Complete List of Publications:

Journal

[1] Dash, Adyasha; Yadav, Anand; Chauhan, Anand and **Lahiri, Uttama**, "Kinect-assisted performance-sensitive upper limb exercise platform for post-stroke survivors", *Frontiers in Neuroscience*, DOI: 10.3389/fnins.2019.00228, vol. 13, 2019.

[2] **Krishnappa Babu, Pradeep Raj** and **Lahiri, Uttama**, "Understanding the role of proximity and eye gaze in human-computer interaction for individuals with Autism", *Journal of Ambient Intelligence and Humanized Computing*, DOI: 10.1007/s12652-019-01175-8, Jan. 2019.

[3] **Solanki, Dhaval S.** and **Lahiri, Uttama**, "Design of instrumented shoes for gait characterization: a usability study with healthy and post-stroke hemiplegic individuals", *Frontiers in Neuroscience*, DOI: 10.3389/fnins.2018.00459, vol. 12, Jun. 2018.

[4] **Dhiman, Ashish; Solanki, Dhaval;** Bhasin, Ashu; Das, Abhijit and **Lahiri, Uttama**, "An intelligent, adaptive, performance-sensitive, and virtual reality-based gaming platform for the upper limb", *Computer Animation and Virtual Worlds*, DOI: 10.1002/cav.1800, Jan. 2018.

[5] Kumar, D., Gonjalez, A., Das, A.,Dutta, A., Fraisse, P., Hayashibe, M., and **Lahiri, U.** (2018). Virtual Reality based Center of Mass Assisted Balance Training System. *Frontiers in Bioengineering and Biotechnology*,5, 85.

[6] Kuriakose, S. and **Lahiri, U.** (2017). "Design of a Physiology-sensitive VR-based Social Communication Platform for Children with Autism," *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, vol. 25, no. 8, pp. 1180-1191, Aug. 2017, doi: 10.1109/TNSRE.2016.2613879.

[7] Verma, S; Kumar, D; Kumawat, A; Dutta, A and **Lahiri, U** (2017) "A Low-cost Adaptive Balance Training Platform for Stroke Patients: A Usability Study", *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, DOI:10.1109/TNSRE.2017.2667406.

[8] Raj P, Oza P and **Lahiri U** (2017), "Gaze-sensitive Virtual Reality based Social Communication Platform for Individuals with Autism," *IEEE Transactions on Affective Computing*, vol. 9, no. 4, pp. 450-462.

[9] **Kumar, Deepesh;** Dutta, Anirban; Das, Abhijit and **Lahiri, Uttama** (2016) "A step towards developing a gaze-based screening tool for neurological disorders", *International Journal of Stroke*, vol. 11, no. 3 (Supplement), pp. 35-35, Oct. 2016.

[10] Kumar, D., Dutta, A., Das, A., and **Lahiri, U.** (2016) "SmartEye: Developing a Novel Eye Tracking System for Quantitative Assessment of Oculomotor Abnormalities", *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, PP(99), 1-1, 2016. doi: 10.1109/TNSRE.2016.2518222.

[11] Kuriakose, S., Pradeep Raj K.B. and **Lahiri, U.** (2016) "Design of Performance-Sensitive Adaptive Response Technology for Children with Autism: Usability Study", *Austin J Autism and Relat Disabil.* 2(2): 2016.

[12] Kumar, D., Das, A., **Lahiri, U.**, and Dutta, A. (2016) "A Human-machine-interface Integrating Low-cost Sensors with a Neuromuscular Electrical Stimulation System for Post-stroke Balance Rehabilitation", *JoVE (Journal of Visualized Experiments)*, 110, e52394-e52394.

[13] Kumar, D., Dutta, A., Das, A., and **Lahiri, U.** (2016) "Engagement sensitive visual stimulation", *European Journal of Translational Myology*, 26(2), 2016.

[14] Kumar, D., Verma, S., Bhattacharya, S., and **Lahiri, U.** (2016) "Audio-visual stimulation in conjunction with functional electrical stimulation to address upper limb and lower limb movement disorder", *European Journal of Translational Myology*, 26(2), 2016.

[15] Kuriakose, S. and **Lahiri, U.** (2015) "Understanding the Psycho-Physiological Implications of Interaction with a Virtual Reality based System in adolescents with

Autism", *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, Jan, *23*(4), 665-675.
[16] **Lahiri U,** Bekele E, Dohrmann E, Warren Z and Sarkar N (2015), "A Physiologically informed virtual reality based social communication system for individuals with Autism," Journal of Autism and Developmental Disorders, vol. 4, pp. 919-931.
[17] Dutta A, **Lahiri U**, Das A, Nitsche MA and Guiraud D (2014) "Post-stroke balance rehabilitation under multi-level electrotherapy: a conceptual review," *Front. Neurosci.* 8:403. doi: 10.3389/fnins.2014.00403.
[18] Dutta, A., Kumar, D., **Lahiri, U.**, Das, A., and Padma, M. V. (2014) "Post-stroke engagement-sensitive balance rehabilitation under an adaptive multi-level electrotherapy: clinical hypothesis and computational framework", *Neuroscience and Biomedical Engineering*, 2(2), 68-80, 2014.
[19] **Lahiri, U.**, Bekele, E., Dohrmann, E., Warren, Z., Sarkar, N. (2013). Design of a Virtual Reality based Adaptive Response Technology for Children with Autism. *Transactions on Neural Systems and Rehabilitation Engineering*, 21(1), 55 – 64.
[20] E. Bekele, **U. Lahiri,** A. Swanson, J.A. Crittendon, Z. Warren, N. Sarkar (2013) A Step towards Developing Adaptive Robot-mediated Intervention Architecture (ARIA) for Children with Autism. *Transactions on Neural Systems and Rehabilitation Engineering*, 21(2), 289-299.
[21] **Lahiri, U**, Warren, Z., Sarkar, N. (2011) "Design of a Gaze-sensitive Virtual Social Interactive System for Children with Autism," *Transactions on Neural Systems and Rehabilitation Engineering*, 19(4), 443-452.
[22] **Lahiri, U**, Trewyn, A., Warren, Z., Sarkar, N. (2011) "Dynamic Eye gaze and its Potential in Virtual Reality Based Applications for Children with Autism Spectrum Disorders," *Autism-Open Access Journal,1-7.*
[23] Welch, K., **Lahiri, U**, Sarkar, N., Warren, Z. (2010) "An Approach to the Design of Socially Acceptable Robots for Children with Autism Spectrum Disorders," *International Journal of Social Robotics*, 2(4), 391-403.
[24] **Lahiri, U**, Labadie, R.F., Liu, C., Balachandran, R., Majdani, O., Sarkar, N. (2010) "A Step Towards Identification of Surgical Actions in Mastoidectomy," *IEEE Transactions of Biomedical Engineering*, 57(2), 479-487.
[25] **Lahiri, U.,** Pradhan, A.K. and Mukhopadhyaya, S. (2005) "Modular neural network based directional relay for transmission line protection," *IEEE Power Engineering Society Letters*, 20(4), 2154 – 2155.

Conference

[1**] Solanki,** D., Kumar, S. and **Lahiri, U. (2019)**, "Computer-based treadmill-assisted gait rehabilitation platform augmented with body weight support and gait quantification", *In 2019 IEEE International Conference on Multimedia and Expo (ICME),* Shanghai, China, July. 8-12, 2019. [Accepted]
[2**]** Dash, A., Yadav, A. and **Lahiri, U.** (2019) "Physiology-sensitive Virtual Reality based Strength Training Platform for Post-stroke Grip Task," *IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI)*, 2019, Chicago, USA. [Accepted]
[3**] Babu, Pradeep Raj Krishnappa; Sinha, Sujata; S., Arvind Roshaan; Solanki, Dhaval Shashikantbhai** and **Lahiri, Uttama**, "Design of Virtual Reality based Intelligent Story-telling Platform with Human Computer Interaction", in *the 17th IEEE/ACIS International Conference on Computer and Information Science(ICIS 2018),* Singapore, SG, Jun. 6-8, 2018.
[4**] Saurav, Kumar; Dash, Adyasha; Solanki, Dhaval Shashikantbhai** and **Lahiri, Uttama**, "Design of a VR-based upper limb gross motor and fine motor task platform for post-stroke survivors", in *the 17th IEEE/ACIS International Conference on Computer and Information Science(ICIS 2018),* Singapore, SG, Jun. 6-8, 2018.

[5**] Solanki, Dhaval Shashikantbhai;** Das, Abhijit and **Lahiri, Uttama**, "A step towards design and validation of portable, cost-effective device for gait characterization", in *the 17th IEEE/ACIS International Conference on Computer and Information Science(ICIS 2018)*, Singapore, SG, Jun. 6-8, 2018.

[6] González, A., Kumar, D., Dutta, A., Das, A., **Lahiri, U**., & Hayashibe, P. M. (2017). Uso del Centro de Masa Personalizado para la Evaluación del Equilibrio. *Memorias del Congreso Nacional de Ingeniería Biomédica, [S.l.]*, v. 4, n. 1, p. 273-276, sep. 2017. ISSN 2395-8928

[7**] Patel, Megh; Krishna, Gottumukala Sai Rama;** Das, Abhijit and **Lahiri, Uttama**, "A technology for prediction and prevention of freezing of gait (FOG) in individuals with Parkinson disease", in *the 6th IFIP TC.13 International Conference on Human-Computer Interaction (INTERACT 2017)*, Industrial Design Centre, IIT Bombay, Mumbai, IN, Sep. 25-29, 2017.

[8] González, A.; Kumar, D; Dutta, A.; Das, A.; **Lahiri, U** and Hayashibe P., M. (2017) "Clinical evaluation of a personalized center of mass estimation for balance assessment", in *the* 39th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC'17), JeJu Island, KR, Jul. 11-15, 2017

[9] Kumar, D; Verma, S; Kesavan, V; Dutta, A; Das, A and **Lahiri, U** (2017) "Indigenous development of a virtual reality based balance rehabilitation platform-novel tool for stroke rehabilitation", in *the* 11th Indian National Stroke Conference,Taj Swarna, Amritsar, IN, Mar. 17-19, 2017.

[10] Madhu, K.; Kumar, D; Kesavan, V; Das, A; Vashista, V and **Lahiri, U** (2017) "An Indigenously developed cost-effective wireless sensor for post-stroke gait rehabilitation", in *the* 11th Indian National Stroke Conference, Taj Swarna, Amritsar, IN, Mar. 17-19, 2017.

[11] Sinha, A.; Gavas, R.; Roy, S.; Chatterjee, D.; Tripathy, S.; Charaborty, K. and **Lahiri, U** (2017) "Affordable sensor based gaze tracking for realistic psychological assessment", in*the* 39th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC'17), JeJu Island, KR, Jul. 11-15, 2017.

[12] Krishnappa Babu, Pradeep Raj and **Lahiri, Uttama** (2017) "Virtual Reality Based Social Communication Platform: Implications on Performance and Eye Gaze", in *the 8th IEEE* ***International Conference On Computing, Communication and Networking Technologies (ICCCNT),*** **IIT Delhi,** Jul. 3-5, 2017**.**

[13] Solanki, Dhaval; Jain, Ritika and **Lahiri, Uttama** (2017) "Understanding Implication of VR-assisted Treadmill Walk on Gait-related Indices", in *the 8th IEEE* ***International Conference On Computing, Communication and Networking Technologies (ICCCNT),*** **IIT Delhi,** Jul. 3-5, 2017**.**

[14] Patel, Valay; Jain, Ritika and **Lahiri, Uttama** (2017) "Eye Movement as a Predictor of Cognitive Ability", in *the 8th IEEE International Conference On Computing, Communication and Networking Technologies (ICCCNT)*, IIT Delhi, Jul. 3-5, 2017.

[15] Haokip, Grace; Shah, Griva and **Lahiri, Uttama** (2017) "Psycho-Physiological Implications of computer based social and non-social interactive tasks for children with autism", in *the 8th IEEE International Conference On Computing, Communication and Networking Technologies (ICCCNT)*, IIT Delhi, Jul. 3-5, 2017.

[16] Madhu Kodappully, Deepesh Kumar and **Uttama Lahiri** (2017) "A Step Towards Smart Health: A Pelvic Wearable Device for Gait Health Quantification", 2017 IEEE Region 10 Symposium (TENSYMP) (IEEE TENSYMP 2017), Cochin, India; July 14-16, 2017.

[17] Kumar, D., Das, A., Dutta, A., and Lahiri, U. (2016) "A Step Towards Developing a Gaze-based Screening Tool for Neurological Disorders", *10th World Stroke Congress*, October, Hyderabad, India; Oct. 26-29, 2016.

[18] Jain, R., and **Lahiri, U.** (2016) "A step towards affordable gaze-sensitive communication platform for disabled: Proof-of-concept study", *2nd World Congress on Information Technology and Computer Applications (WCITCA'16)*, Dubai, UAE, 2016.

[19] Dhiman, A., Solanki, D., Bhasin, A., Bhise, A., Das, A., and **Lahiri, U.** (2016) "Design of adaptive haptic-enabled virtual reality based system for upper limb movement disorders: A Usability Study", *6th IEEE International Conference on Biomedical Robotics and Biomechatronics (BioRob)*, 1254-1259, June 2016.
[20] Pradeep Raj K B. and **Lahiri, U.** (2016) "Design of Eyegaze-sensitive Virtual Reality Based Social Communication Platform for Individuals with Autism", *IEEE 7th International Conference on Intelligent Systems, Modelling and Simulation (ISMS2016)*, Bangkok, Thailand, January 25-27, 2016.
[21] Verma, S., Kumawat, A., Kumar, D., Dutta, A., and **Lahiri, U.** (2016) "A Step Towards an Adaptive Human Computer Interaction System for Balance Rehabilitation," *2nd International IEEE conference on Human Computer Interaction*, 10th-11th March, Chennai, India.
[22] Solanki, D., Oza, P. and **Lahiri, U.** (2015) "Towards a Wearable Non-Invasive Low-Cost Device for Measuring Physiological Indices" *Region 10 Symposium (TENSYMP)*, 2015 IEEE. IEEE, 2015.
[23] Kumar, D., Aggarwal, G., Sehgal, R., Das, A., **Lahiri, U.**, and Dutta, A. (2015) "Engagement-sensitive interactive neuromuscular electrical therapy system for post-stroke balance rehabilitation-a concept study", *7th International IEEE/EMBS Conference on Neural Engineering (NER) IEEE*, 190-193, April 2015.
[24] Kuriakose, S., Pradeep Raj K.B., Shah, G., **Lahiri, U.** (2015) "Virtual Reality-based Social Communication Task for Autism: Physiology as Bio-markers to Anxiety", *South Asia International Autism Conference 2015 (SAIAC 2015)*, New Delhi, 7-8 February, 2015.
[25] Yadav, T., and **Lahiri, U.** (2015) "Computer assisted interactive system: Understanding its implications on psychophysiology", *2nd International Conference on Signal Processing and Integrated Networks (SPIN)*, IEEE, 746-751, 2015.
[26] Goyal, S., Miyapuram, K. P., and **Lahiri, U.** (2015) "Predicting Consumer's Behavior Using Eye Tracking Data", Second International Conference on Soft Computing and Machine Intelligence (ISCMI) IEEE, 126-129, 2015.
[27] Kumawat, A. S., Verma, S., Bhise, A. R., Prabhakar, M. M., and **Lahiri, U.** (2015) "Virtual Reality Based Balance Task for Stroke Patients: Usability Study", *Archives of Physical Medicine and Rehabilitation*, 96(10), e89-e90.
[28] Kumar, D., Goyal, Y., Nair, S., Chauhan, A., and **Lahiri, U.** (2014) "Design of a physiologically informed virtual reality based interactive platform for individuals with upper limb impairment", *23rd IEEE International Symposium on Robot and Human Interactive Communication*, 112-117, 2014.
[29] Kuriakose, S., Kumar, P. K., Raghavan, P. and **Lahiri, U.** (2014) "A step towards anxiety-sensitive virtual reality based social communication platform: implication on physiology for children with autism", in *International Meeting for Autism Research (IMFAR-2014)*, Atlanta, US, May 16, 2014.
[30] Bhattacharya, S., Joshi, C., **Lahiri, U.**, and Chauhan, A. (2013) "A step towards developing a virtual reality based rehabilitation system for individuals with post-stroke forearm movement disorders", *International Conference on Control, Automation, Robotics and Embedded Systems (CARE)*, IEEE,1-6, 2013.
[31] Kuriakose, S., Kunche, S., Balasubramani, N., Jain, P., Sonker, S.K. and **Lahiri, U.** (2013) "A step towards virtual reality based social communication for children with autism", in *IEEE International Conference on Control, Automation, Robotics and Embedded System (CARE)*, Jabalpur, IN, Dec. 16-18, 2013.
[32] Kuriakose, S., Sarkar, N. and **Lahiri, U.** (2012) "A step towards an intelligent human computer interaction: physiology-based affect-recognizer", in *4th International Conference on Intelligent Human Computer Interaction (IHCI)*, Kharagpur, IN, December 27 – 29, 2012.

[33] Joshi, C., **Lahiri, U.** and Thakor, N.V. (2012) "Classification of Gait Phases from Lower Limb EMG: Application to Exoskeleton Orthosis", *IEEE EMBS Special Topic Conference on Point-of-Care Healthcare Technologies*, 2012.

[34] **Lahiri, U** (2012) Characterization of Surgical Actions in Mastoidectomy. *International Bioconference and Event, BIOFEST 2012.*

[35] **Lahiri, U**, Sarkar, M. (2012) "Adaptive Gaze-Sensitive Virtual Reality based Human-Computer Interaction for Adolescents with ASD," *IASTED, Human-Computer Interaction (HCI, 2012),* DOI: 10.2316/P.2012.772-008.

[36] **Lahiri, U.**, Welch, K., Sarkar, M. (2012) "Psychophysiological Response in Virtual Reality based Human-Computer Interaction in Adolescents with ASD," *Human-Computer Interaction (HCI, 2012),* DOI: 10.2316/P.2012.772-007.

[37] **Lahiri, U**, Bekele, E., Dohrmann, E., Warren, Z., Sarkar, N. (2011) "Design of a Virtual Reality based Adaptive Response Technology for Children with Autism Spectrum Disorder," *Affective Computing and Intelligent Interaction (ACII, 2011),* 165 – 174.

[38] **Lahiri, U**, Warren, Z., Sarkar, N. (2011) "Virtual Reality Based Gaze Sensitive System for Children with Autism Spectrum Disorder: Implications on Behavioral Viewing Patterns," *International Meeting for Autism Research (IMFAR, 2011), (Poster Presentation).*

[39] **Lahiri, U**, Warren, Z., Sarkar, N. (2011) "Dynamic Gaze Measurement with Adaptive Response Technology in Virtual Reality based Social Communication for Autism," *IEEE International Conference on Virtual Rehabilitation*, I - 8.

[40] **Lahiri, U**, Welch, K., Warren, Z., Sarkar, N. (2011) "Understanding Psychophysiological Response in Virtual Reality based Social Communication System for Children with ASD," *IEEE International Conference on Virtual Rehabilitation,* 1 - 2.

[41] Bekele, E., **Lahiri, U**, Warren, Z., Sarkar, N. (2011) "Robot-mediated joint attention tasks for children at risk with ASD: A step towards robot-assisted intervention," *International Meeting for Autism Research (IMFAR 2011), (Poster Presentation).*

[42] Bekele, E., **Lahiri, U**, Davidson, J., Warren, Z., Sarkar, N. (2011) "Towards Robot-Mediated Adaptive Response System in Joint Attention Task for Children with Autism Spectrum Disorder," *IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN 2011),* 276 – 281.

[43] **Lahiri, U**, Welch, K., Warren, Z., Sarkar, N. (2010) "Virtual Reality Based Social Interaction for Children with Autism: Implications for Physiological Response," *International Meeting for Autism Research (IMFAR 2010), (Poster Presentation).*

[44] Welch, K., **Lahiri, U**, Liu, C., Weller, R., Sarkar, N., Warren, Z. (2009) "An Affect-sensitive Social Interaction Paradigm utilizing Virtual Reality Environments for Autism Intervention," In Proc. 13th *Int. Conf. on Human-Comp. Interaction (HCII 2009), 703 - 712.*

Book Chapter:

[1] **Lahiri, U,** Labadie, R.F., Liu, C., Majdani, O., and Sarkar, N. (2010) "A Step Towards Characterization of Surgical Actions Involved in Mastoidectomy," In Tiwari, R., Shukla, A. (Eds.), Intelligent Medical Technologies and Biomedical Engineering: Tools and Applications, Publisher : IGI Global, ISBN No. 978-1-61520-977-4.

[2] Welch, K., **Lahiri, U,** Sarkar, N., Warren, Z., Stone, W., Liu, C. (2010) "Affect-sensitive Computing and Autism," In Gulsen, Didem (Eds.), Affective Computing and Interaction: Psychological, Cognitive and Neuroscientific Perspectives, Publisher: IGI Global.

List of Patents Filed:

[1] Patent filed (Appln.No.: 3959/MUM/2014) on **"Eye Tracking System"** in December 2014. Then PCT application filed (Appln.No.: PCT/IN2015/000448) on **"Smarteye System for Visuomotor Dysfunction Diagnosis and its Operant Conditioning"** in December 2015.

[2] Patent filed (Appln.No.:3911/MUM/2014) on **"Multi-parameter Patient Monitoring System"** in December 2014.
[3] Patent filed (Appln. No.: 201621015918) on **"A Walking Aid System for a Parkinson's Disease Affected Person"** in May 2016.
[4] Patent filed (Appln. No.: 201821017001) on **"An Automated Story-creation and Story-telling Platform"** in May 2018.