KULBHUSHAN CHAND

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Emerging Technologies Lab
Department of Electronics and Communication Engineering
Dr B R Ambedkar National Institute of Technology
(https://www.nitj.ac.in/)
Jalandhar – 144011, Punjab, India

Updated: July 31, 2022

EDUCATION

PhD   2015 – 2022
Electronics and Communication Engineering
Dr B R Ambedkar National Institute of Technology, Jalandhar, India
CGPA: 9.0, Thesis Submitted

MTech   2011 – 2013
Electronics and Communication Engineering
Lovely professional University, Phagwara, India
Graduated with Hons. and University Topper
CGPA: 9.12

BTech   2006 – 2010
Electronics and Communication Engineering
Guru Nanak Dev University, Regional Campus, Jalandhar, India
Graduated with Hons.
%Marks: 78.05

RESEARCH EXPERIENCE

Pre Doctoral Fellow   Jun 2022 – Present
IIT Mandi iHub and HCI Foundation, Indian Institute of Technology Mandi
Project: Human Computer Interaction and Biofeedback
Project Head: Prof. Varun Dutt

Project Team Member   Feb 2020 – Feb 2022
ISRO Space Technology Incubation Center (S-TIC),
Dr B R Ambedkar National Institute of Technology
Project - Strengthening Ridge to Valley based NRM planning under Mission Water Conservation using Geospatially enabled Serious Gaming
Role - Developing gamification framework for the project

Doctoral Researcher   Aug 2015 – Apr 2022
Department of ECE, Dr B R Ambedkar National Institute of Technology
Dissertation: Low cost multimodal biofeedback for mental relaxation
Advisor: Prof. Arun Khosla

MTech Researcher   July 2011 – June 2013
Lovely professional University
Dissertation: A new approach for ECG signal denoising using Adaptive Filtering
Advisor: Dr. Omkar Singh Parihar

UNIVERSITY TEACHING EXPERIENCE

Teaching Assistant   Aug 2015 to Jul 2020
Department of ECE, Dr B R Ambedkar National Institute of Technology
- Co-created and introduced Gamification course (ECX-488) for undergraduate students.
- Designed various pedagogy, tools, assignments, and exams.
- Other courses taught includes Network Analysis and Synthesis, Electronic Devices and Simulation Lab, Basic Electronics Lab.

Assistant Professor   Aug 2013 to Jun 2015
Department of ECE, Lovely Professional University
- Courses and labs taught includes Basic Electrical Engineering, Electronic Devices and Circuits, Probability and Stochastic Theory, Signal and Systems, Digital Signal Processing, Adaptive Filter Theory, Basic Electrical lab, Electronic Devices and Circuits lab, Digital Signal Processing lab.
- Developed quizzes, exams, assignments, and homework.
- Revised the syllabus an instruction plans to meet accreditation standards.
- Guided undergraduate students for their major project.
- Sports Coordinator for ECE department.

Teaching Assistant   Jan 2012 to Nov 2012
Department of ECE, Lovely Professional University
- Conducted lab Basic Electronics Lab course for undergraduate students.
- Evaluated practical, viva-voce, and written exam.

Lecturer   Dec 2010 to May 2011
Department of ECE, Lovely Professional University
- Taught Microcontroller and its Applications course to undergraduate students and conducted Microcontroller and Microprocessor lab.
- Developed exams, assignments, and homework.
- Guided undergraduate students for their major project.

PEER-REVIEWED PUBLICATIONS

Peer reviewed research papers

Chand, K., & Khosla, A. (2022). MATLAB-Based Real-Time Data Acquisition Tool for Multimodal Biofeedback and Arduino-Based Instruments: Arduino Firmata Data Acquisition (AfDaq). Journal of Information Technology Research (JITR), 15(1), 1–20. https://doi.org/10.4018/JITR.299922

Chand, K., & Khosla, A. (2022). Efficacy of Using Retro Games in Multimodal Biofeedback Systems for Mental Relaxation. International Journal of Gaming and Computer-Mediated Simulations (IJGCMS), 14(1), 1–23. https://doi.org/10.4018/IJGCMS.295874

Manuscripts in preparation or Review

Chand, K., & Khosla, A. (2020). A Generalized Framework to Use Nintendo Entertainment System Games for Multimodal Biofeedback [Manuscript submitted for publication].

Chand, K., & Khosla, A. (2021). BioNES: A plug-and-play MATLAB-based tool to use NES games for multimodal biofeedback [Manuscript submitted for publication].

Book Chapters

Jain, B., Khosla, A., Chand, K., & Ahuja, K. (2019). The Pursuit of Zero Food Waste: A Gamified Approach Promoting Avoidance of Dormitory Mess Food Wastage in Educational Institutions. In Global Initiatives for Waste Reduction and Cutting Food Loss (pp. 243–267). IGI Global. https://doi.org/10.4018/978-1-5225-7706-5.ch013

Mukherjee, A., Goyal, P., Singh, A., Khosla, A. K., Ahuja, K., & Chand, K. (2019). Pursuit of Research: A Gamified Approach Promoting Research Engagement Among Undergraduate Students. In Fostering Multiple Levels of Engagement in Higher Education Environments (pp. 132–155). IGI Global. https://doi.org/10.4018/978-1-5225-7470-5.ch006

Padmakar, G. S. V., Khosla, A., & Chand, K. (2019). LearnEasy-Android Application as a Technological Intervention for Children With Dyslexia. In Emerging Trends in the Diagnosis and Intervention of Neurodevelopmental Disorders (pp. 236–248). IGI Global. https://doi.org/10.4018/978-1-5225-7004-2.ch012

Setia, D., Singh, R., Sharma, A., Khosla, A., Ahuja, K., & Chand, K. (2019). Enhancing Tourism and Cultural Experience Through Gamification. In Positioning and Branding Tourism Destinations for Global Competitiveness (pp. 152–171). IGI Global. https://doi.org/10.4018/978-1-5225-7253-4.ch007

INVITED TALKS

Octalysis Video AICTE ATAL Sponsored Online Faculty Development Program on Gamification *Dr B R Ambedkar National Institute of Technology*	Nov 2020
Arduino and Open-Source Technologies One day workshop, *DAV Institute of Engineering and Technology*	Jun 2019

HONORS AND AWARDS

Doctoral Fellowship, *Dr B R Ambedkar National Institute of Technology*	2015-2022
UGC NET with JRF, *University Grants Commission, India*	2013
Academic Scholarship, *Lovely Professional University, India*	2011-2013
Academic Scholarship, *Guru Nanak Dev University, India*	2006-2010

PROFESSIONAL DEVELOPMENT

Short Term Courses (Attended)

The Education Factory, *Dr B R Ambedkar National Institute of Technology*	Sep 2020
Machine Learning Using Python, *Dr B R Ambedkar National Institute of Technology*	Sep 2020

Computational Cardiac Engineering - Predictive Modelling and Innovative Sensing Systems, *Rajasthan Technical University*	Sep 2020
Autism and Assisted Technologies (Gian Course) *Dr B R Ambedkar National Institute of Technology*	Dec 2018
Brain Science & Technology: Tools and Techniques to understand the Human Brain *Indian Institute of Technology Delhi*	Dec 2016
Biology for Engineers, *Indian Institute of Technology Bombay*	Jun 2016

Certifications

The Octalysis Framework - Level 1, *The Octalysis Group*	Dec 2017

MOOC Courses (with certificates)

Statistics in Medicine, *Stanford University*	Mar 2020
Computer Science 101, *Stanford University*	Mar 2020
Introduction to CAD: Learn Fusion 360 in 90 minutes, *Autodesk*	Sep 2019
Vital Signs: Understanding What the Body Is Telling Us, *University of Pennsylvania*	May 2018
Advanced MATLAB for Scientific Computing, *Stanford University*	Dec 2017
Introduction to Game Development, *Michigan State University*	Mar 2017
Calculus One, *The Ohio State University*	May 2013
Image and video processing, *Duke University*	Mar 2013

ACADEMIC SERVICE

Jury Member, Hackathon 2022, *IIT Mandi iHub and HCI Foundation, India*	Jul 2022
Evaluator, Toycathon 2021, *AICTE, India*	Jan 2021

COMMUNITY OUTREACH

Resource Person, Arduino workshop for kids, *Jalandhar (Link)*	Nov 2017

AD HOC REVIEWER

International Journal of Gaming and Computer-Mediated Simulations (IJGCMS) (3)

SKILLS

Programming:	Assembly, C, C++, R, Lua, MATLAB, Visual Basic
Applications:	NI Multisim, Autodesk Fusion 360, KiCad, Unity3D, RStudio, JASP
Operating Systems:	Windows, Ubuntu
Others:	Octalysis-Level1

PROJECTS

Software Projects

AfDaq `GitHub`

A plug and play MATLAB based tool for biofeedback and arduino based instruments

BioNES `GitHub`

A plug-and-play MATLAB based tool to use NES games for multimodal biofeedback

MCP4251 `GitHub`

Arduino library for MCP4251 Digital Potentiometer

classroom-gamification `GitHub`

Tool to gamify your classroom with an online leaderboard

Book Projects

GamificationCourseBook `GitHub`

An online coursebook for Gamification course (ECX-488) at *Dr B R Ambedkar National Institute of Technology*

ArduinoWorkshopForKids `GitHub`

Fun Arduino experiments for the kids.

Research Projects

AfDaq: An Open-source MATLAB based Real-time Multi-channel Data Acquisition Tool for Biofeedback and Arduino based Instruments `OSF`

Efficacy of a multimodal biofeedback system for mental relaxation using NES games `OSF`

SPORTS ACTIVITIES

100 mt. (Gold), 200 mt. (Gold)   2015
Annual Faculty Sports Meet, *Lovely Professional University*

200 mt. (Bronze – 28.12 sec), 400 mt. (Silver – 1.06 min)   2014
Annual Faculty Sports Meet, *Lovely Professional University*

100 mt. (Gold)   2011
Annual Faculty Sports Meet, *Lovely Professional University*

LANGUAGES

English: Advanced
Hindi: Native
Punjabi: Native

PERSONAL

Birth Year: 1988
Residence: Hoshiarpur, Punjab, India

REFERENCES

Prof. Arun Khosla
Professor
Dr B R Ambedkar National Institute of Technology (*http://www.nitj.ac.in/*)
India
Email: *khoslaak@nitj.ac.in*