Dr. Ahmad Khushairy bin Makhtar
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ACADEMIC QUALIFICATION

2014 – 2017	**Doctor of Philosophy in Risk Engineering** University of Tsukuba, Ibaraki, Japan
2007 – 2009	**Master Degree in Risk Engineering** University of Tsukuba, Ibaraki, Japan
2004 – 2007	**Bachelor Degree in Mechanical Engineering** Tokyo University of Science, Japan
2002 – 2003	**Japanese Associate Degree (JAD)** Kolej Yayasan Pelajaran Mara (KYPM) Bangi, Selangor 2 Years Diploma Level
1996 – 2001	**Sijil Pelajaran Malaysia (SPM)** **Penilaian Menengah Rendah (PMR)** SMU (A) Maahad Muhammadi Lelaki, Kota Bharu, Kelantan

BRIEF PROFILES

Currently, Dr. Ahmad Khushairy Bin Makhtar is a lecturer at Faculty of Mechanical Engineering in Universiti Teknologi MARA. He graduated from University of Tsukuba, Japan with a Doctor of Philosophy in Risk Engineering in 2017. After his master degree in 2009, he works at Malaysian Institute of Road Safety Research (MIROS) for about 6 months as a Research Officer before joining UiTM as a lecturer. He is the member of several professional: Board of Engineers Malaysia (BEM) and Institute of Engineers Malaysia (IEM). His current research focus is on Human Factors and Ergonomics with engineering approaches. He published numbers of article in the international level conferences and journals.

AWARDS

ANUGERAH PERKHIDMATAN CEMERLANG UiTM 2012
ANUGERAH KUALITI NAIB CANSELOR, UiTM 2010
YOUNG RESEARCHERS' AWARD 2014 , The **Society of Instrument and Control Engineers, JAPAN**

RESEARCH THEME

Title:
Effects of Internal and External Factors on Driver's Mental Workload

Summary:
Although many researchers have studied the characteristics of mental workload for a long time, there is still a lot of unknown regarding mental workload. This study aims to

explore the factors in increasing driver's mental workload with consideration of internal and external factors as well other factors such as experience. To achieve the aims of the study, three experiments were designed and conducted. Through the experiment, three groups of data been collected namely: (1) Physiological, (2) Performance and (3) Subjective measurements. Through the results, mental workload seems to be directly affected the performance. It is contradictory to previous study about the relationship between mental workload and performance.

FINAL YEAR PROJECT SUPERVISION

YEAR	NAME	PROJECT TITLE
2010	Mohd Sukri Bin Ismail	A Study on the effect of intelligent speed Adaptation
2010	Mohd Khalis Mohd Ali	The Development of Driving Simulator
2012	Muhammad Khairuddin Bin Zaidy	The Development of Driving Simulator (Software Database)
2013	Nik Muhammad Hanif Zamakhshari	A study on the effect of Intelligent speed adaptation to drivers) in UiTM Campus
2013	Khairul Azman Bin Ahmad Shimi	A study on safety Driving Behaviour among Malaysian Truck Drivers

TEACHING EXPERIENCES

Numerical Methods with Applications
Dynamics and Vibrations
Control Engineering

PREVIOUS WORKING EXPERIENCES

1. Dec 2009~ Now Lecturer, Faculty of Mechanical Engineering, University Teknologi MARA (UiTM)
2. Aug 2012 ~ July 2013 Advanced Degree Courses Coordinator, Faculty of Mechanical Engineering, University Teknologi MARA (UiTM)
3. June 2009~ Dis 2009 Research Officer, Road User Behavioral Change Research Centre (RUBC), Malaysian Institute of Road Safety Research (MIROS)
4. 2014-2017, Teaching Assisstant, Department of Risk Engineering, University of Tsukuba, Japan

PROFESIONAL QUALIFICATION/ MEMBERSHIP/ AFFILIATION/EXPERIENCE

Membership of Professional Body
1. Graduate Engineer, Board of Engineer, Malaysia **(BEM)**
2. Graduate Engineer, The Institution of Engineers, Malaysia **(IEM)**
3. Member, IEEE Robotics and Automation Society (RAS) Malaysia Chapter **(IEEE)**
4. Member, The Society of Instrument and Control Engineers, Japan **(SICE)**
5. Member, Human Factors and Ergonomics Society **(HFES)**
6. Member, Human Factors and Ergonomics Society, Malaysia **(HFEM)**

PUBLICATIONS

[1] Kenta ARAI, Yuzo HANYU, Takehiro YAMAGUCHI, **Ahmad KHUSHAIRY**,Hideki KAKEYA (2007). Analysis of the trust formation in the risk communication. The 3rd Media information scientific study society conference. (In Japanese)

[2] Hideki KAKEYA, Kenta ARAI, Yuzo HANYU, Takehiro YAMAGUCHI, **Ahmad KHUSHAIRY** (2008). Trust on Risk Management Organization among Highly Educated People. Japanese Risk Research Society Conference. Vol. 21st, pp. 39-44. (In Japanese)

[3] Makoto ITOH, **Ahmad KHUSHAIRY**, Toshiyuki INAGAKI (2009). A study on the effect of cognitive distraction on driver's blood pulse wave. The 50th memorial conference of Japan Ergonomics Research Society. (In Japanese)

[4] Hafizan Hashim, A.R.A. Ghani, **A.K. Makhtar**, M.H.M. Ramli, M.N.A.A. Patar, "Active Tendon Vibration Control of Cantilevered Beam Using Shape Memory Alloy (SMA) Actuators", The 2010 International Conference on Mechanical and Aerospace Engineering. ICMAE 2010. 26th -28th, November 2010, Kuala Lumpur.

[5] M.H.M. Ramli, Hafizan Hashim, **A.K. Makhtar**, M.N.A.A. Patar, "Modelling and Simulation of A Microrobotic System with Intelligent Active Force Control", 2010 International Conference on Advances in Mechanical Engineering (ICAME2010). ICAME2010 2nd – 5th December 2010, Shah Alam Convention Centre (SACC), Selangor, Malaysia.

[6] M.N.A.A. Patar, M.H.M. Ramli, Hafizan Hashim, **A.K. Makhtar**, "Development of An Ankle Foot Orthosis Using Active Control System", 2010 International Conference on Advances in Mechanical Engineering (ICAME2010). ICAME2010 2nd – 5th December 2010, Shah Alam Convention Centre (SACC), Selangor, Malaysia.

[7] **A.K. Makhtar**, Hafizan Hashim M.N.A.A. Patar, M.H.M. Ramli, , "Estimation of Driver's Mental Workload Level Through Blood Pulse Wave Analysis", 2010 International Conference on Advances in Mechanical Engineering (ICAME2010). ICAME2010 2nd – 5th December 2010, Shah Alam Convention Centre (SACC), Selangor, Malaysia.

[8] **A.K. Makhtar**, M.N.A.A. Patar,M.H.M.Ramli,M.M.Mahat,A.F.Zubair,H.Lukman, "A study on the effects of the cognitive workload on the driver's blood pulse wave", 2011 International Conference on Computer Applications and Industrial Electronics (ICCAIE2011), 4th-7th December 2011, Penang, Malaysia.

[9] M.H.M. Ramli , M.N.A.A. Patar ,M.S.Meon, **A.K.Makhtar** , *"*Dynamics Characterization of a High Precision MM3A Micro-manipulator System*"*, 2011 IEEE Colloquium on Humanities, Science and Engineering Research (CHUSER 2011), IEEE Malaysia, the IEEE Malaysia Power Electronics (PEL)/Industrial Electronics(IE)/ Industrial Applications (IA) Joint Chapter and the IEEE Engineering in Medicine and Biology Malaysia Chapter. 6th-7th December 2011, Penang, Malaysia

[10] M.N.A.A. Patar, M.H.M. Ramli , **A.K.Makhtar** , J.Mahmud, "Simulation and Performance Evaluation of a New Type of Powered Dynamic Ankle Foot Orthosis," 2011 IEEE Colloquium on Humanities, Science and Engineering Research (CHUSER 2011) , the IEEE Malaysia, the IEEE Malaysia Power Electronics (PEL)/Industrial Electronics(IE)/ Industrial Applications (IA) Joint Chapter and the IEEE Engineering in Medicine and Biology Malaysia Chapter. 6th-7th December 2011, Penang, Malaysia

[11] Mohd Zafran bin Abdul Aziz, Petrus Simon Anak Ibai, Syed Farid Syed Adnan, Mohd Saufy Rohmad, **Ahmad Khushairy Bin Makhtar**, M.A.A. Ghani, " Accelerated Optical Flow Function Algorithm Using Compute Unified Device Architecture", International Symposium on Robotics and Intelligent Sensors 2012 (IRIS 2012), *Procedia Engineering*, *Volume 41*, *2012*, *Pages 1343-1352,***[Indexed in Ei Compendex, Scopus, Engineering Index]**

[12] **Ahmad Khushairy Makhtar**, Mohd Sukri Ismail, Mohd Nor Azmi Ab. Patar "A Study on the Effect of Intelligent Speed Adaptation to Bus Drivers" , International Symposium on Robotics and Intelligent Sensors 2012 (IRIS 2012), *Procedia Engineering*, *Volume 41*, *2012*, *Pages 1426-1431,* **[Indexed in Ei Compendex, Scopus, Engineering Index]**

[13] Azmi Patar, Norman Jamlus, **Khushairy Makhtar**, Jamaluddin Mahmud, Takashi Komeda , "Development of Dynamic Ankle Foot Orthosis for Therapeutic Application", International Symposium on Robotics and Intelligent Sensors 2012 (IRIS 2012), *Procedia Engineering*, *Volume 41*, *2012*, *Pages 1432-1440,* **[Indexed in Ei Compendex, Scopus, Engineering Index]**

[14] N.M. Hanif Zamakhshari, **Ahmad Khushairy Makhtar**,M. Hanif Ramli, "A Study on Effect of Intelligent Speed Adaptation (ISA) to Bus Drivers" , Applied Mechanics and Materials, Vol. 393, 299. Pp 982-987, ISSN: 1662-7482 [**Indexed in Ei Compendex, Scopus, and Engineering Index]**

[15] Hanif Ramli, Wahyu Kuntjoro, **Ahmad Khushairy Makhtar**, "Advanced Autonomous Multirotor Response System" , Applied Mechanics and Materials, Vol. 393, 299. Pp. 299-304, ISSN: 1662-7482, **[Indexed in Ei Compendex, Scopus, and Engineering Index]**

[16] Satoshi Tsuboi, Masahiro Ohka, Hanafiah Yussof, **Ahmad Khushairy Makhtar**, Siti Nora Basir, "Object Handling Precision Using Mouse-like Haptic Display Generating Tactile and Force Sensation", Int. Journal on Smart Sensing and Intelligent Systems, Vol. 6, No. 3, June 2013. pg. 810-832 **[Indexed in Ei Compendex, Scopus, and Engineering Index]**

[17] N. Rajaei, M. Ohka, T. Miyaoka, Hanafiah Yussof, **Ahmad Khushairy Makhtar**, Siti Nora Basir, "Investigation of VHI Affected by Density of Mechanoreceptive Units for Virtual Sensation", Int. Journal on Smart Sensing and Intelligent Systems, Vol. 6, No. 4, Sept. 2013, pg. 1516-1532 **[Indexed in Ei Compendex, Scopus, Engineering Index]**

[18] Hanafiah Yussof, Nur Ismarrubie Zahari, Ahmad Khushairy Makhtar, Masahiro Ohka, Siti Nora Basir , "Tactile Slippage Analysis in Optical Three-Axis Tactile Sensor for Robotic Hand"**,** Applied Mechanics and Materials, Vol. 393, 299. Pp. 299-304, ISSN: 1660-9336, **[Indexed in Ei Compendex, Scopus, and Engineering Index]**

[19] **Ahmad Khushairy Makhtar** and Makoto Itoh, "DRIVER'S MENTAL WORKLOAD: TASK PERFORMANCE AND MENTAL WORKLOAD," Jurnal Teknologi, vol. 7, pp. 31–39, 2015.

[20] **Ahmad Khushairy Makhtar** and Makoto Itoh, "An Analysis of Ear Plethysmogram for Evaluation of Driver' s Mental Workload Level," in SICE Annual Conference 2014, 2014, pp. 2025–2030.

[21] **Ahmad Khushairy Makhtar** and Makoto Itoh, "A Comparison of BVP and ECG Data for Evaluation of Driver`s Mental Workload Level," in Proceedings 19th Triennial Congress of the IEA, 2015, no. 9–14 August, pp. 1–8.

[22] **Ahmad Khushairy Makhtar** and Makoto Itoh, "A Study on The Usage of Blood-Volume-Pressure as a Driver's Mental Workload Evaluation Tool" in Journal of Human Factors and Ergonomics Vol. 2, No. 1, April 2017

LIST OF RESEARCH GRANTT

Project No	**:** 600-RMI/DANA 5/3/RIF (117/2012)
Type	**:** Science & Technology (S&T)
Title	**:** The Development Of Fixed Base Driving Simulator
ROLE	**: HEAD**
STATUS	**: COMPLETED**
Grant Type	**:** RESEARCH INTENSIVE FACULTY FUND.
Year Start	**:** 2012-06-01
Cost (RM)	**:** 32,000.00

Project No	**:** 600-RMI/RAGS 5/3 (40/2012)
Type	**:**
Title	**:** HIGH RESOLUTION OPTICAL WAVEGUIDE TACTILE SENSING PRINCIPLE
ROLE	**: HEAD**
STATUS	**: COMPLETED**
Grant Type	**:** RAGS.
Year Start	**:** 2012-12-15
Cost (RM)	**:** 80,000.00

Project No	**:** 600-RMI/ERGS 5/3 (15/2013)
Type	**:**
Title	**:** SIMULTANEOUS PARTICLE SWARM OPTIMIZATION (PSO) PREDICTIVE HUMAN GAIT LOCOMOTION MULTIPLE CHARACTERIZATION
ROLE	**: RESEARCHER**
STATUS	**: COMPLETED**

Grant Type	: ERGS.
Year Start	: 2013-06-01
Cost (RM)	: 55,000.00

Project No	: 100-RMI/SF 16/6/2 (7/2012)
Type	: Science & Technology (S&T)
Title	: Algorithm To Control Ankle Motion Amongst Hemiplegic Patients For Terapeutic Application
ROLE	: **RESEARCHER**
STATUS	: **COMPLETED**
Grant Type	: ESCIENCE.
Year Start	: 2012-04-01
Cost (RM)	: 170,400.00

Project No	: 600-RMI/ST/DANA 5/3/Dst (155/2011)
Type	: Science & Technology (S&T)
Title	: Numerical Investigator of Flow Behaviour In Anuerysm
ROLE	: **RESEARCHER**
STATUS	: **COMPLETED**
Grant Type	: DANA KECEMERLANGAN (S&T).
Year Start	: 2011-06-01
Cost (RM)	: 8,000.00

Project No	: 600-RMI/ST/DANA 5/3/Dst (156/2011)
Type	: Science & Technology (S&T)
Title	: An Active Force Control (AFC) Based Strategy In High Precision Motion System
ROLE	: **RESEARCHER**
STATUS	: **COMPLETED**
Grant Type	: DANA KECEMERLANGAN (S&T)
Year Start	: 2011-06-01
Cost (RM)	: 8,000.00

Project No	: 600-RMI/ST/DANA 5/3/Dst (180/2011)
Type	: Science & Technology (S&T)
Title	: Modeling And Performance Characterization Of A New Dynamic Ankle Foot Orthosis
ROLE	: **RESEARCHER**
STATUS	: **COMPLETED**
Grant Type	: DANA KECEMERLANGAN (S&T)
Year Start	: 2011-06-01
Cost (RM)	: 5,000.00

Project No	: 600-RMI/ST/FRGS 5/3/Fst (39/2011)
Type	: Science & Technology (S&T)
Title	: A New Robust Active Force Algorithm In High Precision Motion Control
ROLE	: **RESEARCHER**
STATUS	: **COMPLETED**

Grant Type	**:** FRGS (S&T)
Year Start	**:** 2011-07-01
Cost (RM)	**:** 40,000.00

Project No	**:** 600-RMI/ST/FRGS 5/3/Fst (166/2010)
Type	**:** Science & Technology (S&T)
Title	**:** Modeling And Performance Characterization Of A New Dynamic Ankle Foot Orthosis
ROLE	**: RESEARCHER**
STATUS	**: COMPLETED**
Grant Type	**:** FRGS (S&T).
Year Start	**:** 2010-09-01
Cost (RM)	**:** 46,440.00

REFERENCE

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