













## Acknowledgments

The results of this study were obtained with the support of Grant No. 25.1095.2017/4.6.

### References:

- [1] Sergunova O.V., Pavlenko M.A., Timochko A.I., Vorobev E.V., Analysis of modeling methods for operator activity, The human-machine system in Information Processing Systems, 2015, 7 (132) , 80-82. (In Russian)
- [2]Shibanov G. P., Analysis of the interaction of the components of the system “pilot - aircraft - medium”, Flight, 2012, no. 4 - 3, pp. 8.(In Russian)
- [3]Braginsky M. Y., Burykin Y. G., Tarakanov D. V., Modeling of human-machine systems taking into account the influence of light stimuli on a human operator, Bulletin of Cybernetics, 2016, no. 1, pp. 63-73.
- [4] Hollangel, E. Human reliability assessment in context, Nuclear engineering and technology, 2005, Vol.37, no.2,pp. 159 – 166.(In Russian)
- [5]/ K. Tervo, L. Palmroth, H.Koivo Skill evaluation of human operators in partly automated mobile working machines, IEEE Transactions on automation science and engineering, 2010, Vol. 7, no. 1, pp. 133-142.
- [6] Tervo K., Koivo H. Towards human skill adaptive manual control, International Journal of Advanced Mechatronic Systems, 2010, Vol. 2, no. 1-2, pp. 46-58.
- [7] Tervo K., Rohilla A. Recursive tuning algorithm for assist controller of a trolley crane system, Applied Machine Intelligence and Informatics(SAMI), 2011 IEEE 9th International Symposium on, 2011, 61-66
- [8] H. Ovaskainen, J. Uusitalo, and K. Väätäinen, Characteristics and significance of a harvester operators’ working technique in thinnings,Int. J. Forest Eng.,2004, vol. 15, no. 2.
- [9] Purfürst F. T. Learning curves of harvester operators, Croatian Journal of Forest Engineering: Journal for Theory and Application of Forestry Engineering, 2010, T. 31, no.2, pp. 89-97.
- [10] Kirk, P., Byers, J., Parker, R., Sullman, M. Mechanisation Developments within the New Zealand Forest Industry,The Human Factors. International Journal of Forest Engineering, 1997, no. 8(1), pp. 75–80.
- [11] Gellerstedt, S., Liden, E., Bohlin, F.Health and Performance in Mechanized Forest Operations, Swedish University of Agricultural Sciences, 2005, pp. 45
- [12] Stampfer, K., Gridling, H., Visser, R. Analyses of Parameters Affecting Helicopter Timber Extraction, International Journal of Forest Engineering, 2002, no. 13(2), pp. 61–68.
- [13] Heinimann, R., Learning curve effect of harvester operators, Unpublished Technical report, Department Wald und Holzforschung, Professur forstliches Ingenieurwesen, ETH Zürich.
- [14] Gabriel, O. Harvester operator for Stendal, Forst & Technik, 2005, no. 17(3), pp. 26–27.;
- [15] Loschek, J., Jirikowski, W., Pröll, W., Sperer, S., Tresniowski, S.Wood in thinning, Kooperationsabkommen Forst-Platte-Papier, 1998, 120 p.
- [16] Von Bodelschwingh, E., Pausch, R., VALMET 801 combi – first operational test results, AFZ-Der Wald, 2003, no. 17, pp. 858–860.
- [17] P. M. Fitts and J. R. Peterson, Information capacity of discrete motor responses,J. Exper. Psych., 1964, vol. 67, no. 2, pp. 103–112.
- [18] P. M. Fitts, The Information Capacity of the Human Motor System in Controlling the Amplitude of Movement, Journal of Experimental Psychology: General, 1992, vol. 121, no. 3, pp. 262-269.
- [19] Antunes R., Coito F. V., Duarte-Ramos H. Skill evaluation in point-to-point human-machine operation, Applied Mechanics and Materials, 2013, T. 394, pp. 463-469.
- [20]Petukhov, I. V. Decision support system for assessing the professional suitability of the operator of ergatic systems (using transport and technological machines as an example),Abstract of a dissertation for the degree of Doctor of Technical Sciences, 2013, pp. 32. (In Russian)
- [21]Pupkov K.A., Ustyuzhanin A.D. Identification and assessment of training in dynamic human-machine systems, Vestnik MGTU im. N.E. Bauman. Ser. Instrumentation, 2003, no. 4, pp. 95-103.(In Russian)
- [22] Trapeznikov, V.A. Man in the control system, Automation and Telematics, 1972, no 2, pp. 5 - 16. (In Russian)
- [23] Guessab A., Aris A., Numerical Analysis of CPU with Heat Sink base of Copper Core using CFD, International Journal of Mechanics, pp.144-148, Volume 13, 2019
- [24] Ziad Shakeeb Al Sarraf, Design and Analysis of Ultrasonic Horns Operating in Multiple Vibration Modes International Journal of Mechanics, pp.129-132, Volume 13, 2019