size for the one or more rotatable structures, and constructing a machine-learned model correlating fatigue crack growth with operational data using a machine learning technique.

IPC 8 full level
G01M 15/14 (2006.01); **G01M 5/00** (2006.01); **G06F 15/76** (2006.01); **G06F 30/15** (2020.01); **G06F 30/27** (2020.01); **G06N 3/08** (2006.01); **G06N 5/00** (2006.01); **G06N 20/20** (2019.01); **G06F 119/04** (2020.01)

CPC (source: EP US)
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Citation (search report)
• [I] US 2013245879 A1 20130919 - ARMIJO TORRES JOSE IGNACIO [ES], et al
• [I] US 2005096873 A1 20050505 - KLEIN RENATA [IL]
• [I] TAO YU ET AL: "Crack fault identification in rotor shaft with artificial neural network", NATURAL COMPUTATION (ICNC), 2010 SIXTH INTERNATIONAL CONFERENCE ON, IEEE, PISCATAWAY, NJ, USA, 10 August 2010 (2010-08-10), pages 1629 - 1634, XP031761962, ISBN: 978-1-4244-5958-2
• [I] MOHAMMED A A ET AL: "Crack detection in a rotating shaft using artificial neural networks and PSD characterisation", MECCANICA, KLUWER ACADEMIC PUBLISHERS, DORDRECHT, NL, vol. 49, no. 2, 17 August 2013 (2013-08-17), pages 255 - 266, XP035366125, ISSN: 0025-6455, [retrieved on 20130817], DOI: 10.1007/S11012-013-9790-Z
• [I] BECERRA VILLANUEVA J A ET AL: "A methodology for cracks identification in large crankshafts", MECHANICAL SYSTEMS AND SIGNAL PROCESSING, ELSEVIER, AMSTERDAM, NL, vol. 25, no. 8, 10 February 2011 (2011-02-10), pages 3168 - 3185, XP028288855, ISSN: 0888-3270, [retrieved on 20110312], DOI: 10.1016/J.YMSSP.2011.02.018
• [I] ZHANG WEI ET AL: "An Artificial Neural Network-Based Algorithm for Evaluation of Fatigue Crack Propagation Considering Nonlinear Damage Accumulation", MATERIALS, vol. 9, no. 6, 17 June 2016 (2016-06-17), pages 483, XP055777138, Retrieved from the Internet <URL:https://www.researchgate.net/publication/304067877_An_Artificial_Neural_Network-Based_Algorithm_for_Evaluation_of_Fatigue_Crack_Propagation_Considering_Nonlinear_Damage_Accumulation/fulltext/577e9e2708ae9485a436874b/An-Artificial-Neural-Network-Based-Algorithm-for-Evaluation-of-Fatigue-Crack-Propaga> [retrieved on 20210218], DOI: 10.3390/ma9060483
• See also references of WO 2018169722A1

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AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

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