Curriculum Vitae

Professor Rezaul K. Begg, PhD

Personal details

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Current Positions

- Professor of Biomechanics, Institute for Health and Sport (IHeS), Victoria University, Melbourne, Australia.
- Chair, Program in Assistive Technologies Innovation (PATI), IHeS.
- Research Group Leader – Gait and Intelligent Technologies (GAIT), IHeS.

Academic qualifications

- Ph.D. (1991): Biomedical Engineering (Biomechanics). The University of Aberdeen, United Kingdom.
- M.Sc. (1987): Electrical Engineering. Bangladesh University of Engineering and Technology (BUET).
- B.Sc. Eng (1984): Electrical Engineering. BUET. First Class Honours, First Position. Awarded University Gold Medal.

Academic positions

01/2011 – Present	Full Professor, Institute for Health and Sport (IHeS), Victoria University, Australia
01/2006 - 12/2010	Associate Professor, IHeS, Victoria University, Australia
01/1998 - 12/2015	Senior Lecturer, IHeS, Victoria University, Australia
08/1993 - 12/1997	Lecturer, IHeS, Victoria University, Australia

Honours and Awards

2018	Excellence in Research Australia (ERA) evaluator nomination - ARC
2015	Outstanding Reviewer Award, *Gait and Posture* (Q1, Elsevier Science)
2015	Excellence in Research Australia (ERA) evaluator nomination - ARC
2015	Visiting fellow – University of Oxford (Oxford Gait Laboratory), UK
2012	Excellence in Reviewing Award *Journal of Biomechanics* (Q1, Elsevier Science)
2005	Vice Chancellor's Citation for Excellence in Research (Victoria University)
2005	Best Paper Award – IEEE International Conference on Intelligent Sensing (ICISIP2005)
2004	Visiting fellow – University of Waterloo (Gait and Posture Lab), Canada
2000	Visiting fellow – Minnesota State University (Department of Computer Science), USA
1987	Commonwealth Scholarship (The University of Aberdeen), UK
1985	Chancellor's Prize (Bangladesh Government)
1984	University Gold Medal (BUET), Bangladesh

Major research areas

Major research area is in Gait Biomechanics and centres on the application of engineering and physical science principles to understanding human health problems and devising techniques to improve them. Contributed significantly to biomechanics research in Australia and worldwide by developing gait-assisting technologies and analysis techniques. These contributions have application to both fundamental biomechanics as well as understanding the gait mechanics associated with ageing, stroke, diabetes and other medical conditions. Knowledge and expertise in gait and balance control has been applied to the considerable public health problem of how to reduce falls due to tripping using assistive technologies. Applications also includes therapeutic interventions to reduce the risk of falling, such as corrective insoles, treadmill-based biofeedback training, passive ankle actuators and smart shoes.

Research Funding: Selected research grants

- Begg. Veski – Victoria Government International Partnership program. Machine learning for optimising HAL Ankle Exoskeletons, 2021-2022, $185,000.
- Begg, Lee, Lai. ARC Discovery (DP200103583). An autonomously controlled ankle exoskeleton for gait rehabilitation. 2020-2023, $540,051.
- Begg, Lee, Bishop, Lai. Defence, Science and Technology (DST) Group. HPRNet: Wearable Assistive Technologies. 2020-2022, $650,000.
- Begg, Said, Galea, Levinger, Khan. NHMRC Project (APP1105800). Can Real-time Biofeedback of Foot Clearance Data be used to Assist Gait Rehabilitation after Stroke? 2016-2021, $587,000.
- Begg. DST Group. Scoping Research-Assistive Technologies. 2019, $96,000.
- Lai and Begg. Defence Science Institute (DSI). Machine learning for human Intention. 2019, $49,600.
- Pandy, Crossley, Begg, Dower. ARC Discovery (DP160104366). Predictive models to study neuromuscular control of walking in older people. 2016-2019, $482,300.
- Begg, Bishop, Lee, Oetomo. DST Group & VU matching. PATI - Program in Assistive Technologies Innovation. 2016-2019, $950,000.
- Begg, Bowman, Nagano, Sparrow. Flooring Companies + VU. Using Virtual Reality Environments in Gait Biomechanics Experiments. 2014-2015, $100,000.
- Begg, et al (15 CIs). Research Infrastructure Grant Funding. Force platform embedded treadmill for bioengineering research. 2012, $300,000.
- Pandy, Seeman, Begg, Lee, Zebaze. ARC Discovery Project DP1095366. Non-invasive assessment of hip fracture risk in elderly people. 2010-2012, $545,000.
- Begg, Sparrow. Asics Oceania Pty Ltd . Assessment of footwear design. 2010, $36,000.
- Aziz, Hsu, Begg, Butler, Claasz. ARC Linkage (LP0990847). Development of an endofunctional capsule for targeted delivery of biomarkers in the alimentary tract. 2009-2012, $207,000 + Industry.
- Pandy, Mareels, Kotagiri, Begg, Crossley, Webster, Feller, Farnandez. ARC LIEF LE0989384. High-speed, three-dimensional, x-ray fluoroscopy for joint motion. 2009, ARC: $233,000 + $300,000 University.
- Kumar, Yu, Mclachlan and Begg. ARC Linkage (LP0776730). Building a smart diagnostic system for low back ailments. 2007-2010, $288,000 + Industry.

Research Supervision and Mentoring

Postdoctoral Research Fellows

- Current postdoctoral research fellows - 3
- Completed postdoctoral research fellows - 8

Research student supervision

- Current HDR students: 8 PhDs and 2 Masters
- Completed Research Students: 16 PhDs, 5 Masters and 9 Honours

Research thesis examiner:

23 PhDs, 5 Masters and 5 Honours

External Partners

- Austin Hospital, Melbourne
- Western Health, Melbourne
- Royal Melbourne Hospital, Melbourne
- Defence Science and Technology (DST) Group
- Cobalt Niche Ltd, Melbourne
- Intertile Pty Ltd, Melbourne
- Global Safe Australia
- Asics Oceania Ltd, Australia
- Sanshin (insole manufacturer), Japan

- Caitac Family footwear company, Japan
- CYBERDYNE INC, Japan

Membership of Professional Societies

- Australia and New Zealand Society of Biomechanics (ANZSB)
- 3D Analysis of Human Movement (3D-AHM)
- International Society of Biomechanics (ISB)
- Institution of Electrical and Electronic Engineers (IEEE) – Senior Member
- IEEE Engineering in Medicine and Biology Society (EMBS) – Senior Member
- IEEE Computational Intelligence (CI) Society – Senior Member

Editorial Duties

- Associate Editor, Frontiers in Bioengineering and Biotechnology – Biomechanics (2021-)
- Associate Editor, IEEE EMBS – Theme Area - Biomechanics and Biorobotics (2014-)
- Editorial Board Member, Journal of Biomechanics (2016-)
- Editorial Board Member, Sensors (2010-)
- Editorial Board Member, Biosensors (2011-)
- Guest Editor, Sensors, 'Sensors and Assistive Technologies' (2019); 'Biomechanics and Biomedicine' (2010)
- Guest Editor, International Journal of Computational Intelligence and Applications (2008)
- Topic Editor, Frontiers in Bioengineering and Biotechnology (2021-)
- Topic Editor, Frontiers in Medical Technology (2021-)

Journal reviewer

Journal of Biomechanics (Q1), IEEE Transactions on Biomedical Engineering (Q1), IEEE Transactions on Neural Systems and Rehabilitation Engineering (Q1), Gait and Posture (Q1), Ergonomics (Q1).

Grant assessor

National

- ARC (Australian Research Council)
- NHMRC (National Health and Medical Research Council)
- NHMRC Clinical Trials and Cohort Studies Grants Peer Review panel

International

- The Danish National Research Foundation (DNRF)
- South African National Research Foundation (NRF)
- Canadian Natural Science & Engineering Research Council (NSERC)
- Health Research Council of New Zealand (HRC NZ)
- UK Medical Research Council (MRC)

National and International Media

- Maasranga Bangladesh National TV (2019) Bio-robotic assistive technologies to assist gait impairments.
- The Independent newspaper (2018) "Gait Intelligent Technologies" interviewed by Bangladesh local Television and Newspaper media, and proposal for Bangladesh Government to create a National Gait Research centre.
- The Indian Express (2018) - Exoskeleton work was featured in the Indian newspaper.
- Bangladesh Post (2018) Media coverage,opportunities in biomedical engineering. Also in other 12 newspapers.
- Australian Ten Network's "Scope" program (2017) - stroke biofeedback project and assistive technologies.
- Herald Sun, Melbourne (2017) - Insole project (with Dr Hanatsu Nagano).
- Indian Newspaper, The Hindu (2005) - sensor networks in healthcare.

Organisation of Conferences, invited and keynote speaker addresses

- Served on the technical program committees of more than twenty international conferences, including IEEE Engineering in Medicine & Biology Society (EMBC) (2011-), World Congress on Active Ageing (WCAA 2016),

Body area sensor network (BodyNet 2010-2011), ANZ Falls Prevention Conference (2008), International Conference on Intelligent Sensor, Sensor Networks & Information Processing (ISSNIP 2007 - 2010).

- Organized a number of international conferences and symposia in the theme area "Technologies and Information Processing in Healthcare", ARC Research Network on Sensor Networks (ISSNIP).
- Over thirty invited, keynote and plenary presentations at international conferences and scientific meetings, including International Conference on Slips, Trips, and Falls Sendai Japan (2022), Asia-Pacific Conference on Computer Science and Data Engineering (IEEE CSDE 2021), Shanghai Jiao Tong University (2018), Ministry of Science and Technology Bangladesh Government (2019), Human Movement International Conference China (2018), International Health Informatics Conference Melbourne (2015), International Conference on Intelligent Sensor, Sensor Networks & Information Processing (ISSNIP 2009-2012), Australasian Biomechanics Conference (2002).
- Chaired or co-chaired numerous scientific meetings e.g., Biomechanics and Biorobotics (EMBC); Biosignal Processing; ANZ Falls prevention, ISSNIP and BodyNet conferences.

Publications Summary

International Patent – 2.
Research Monograph – 1.
Books – 4.
Book Chapters – 23.
Peer reviewed Journal articles – 100.
Peer reviewed Conference full-papers – 113.
Peer reviewed Conference abstracts – 55.
Other publications (Magazine, Report) – 10.

Citations (Google Scholar) – 6250, h-index 39 (Google Scholar), h-index 29 (Scopus).

Patents

1) Inventors – Nagano, Begg (2015). Injury Reduction Insole. International Patent no: 1032309.
2) Inventors – Blynn, Taylor, Begg (2017). Biofeedback to improve gait adaptability. US Patent no: 20170360333.

Selected Publications

Research Monograph

1) Begg R, Lai D and Palaniswami M (2008) *Computational Intelligence in Biomedical Engineering*, Taylor and Francis Books Inc (CRC Press), Boca Raton, Florida, USA (392 pages), ISBN: 0-8493-4080-2.

Books

1) Lai D, Begg R and Palaniswami M. (2012) Healthcare Sensor Networks – challenges towards practical application. Taylor and Francis (CRC Press), Florida, USA (448 pages). ISBN: 978-1-4398-2181-7.
2) Begg R and Palaniswami M. (2006) Computational Intelligence for Movement Sciences: Neural Networks and other Emerging Techniques. IGI Publishing: Hershey, USA. ISBN: 1-59140-836-9 (396 pages).
3) Begg R, Kamruzzaman J and Sarker R (2006) Neural Networks in Healthcare: Potential and Challenges. IGI Publishing: Hershey, USA. ISBN: 1-59140-848-2 (346 pages).

Journal Articles

1. Nagano, H., Sparrow, W., & Begg, R. (2021). Developments in smart multi-function gait assistive devices for the prevention and treatment of knee osteoarthritis—a literature review. Applied Sciences (Switzerland), 11(22). doi:10.3390/app112210947
2. Argañarás, J. G., Wong, Y. T., Begg, R., & Karmakar, N. C. (2021). State-of-the-art wearable sensors and possibilities for radar in fall prevention. Sensors, 21(20). doi:10.3390/s21206836
3. Nagano, H., & Begg, R. (2021). A shoe-insole to improve ankle joint mechanics for injury prevention among older adults. Ergonomics, 64(10), 1271-1280. doi:10.1080/00140139.2021.1918351
4. Nagano, H., Sparrow, W. A., Mizukami, K., Sarashina, E., & Begg, R. (2021). A cross-sectional study of foot-ground clearance in healthy community dwelling Japanese cohorts aged 50, 60 and 70 years. BMC Geriatrics, 21(1). doi:10.1186/s12877-021-02117-w

5. Zaroug, A., Garofolini, A., Lai, D. T. H., Mudie, K., & Begg, R. (2021). Prediction of gait trajectories based on the Long Short Term Memory neural networks. PLoS ONE, 16(8 August). doi:10.1371/journal.pone.0255597
6. Nagano, H., Said, C. M., James, L., & Begg, R (2020). Feasibility of using foot–ground clearance biofeedback training in treadmill walking for post-stroke gait rehabilitation. Brain Sciences, 10(12), 1-9. doi:10.3390/brainsci10120978
7. Lo, M., Carstairs, G., Mudie, K. L., Begg, R., & Billing, D. (2020). The Use of Wearable Assistive Technology to Increase Soldiers' Effectiveness. Human Factors and Mechanical Engineering for Defense and Safety, 4(1). doi:10.1007/s41314-020-00035-0
8. Mehdikhani, M., Taylor, S., Shideler, B. L., Ogrin, R., & Begg, R. (2020). Age effects on step adaptation during treadmill walking with continuous step length biofeedback. Gait and Posture, 80, 174-177. doi:10.1016/j.gaitpost.2020.04.027
9. van der Straaten, R., Tirosh, O., Sparrow, W. A., & Begg, R. (2020). Effects of visually augmented gait training on foot-ground clearance: An intervention to reduce tripping-related falls. Journal of Applied Biomechanics, 36(1), 20-26. doi:10.1123/JAB.2018-0291
10. Zaroug, A., Lai, D. T. H., Mudie, K., & Begg, R. (2020). Lower Limb Kinematics Trajectory Prediction Using Long Short-Term Memory Neural Networks. Frontiers in Bioengineering and Biotechnology, 8. doi:10.3389/fbioe.2020.00362
11. Proud, J. K., Lai, D. T. H., Mudie, K. L., Carstairs, G. L., Billing, D. C., Garofolini, A., & Begg, R. (2020). Exoskeleton Application to Military Manual Handling Tasks. Human Factors. doi:10.1177/0018720820957467
12. Nagano, H., Sarashina, E., Sparrow, W., Mizukami, K., & Begg, R. (2019). General mental health is associated with gait asymmetry. Sensors (Switzerland), 19(22). doi:10.3390/s19224908
13. Begg, R., Galea, M. P., James, L., Sparrow, W. A. T., Levinger, P., Khan, F., & Said, C. M. (2019). Real-time foot clearance biofeedback to assist gait rehabilitation following stroke: A randomized controlled trial protocol. Trials, 20(1). doi:10.1186/s13063-019-3404-6
14. Mudie, K. L., Boynton, A. C., Karakolis, T., O'Donovan, M. P., Kanagaki, G. B., Crowell, H. P., Begg R., Billing, D. C. (2018). Consensus paper on testing and evaluation of military exoskeletons for the dismounted combatant. Journal of Science and Medicine in Sport, 21(11), 1154-1161. doi:10.1016/j.jsams.2018.05.016
15. Santhiranayagam, B. K., Sparrow, W. A., Lai, D. T. H., & Begg, R. (2017). Non-MTC gait cycles: An adaptive toe trajectory control strategy in older adults. Gait and Posture, 53, 73-79. doi:10.1016/j.gaitpost.2016.11.044
16. Khandoker, A. H., Sparrow, W. A., & Begg, R. (2016). Tone entropy analysis of augmented information effects on toe-ground clearance when walking. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 24(11), 1218-1224. doi:10.1109/TNSRE.2016.2538294
17. Ewing, K. A., Fernandez, J. W., Begg, R., Galea, M. P., & Lee, P. V. S. (2016). Prophylactic knee bracing alters lower-limb muscle forces during a double-leg drop landing. Journal of Biomechanics, 49(14), 3347-3354. doi:10.1016/j.jbiomech.2016.08.029
18. Ewing, K. A., Begg, R., Galea, M. P., & Lee, P. V. S. (2016). Effects of Prophylactic Knee Bracing on Lower Limb Kinematics, Kinetics, and Energetics during Double-Leg Drop Landing at 2 Heights. American Journal of Sports Medicine, 44(7), 1753-1761. doi:10.1177/0363546516637178
19. Levinger, P., Nagano, H., Downie, C., Hayes, A., Sanders, K. M., Cicuttini, F., & Begg, R. (2016). Biomechanical balance response during induced falls under dual task conditions in people with knee osteoarthritis. Gait and Posture, 48, 106-112. doi:10.1016/j.gaitpost.2016.04.031
20. Levinger, P., Zeina, D., Teshome, A. K., Skinner, E., Begg, R., & Abbott, J. H. (2016). A real time biofeedback using Kinect and Wii to improve gait for post-total knee replacement rehabilitation: A case study report. Disability and Rehabilitation: Assistive Technology, 11(3), 251-262. doi:10.3109/17483107.2015.1080767
21. Wahid, F., Begg, R., Lythgo, N., Hass, C. J., Halgamuge, S., & Ackland, D. C. (2016). A multiple regression approach to normalization of spatiotemporal gait features. Journal of Applied Biomechanics, 32(2), 128-139. doi:10.1123/jab.2015-0035
22. Wahid, F., Begg, R., McClelland, J. A., Webster, K. E., Halgamuge, S., & Ackland, D. C. (2016). A multiple regression normalization approach to evaluation of gait in total knee arthroplasty patients. Clinical Biomechanics, 32, 92-101. doi:10.1016/j.clinbiomech.2015.12.012
23. Santhiranayagam, B. K., Lai, D. T. H., Sparrow, W. A., & Begg, R. (2015). A machine learning approach to estimate Minimum Toe Clearance using Inertial Measurement Units. Journal of Biomechanics, 48(16), 4309-4316. doi:10.1016/j.jbiomech.2015.10.040
24. Nagano, H., Tatsumi, I., Sarashina, E., Sparrow, W. A., & Begg, R. (2015). Modelling knee flexion effects on joint power absorption and adduction moment. Knee, 22(6), 490-493. doi:10.1016/j.knee.2015.06.016

25. Wahid, F., Begg, R., Hass, C. J., Halgamuge, S., & Ackland, D. C. (2015). Classification of Parkinson's disease gait using spatial-temporal gait features. IEEE Journal of Biomedical and Health Informatics, 19(6), 1794-1802. doi:10.1109/JBHI.2015.2450232
26. Wafai, L., Zayegh, A., Woulfe, J., Mahfuzul, S., & Begg, R. (2015). Identification of foot pathologies based on plantar pressure asymmetry. Sensors (Switzerland), 15(8), 20392-20408. doi:10.3390/s150820392
27. Santhiranayagam, B. K., Lai, D. T. H., Sparrow, W. A., & Begg, R. (2015). Minimum toe clearance events in divided attention treadmill walking in older and young adults: A cross-sectional study. Journal of NeuroEngineering and Rehabilitation, 12(1). doi:10.1186/s12984-015-0052-2
28. Nagano, H., Sparrow, W. A., & Begg, R. (2015). Can toe-ground footwear margin alter swing-foot ground clearance? Gait and Posture, 42(2), 214-217. doi:10.1016/j.gaitpost.2015.05.013
29. Nagano, H., Sparrow, W. A., & Begg, R. (2014). Can toe-ground footwear margin alter swing-foot ground clearance?. Gait and Posture. doi:10.1016/j.gaitpost.2015.05.013
30. Nagano, H., Levinger, P., Downie, C., Hayes, A., & Begg, R. (2015). Contribution of lower limb eccentric work and different step responses to balance recovery among older adults. Gait and Posture, 42(3), 257-262. doi:10.1016/j.gaitpost.2015.05.014
31. Nagano, H., James, L., Sparrow, W. A., & Begg, R. (2014). Effects of walking-induced fatigue on gait function and tripping risks in older adults. Journal of NeuroEngineering and Rehabilitation, 11(1). doi:10.1186/1743-0003-11-155
32. Begg, R., Tirosh, O., Said, C. M., Sparrow, W. A., Steinberg, N., Levinger, P., & Galea, M. P. (2014). Gait training with real-time augmented toe-ground clearance information decreases tripping risk in older adults and a person with chronic stroke. Frontiers in Human Neuroscience, 8(MAY). doi:10.3389/fnhum.2014.00243
33. Karmakar, C., Khandoker, A., Begg, R., & Palaniswami, M. (2013). Understanding ageing effects using complexity analysis of foot-ground clearance during walking. Computer Methods in Biomechanics and Biomedical Engineering, 16(5), 554-564. doi:10.1080/10255842.2011.628943
34. Nagano, H., Sparrow, W. A., & Begg, R. (2013). Biomechanical characteristics of slipping during unconstrained walking, turning, gait initiation and termination. Ergonomics, 56(6), 1038-1048. doi:10.1080/00140139.2013.787122
35. Nagano, H., Begg, R., Sparrow, W. A., & Taylor, S. (2013). A comparison of treadmill and overground walking effects on step cycle asymmetry in young and older individuals. Journal of Applied Biomechanics, 29(2), 188-193. doi:10.1123/jab.29.2.188
36. Lai, D. T. H., Taylor, S. B., & Begg, R. (2012). Prediction of foot clearance parameters as a precursor to forecasting the risk of tripping and falling. Human Movement Science, 31(2), 271-283. doi:10.1016/j.humov.2010.07.009
37. Levinger, P., Lai, D. T. H., Menz, H. B., Morrow, A. D., Feller, J. A., Bartlett, J. R., Begg, R. (2012). Swing limb mechanics and minimum toe clearance in people with knee osteoarthritis. Gait and Posture, 35(2), 277-281. doi:10.1016/j.gaitpost.2011.09.020
38. Abdul Razak, A. H., Zayegh, A., Begg, R. & Wahab, Y. (2012). Foot plantar pressure measurement system: A review. Sensors (Switzerland), 12(7), 9884-9912. doi:10.3390/s120709884
39. Tirosh, O., Cambell, A., Begg, R. & Sparrow, W. A. (2013). Biofeedback training effects on minimum toe clearance variability during treadmill walking. Annals of Biomedical Engineering, 41(8), 1661-1669. doi:10.1007/s10439-012-0673-6
40. Nagano, H., Begg, R., Sparrow, W. A., & Taylor, S. (2011). Ageing and limb dominance effects on foot-ground clearance during treadmill and overground walking. Clinical Biomechanics, 26(9), 962-968. doi:10.1016/j.clinbiomech.2011.05.013
41. Barrett, R. S., Mills, P. M., & Begg, R. (2010). A systematic review of the effect of ageing and falls history on minimum foot clearance characteristics during level walking. Gait and Posture, 32(4), 429-435. doi:10.1016/j.gaitpost.2010.07.010
42. Levinger, P., Lai, D. T. H., Begg, R., Webster, K. E., & Feller, J. A. (2009). The application of support vector machines for detecting recovery from knee replacement surgery using spatio-temporal gait parameters. Gait and Posture, 29(1), 91-96. doi:10.1016/j.gaitpost.2008.07.004
43. Zhang, B. L., Zhang, Y., & Begg, R. (2009). Gait classification in children with cerebral palsy by Bayesian approach. Pattern Recognition, 42(4), 581-586. doi:10.1016/j.patcog.2008.09.025
44. Lai, D. T. H., Begg, R., & Palaniswami, M. (2009). Computational intelligence in gait research: A perspective on current applications and future challenges. IEEE Transactions on Information Technology in Biomedicine, 13(5), 687-702. doi:10.1109/TITB.2009.2022913

45. Sparrow, W. A., Begg, R. K., & Parker, S. (2008). Variability in the foot-ground clearance and step timing of young and older men during single-task and dual-task treadmill walking. Gait and Posture, 28(4), 563-567. doi:10.1016/j.gaitpost.2008.03.013
46. Lai, D. T. H., Begg, R. K., Taylor, S., & Palaniswami, M. (2008). Detection of tripping gait patterns in the elderly using autoregressive features and support vector machines. Journal of Biomechanics, 41(8), 1762-1772. doi:10.1016/j.jbiomech.2008.02.037
47. Best, R., & Begg, R. (2008). A method for calculating the probability of tripping while walking. Journal of Biomechanics, 41(5), 1147-1151. doi:10.1016/j.jbiomech.2007.11.023
48. Khandoker, A. H., Taylor, S. B., Karmakar, C. K., Begg, R. K., & Palaniswami, M. (2008). Investigating scale invariant dynamics in minimum toe clearance variability of the young and elderly during treadmill walking. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 16(4), 380-389. doi:10.1109/TNSRE.2008.925071
49. Khandoker, A. H., Palaniswami, M., & Begg, R. K. (2008). A comparative study on approximate entropy measure and poincaré plot indexes of minimum foot clearance variability in the elderly during walking. Journal of NeuroEngineering and Rehabilitation, 5. doi:10.1186/1743-0003-5-4
50. Khandoker, A. H., Lai, D. T. H., Begg, R. K., & Palaniswami, M. (2007). Wavelet-based feature extraction for support vector machines for screening balance impairments in the elderly. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 15(4), 587-597. doi:10.1109/TNSRE.2007.906961
51. Lythgo, N., Begg, R., & Best, R. (2007). Stepping responses made by elderly and young female adults to approach and accommodate known surface height changes. Gait and Posture, 26(1), 82-89. doi:10.1016/j.gaitpost.2006.07.006
52. Begg, R., Best, R., Dell'Oro, L., & Taylor, S. (2007). Minimum foot clearance during walking: Strategies for the minimisation of trip-related falls. Gait and Posture, 25(2), 191-198. doi:10.1016/j.gaitpost.2006.03.008
53. Sparrow, W. A., Begg, R. K., & Parker, S. (2006). Aging effects on visual reaction time in a single task condition and when treadmill walking. Motor Control, 10(3), 201-211. doi:10.1123/mcj.10.3.201
54. Begg, R., & Kamruzzaman, J. (2006). Neural networks for detection and classification of walking pattern changes due to ageing. Australasian Physical and Engineering Sciences in Medicine, 29(2), 188-195. doi:10.1007/BF03178892
55. Kamruzzaman, J., & Begg, R. K. (2006). Support vector machines and other pattern recognition approaches to the diagnosis of cerebral palsy gait. IEEE Transactions on Biomedical Engineering, 53(12), 2479-2490. doi:10.1109/TBME.2006.883697
56. Begg, R. K. (2006). Neural network-based prediction of missing key features in vertical GRF-time recordings. Journal of Medical Engineering and Technology, 30(5), 315-322. doi:10.1080/03091900500224675
57. Begg, R. K., & Sparrow, W. A. (2006). Ageing effects on knee and ankle joint angles at key events and phases of the gait cycle. Journal of Medical Engineering and Technology, 30(6), 382-389. doi:10.1080/03091900500445353
58. Begg, R. K., Palaniswami, M., & Owen, B. (2005). Support vector machines for automated gait classification. IEEE Transactions on Biomedical Engineering, 52(5), 828-838. doi:10.1109/TBME.2005.845241
59. Begg, R., & Kamruzzaman, J. (2005). A machine learning approach for automated recognition of movement patterns using basic, kinetic and kinematic gait data. Journal of Biomechanics, 38(3), 401-408. doi:10.1016/j.jbiomech.2004.05.002
60. Begg, R. K., & Rahman, S. M. (2000). A method for the reconstruction of ground reaction force-time characteristics during gait from force platform recordings of simultaneous foot falls. IEEE Transactions on Biomedical Engineering, 47(4), 547-551. doi:10.1109/10.828154
61. Begg, R. K., & Sparrow, W. A. (2000). Gait characteristics of young and older individuals negotiating a raised surface: Implications for the prevention of falls. Journals of Gerontology - Series A Biological Sciences and Medical Sciences, 55(3). doi:10.1093/gerona/55.3.M147
62. Begg, R., & Sparrow, W. (2000). Gait Characteristics of Young and Older Individuals Negotiating a Raised Surface: Implications for the Prevention of Falls. Journal of Gerontology, 55A(3), 147-154.
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