MURTHY L R D

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OBJECTIVE

To create new pieces of knowledge and build useful tools that create impact in the domain of Human Machine Interaction by bringing Human factors, Design and Technology into a common space.

EDUCATION

PhD | Indian Institute of Science, Bengaluru, India

CENTRE FOR PRODUCT DESIGN & MANUFACTURING, AUG 2017 – PRESENT | CGPA: 8.0/10

Thesis Title: DEVELOPMENT AND EVALUATION OF WEBCAM-BASED & IR-BASED EYE GAZE ESTIMATION SYSTEMS

B. Tech | SASTRA University, Thanjavur, India

ELECTRICAL AND ELECTRONICS ENGINEERING, 2011 – 2015 | CGPA: 8.0/10

Thesis Title: IMPULSE BREAKDOWN TESTING OF NANOFLUIDS

PUBLICATIONS

1. LRD Murthy, A. Mukhopadhyay, K. Anand, S. Aggarwal and P. Biswas, PARKS-Gaze - An Appearance-based Gaze Estimation Dataset in Wilder Conditions, ACM Intelligent User Interfaces 2022. *(Accepted)*
2. LRD Murthy, A. Mukhopadhyay and P. Biswas, Distraction Detection in Automotive Environment using Appearance-based Gaze Estimation, ACM Intelligent User Interfaces 2022. *(Accepted)*
3. LRD Murthy and P. Biswas, Deep Learning Based Eye Gaze Estimation Algorithms for Military Aviation, IEEE Aerospace 2022 *(Accepted)*
4. LRD Murthy, A. Mukhopadhyay, S. Arjun, V. Yelleti, P. Thomas, MD Babu, and P Biswas, Eye-Gaze-Controlled HMDS and MFD for Military Aircraft, Journal of Aviation Technology and Engineering 10(2), Purdue University Press, 2021
5. S. Arjun, LRD Murthy, P. Biswas, Interactive Sensor Dashboard for Smart Manufacturing, International Conference on Industry 4.0 and Smart Manufacturing, Procedia Computer Science, Elsevier 2022. *(Accepted)*
6. Murthy, L. R. D., Brahmbhatt, S., Arjun, S., & Biswas, P. (2021). I2DNet-Design and real-time evaluation of an appearance-based gaze estimation system. Journal of Eye Movement Research, 14(4).
7. Murthy, L. R. D., & Biswas, P. (2021, June). Appearance-based Gaze Estimation using Attention and Difference Mechanism. In 2021 IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW) (pp. 3137-3146). IEEE.
8. LRD Murthy, A. Mukhopadhyay, V Yelleti, S Arjun, P Thomas, MD Babu, KPS Saluja, JeevithaShree DV and P. Biswas, Evaluating Accuracy of Eye Gaze Controlled Interface in Military Aviation Environment, IEEE Aerospace 2020. DOI: *https://doi.org/10.1109/AERO47225.2020.9172480*
9. Murthy L R D. 2020. Multimodal Interaction for Real and Virtual Environments. In Proceedings of the 25th International Conference on Intelligent User Interfaces Companion (IUI '20). Association for Computing Machinery, New York, NY, USA, 29–30. DOI: *https://doi.org/10.1145/3379336.3381506*
10. Biswas, P., Saluja, K. S., Arjun, S., Murthy, L. R. D., Prabhakar, G., Sharma, V. K., & Dv, J. S. (2020). COVID-19 Data Visualization through Automatic Phase Detection. Digital Government: Research and Practice, 1(4), 1-8.
11. G. Prabhakar, A. Mukhopadhyay, LRD Murthy, M. Madan, S. Deshmukh and P. Biswas, Cognitive load estimation using Ocular Parameters in Automotive, Transportation Engineering, Elsevier 2020. DOI: *https://doi.org/10.1016/j.treng.2020.100008*

12. VK Sharma, LRD Murthy, KPS Saluja, V Mollyn, G Sharma and P Biswas, Webcam Controlled Robotic Arm for Persons with SSMI, Technology and Disability 32 (3), IOS Press 2020. DOI: *https://doi.org/10.3233/TAD-200264*
13. Mukhopadhyay, A., Murthy, L. R. D., Arora, M., Chakrabarti, A., Mukherjee, I., & Biswas, P. (2019). PCB Inspection in the Context of Smart Manufacturing. In Research into Design for a Connected World (pp. 655-663). Springer, Singapore. DOI: *https://doi.org/10.1007/978-981-13-5974-3_57*
14. Prabhakar, G., Ramakrishnan, A., Madan, M., Murthy, L. R. D., Sharma, V. K., Deshmukh, S., & Biswas, P. (2019). Interactive gaze and finger controlled HUD for cars. Journal on Multimodal User Interfaces, 1-21. DOI: *https://doi.org/10.1007/s12193-019-00316-9*
15. Shree, D. V., Murthy, L. R. D., Saluja, K. S., & Biswas, P. (2018). Operating Different Displays in Military Fast Jets Using Eye Gaze Tracker. Journal of Aviation Technology and Engineering, 8(1), 31. DOI: *https://doi.org/10.7771/2159-6670.1184*

WORK EXPERIENCE

Engineer | TATA ELXSI

JUNE 2015 – JULY 2017

1. Developed Test Automation tool for testing Electronic Control Units (ECU)s in automobiles.
2. Hardware-In-Loop-Systems (HILS) test engineer for Camera ECUs of Infotainment System.

INTERNSHIPS

Visiting Researcher | University of Sussex, United Kingdom

APRIL 2019 – JUNE 2019

Our team at Interact Lab worked on Acoustic Cloaking using Scattering cancellation method. We used combinatorial optimization methods and pattern recognition approaches to achieve acoustic cloaking.

Research Intern | University of Bologna, Italy

JAN 2015 – APRIL 2015

I investigated the behavior of nanofluids under impulse voltages. I used ferrofluids and conducted a series of impulse breakdown tests to improve the impulse breakdown strength of transformer oil.

SKILLS

- Programming:
  C#, Java, Python, CAPL
- Software Packages:
  COMSOL Multiphysics, NI LabVIEW,
- Machine Learning APIs:
  TensorFlow, PyTorch
- Sensors:
  Eye Gaze Trackers (Tobii)
  Motion Trackers (Kinect, Opti Track)
  Hand Motion Tracker (Leap Motion)
  Inertial Measurement Unit (XSENS)

OTHER PROJECTS

- Design and Development of remotely controllable Hand-Tracking Robotic arm
- Tracking cricket bat using OptiTrack system to identify and verify performance measures of batsmen.
- Design of a pain-relieving device for elderly patients suffering from low back pain.
- Developing a user interface using Eye Gaze Tracking Glasses for Large Screen Display

RESPONSIBILITIES UNDERTAKEN

- Organizer of Research in Product Design Symposium – 2018 @ CPDM, IISc
- Volunteer for Smart India Hardware Hackathon 2018 @ IISc