JESSICA SHARMIN RAHMAN

PhD Candidate

@ jessica.rahman@anu.edu.au +61 470 211 219 https://jessicarahman.github.io/ jessica-s-rahman

EXPERIENCE

Lecturer
The Australian National University

February 2021 – Present

- COMP4660/8420 Neural Networks, Deep Learning and Bio-inspired Computing (Lecturer for the Fuzzy Logic Section)

Academic Tutor
The Australian National University

July 2018 – Present

- COMP3900/6390 Human Computer Interface Design and Evaluation and COMP1710/6780 Web Development and Design

Research Assistant
Immersive Analytics Lab, CSIRO

February 2020 – May 2020

- Immersive Data Visualisation of Population-Scale Genome Architectures

Chief Academic Tutor
The Australian National University

February 2019 – June 2019

- COMP3710, Topics in Computer Science

SELECTED PROJECTS

Music and Emotion

April 2019 – present

- Collected physiological signals such as GSR, HRV, EEG, functional imaging of brain and eye gaze behavior to understand effects of music in identifying emotion from different categories of videos (Analysis is ongoing)

Immersive Data Visualisation of Population-Scale Genome Architectures

February 2020 – May 2020

- Conducted interviews of experts for the project
- Performed qualitative analysis on the data to identify recommendations for the visualization methods
- Prepared evaluation reports for the project

Understanding psychophysiological behavior during reading and music listening

May 2018 – December 2018

EDUCATION

Doctor of Philosophy, Engineering and Computer Science
The Australian National University

December 2017 – Present

Bachelors of Science (Honors) in Computer Science and Engineering
University of Dhaka

January 2012 – March 2016

SKILLS

Physiological Signal Processing
Affective Computing
EEG, fNIRS, EDA, BVP, Eye Gaze Analysis
User Experience Research
Qualitative Analysis
Quantitative Analysis
Python
Matlab
C/C++
Pandas
Numpy
Scikit-learn
Tensorflow
Keras
Jupyter
HTML
CSS
JavaScript
PHP

ACHIEVEMENTS

- Winner of People's Choice Award in ANU 3 Minute Thesis Finals (2020)
- Selected as 1 of the 5 students to represent The Australian National University in Global Young Scientists' Summit (GYSS) in Singapore (2020)
- Recipient of Australian Government Research Training Program International Fee Offset and Stipend Scholarship (2017-2021)
- Recipient of RFL Inspiring Women Award in Category: Leaders of Tomorrow
- Recipient of EBL-DUAA Inspiration Scholarship (2015)
- Winner of Startup DU: Business Process Tool Competition (2014)

SELECTED PROJECTS

- Collected physiological signals such as GSR, HRV, EEG and eye gaze behavior to understand effects of different music genres on emotional response and reading behavior
- Analyzed the physiological signals using machine learning techniques to predict participants' emotional response

Advanced Analytics to Reveal Novel Insights into 'Worth of Water'

March 2017 – August 2017

- New South Wales Department of Primary Industries (Water) project in Collaboration with Advanced Analytics Institute, UTS, Sydney
- Applied visualization techniques to identify useful insights on water quality of Australia using Javascript

Kinect Based Fruit Names and Etiquette Learning app

July 2015

- Windows application built using C# and Kinect V2 sensors
- Conducted observation, interviews and paper prototype testing to gather requirements to build educational applications for children with autism

PUBLICATIONS

- Rahman, J. S., T. Gedeon, S. Caldwell, and R. Jones (2021). "Can Binaural Beats Increase Your Focus? Exploring the Effects of Music in Participants' Conscious and Brain Activity Responses". In: *Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems*. CHI'21. Online.
- Rahman, J. S., T. Gedeon, S. Caldwell, R. Jones, and Z.Jin (2021). "Towards Effective Music Therapy for Mental Health Care Using Machine Learning Tools: Human Affective Reasoning and Music Genres". In: *Journal of Artificial Intelligence and Soft Computing Research* 11.1, pp. 5–20.
- Brewer, M. and J. S. Rahman (2020). "Pruning Long Short Term Memory Networks and Convolutional Neural Networks for Music Emotion Recognition". In: *International Conference on Neural Information Processing*. Springer, pp. 343–352.
- Rahman, J. S., T. Gedeon, S. Caldwell, and R. Jones (2020). "Brain Melody Informatics: Analysing Effects of Music on Brainwave Patterns". In: *2020 International Joint Conference on Neural Networks (IJCNN)*, pp. 1–8.
- Rahman, J. S., M. Z. Hossain, and T. Gedeon (2020). "Are paired or single stimuli better to recognize genuine and posed smiles from observers' GSR". in: *Proceedings of the 32nd Australian Conference on Human-Computer-Interaction*. OZCHI'20. Online.
- Renkin, M. and J. S. Rahman (2020). "Improving the Stability of a Convolutional Neural Network Time-Series Classifier Using SeLU and Tanh". In: *International Conference on Neural Information Processing*. Springer, pp. 788–795.
- Rahman, J. S., T. Gedeon, S. Caldwell, R. Jones, M. Z. Hossain, et al. (2019). "Melodious Micro-frissons: Detecting Music Genres From Skin Response". In: *2019 International Joint Conference on Neural Networks (IJCNN)*, pp. 1–8.

AFFILIATIONS

- Associate Chair of DIS 2021: ACM Designing Interactive Systems Conference (2021)
- Logistics Chair of OzCHI 2020: 32nd Australian Conference on Human Computer Interaction (2020)
- Program Committee Member of ICONIP 2019: 26th International Conference on Neural Information Processing of the Asia Pacific Neural Network Society (2019)
- Reviewer for Elsevier Neural Networks Journal, CHI '21, OzCHI '20, OzCHI '19, ICONIP '19
- Dance Crew Member at Project Beats Dance Studio (2019 - present)

REFEREES

Prof. Tom Gedeon
@ The Australian National University
tom@cs.anu.edu.au

Dr. Sabrina Caldwell
@ The Australian National University
sabrina.caldwell@anu.edu.au

Dr. Henry Gardner
@ The Australian National University
henry.gardner@anu.edu.au

- Rahman, J. S., M. Z. Hossain, and T. Gedeon (2019). “Measuring Observers’ EDA Responses to Emotional Videos”. In: *Proceedings of the 31st Australian Conference on Human-Computer-Interaction*. OZCHI’19. Fremantle, WA, Australia, pp. 457–461.

- Rahman, J. S., J. Li, et al. (2018). “Connectivity Based Method for Clustering Microbial Communities from Metagenomics Data of Water and Soil Samples”. In: *2018 International Joint Conference on Neural Networks (IJCNN)*. IEEE, pp. 1–8.

- Chowdhury, A., J. S. Rahman, and M.S. Hawlader (2016). “Well-connectedness-a novel measure for improving protein complex detection from PPI network”. In: *2016 IEEE Conference on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB)*. IEEE, pp. 1–6.