

JESSICA SHARMIN RAHMAN

PhD Candidate

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in jessica-s-rahman

EXPERIENCE

Lecturer

The Australian National University

February 2021 – Present

- Lecturer for the Fuzzy Logic Section of COMP4660/8420 Neural Networks, Deep Learning and Bio-inspired Computing
- Prepared 5 lecture modules and delivered in the online environment
- Prepared assignment content and resources
- Prepared and reviewed lab materials
- Reviewed final exam questions

Subject Matter Expert

OpenLearning Limited

May 2021 – Present

- Provided expertise in designing online course CS101 Introduction to Computer Science
- Assisted in preparing 10 lecture modules on contents such as history of computing, machine instructions and C programming language
- Reviewed overall course structure

Chief Academic Tutor

The Australian National University

February 2019 – Present

- Chief tutor for COMP1710/6780 Web Development and Design and COMP3710, Topics in Computer Science
- Facilitated online learning activities for a class of 280 students
- Helped with preparing course and lab content
- Led a team of 10 tutors to prepare and deliver lab tutorials and marking assignments.
- Conducted oral examinations
- Marked final examination scripts
- Provided practical training on wearable devices and guided students on running experiments

Research Assistant

Commonwealth Scientific and Industrial Research Organisation (CSIRO)

February 2020 – May 2020

- Team member in Immersive Analytics Lab's project Immersive Data Visualisation of Population-Scale Genome Architectures
- Conducted interviews of experts to gather requirements for the project
- Performed qualitative analysis on the collected data and provided design recommendations
- Prepared evaluation reports

EDUCATION

Doctor of Philosophy, Engineering and Computer Science

The Australian National University

December 2017 – Present

Bachelors of Science (Honours) in Computer Science and Engineering

University of Dhaka

January 2012 – March 2016

SKILLS

Physiological Signal Processing

EEG, fNIRS, EDA, BVP, Eye Gaze Analysis

Machine Learning

Artificial Neural Networks

User Experience Research

Qualitative Analysis

Quantitative Analysis

Prototyping

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 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)
- 1st Place in Australian Dance Crew Championship ACT Qualifier (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)

EXPERIENCE

Academic Tutor

The Australian National University

📅 July 2018 – December 2020

- Tutor COMP3900/6390 Human Computer Interface Design and Evaluation and COMP1710/6780 Web Development and Design
 - Delivered tutorials in both in-person and online learning environment
 - Conducted oral examinations
 - Marked assignments and final examination scripts
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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
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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
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Understanding psychophysiological behavior during reading and music listening

📅 May 2018 – December 2018

- 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

AFFILIATIONS

- Associate Fellow of the Higher Education Academy (AFHEA)
- Associate Chair of DIS 2021: ACM Designing Interactive Systems Conference (2021)
- Logistics Chair of OzCHI 2020: 32nd Australian Conference on Human Computer Interaction (2020)
- Student Volunteer of IUI 2021: 26th Annual ACM Conference on Intelligent User Interfaces (2021)
- 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, ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) Journal, CHI '21, INTERACT '21, DIS '21, OzCHI '20, OzCHI '19, ICONIP '19
- Member of the Association for Computing Machinery (ACM)
- Member of the Institute of Electrical and Electronics Engineers (IEEE)
- Dance Crew Member at Project Beats Dance Studio (2019 - present)

SELECTED TALKS

- Oral Presentation at CHI Conference on Human Factors in Computing Systems, CHI'21.
- Invited Talk at ABC Science Ockham's Razor
- Invited Talk at Global Young Scientists' Summit 2020
- Oral Presentation at 3-minute thesis 2020
- Invited Talk at Ada Lovelace Celebration 2020
- Oral Presentation at 32nd Australian Conference on Human-Computer-Interaction, OZCHI'20
- Oral Presentation at The 2020 International Joint Conference on Neural Networks, IJCNN 2020
- Oral Presentation at The 2019 International Joint Conference on Neural Networks, IJCNN 2019

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.
- Rostov, M., M. Z. Hossain, and J. S. Rahman (2021). "Robotic Emotion Monitoring for Mental Health Applications: Preliminary Outcomes of a Survey". In: *18th IFIP TC13 International Conference on Human-Computer Interaction*. INTERACT'21. Bari, Italy.
- 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.
- 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.

REFEREES

Prof. Tom Gedeon

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