Nastaran Saffaryazdi

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https://nastaran-saffar.me/

Education

July 2019 – September 2023

PhD, Bioengineering, The University of Auckland

   Supervisor: *Prof. Mark Billinghurst*

   Co-Supervisors: *Prof. Elizabeth Broadbent, Assoc Prof. Suranga Nanayekkara*

   Thesis: *Using Multimodal Measures for Emotion Recognition in Conversational Settings*

2007 - 2010

Master of Computer Engineering, Computer Architecture, Isfahan University of Technology(IUT)

   Supervisors: *Prof. Shadrokh Samavi, Assoc Prof. Mohammad Davarpanah Jazi*

   Thesis: *Lossless Compression of ROI in Coronary Angiogram Sequences*

2002 - 2006

Bachelor of Software Engineering, Ferdowsi University of Mashhad

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Job History

2018-2020 *Teacher Assistant in The University of Auckland*

2012 - 2017 *Software Developer in Tosan Co. https://tosan.com/*

2010 - 2012 *Lecturer in University of Torbat-e- heydarieh, Payame Noor University, and University of Applied Sciences and technology, Torbateheydarieh, Iran*

2008 - 2010 *Teacher Assistant in Isfahan University of Technology and Sepahan Institute of Higher Education, Isfahan, Iran*

2004 - 2005 *Web Developer, Kaspian Information Technology Co. https://www.kaspid.com*

Outstanding Projects

2022-Now *Physiological-based Empathetic Conversational Agent*

I Designed the perceptual module of an empathetic conversational agent capable of empathizing with humans based on real-time detection of emotions using neural and physiological cues. To do this, I developed Octopus Sensing Processing application that can recognize emotion in real-time using behavioral, neural, and physiological modalities and integrated it with a Digital Human from SoulMachines Co.

2020-Now *Octopus Sensing Software Suite*

I developed an open-source software suite that enables the synchronous acquisition of data from multiple sensors, real-time data processing, real-time and offline data visualization, and provides utilities for designing user studies with multimodal sensors.

2019-Now *Multimodal Emotion Recognition*
During my PhD, I did a comprehensive research on recognizing emotions using facial expressions and Electroencephalography (EEG), Electrodermal Activity (EDA), and Photolethysmography (PPG) signals. I created four publicly available datasets of multimodal data and developed software for multimodal emotion recognition in real time

2009-2017 *Tosan's Neginlite*
I was a software developer in this project; the best-selling core banking software in Iran, running on 12 banks, which provided more than 4000 services for other applications in Tosan itself and other companies.

Publications

Saffaryazdi, N., Gharibnavaz, A., & Billinghurst, M. (2022). Octopus Sensing: A Python library for human behavior studies. *Journal of Open Source Software*, *7*(71), 4045.

Saffaryazdi, N., Goonesekera, Y., Saffaryazdi, N., Hailemariam, N. D., Temesgen, E. G., Nanayakkara, S., ... & Billinghurst, M. (2022, March). Emotion recognition in conversations using brain and physiological signals. In *27th International Conference on Intelligent User Interfaces* (pp. 229-242).

Saffaryazdi, N., Wasim, S. T., Dileep, K., Nia, A. F., Nanayakkara, S., Broadbent, E., & Billinghurst, M. (2022). Using facial micro-expressions in combination with EEG and physiological signals for emotion recognition. *Frontiers in Psychology*, *13*, 864047.

Loveys, K., Sagar, M., Billinghurst, M., **Saffaryazdi, N**., & Broadbent, E. (2022, March). Exploring empathy with digital humans. In *2022 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)* (pp. 233-237). IEEE.

Matthies, D., **Saffaryazdi, N**., & Billinghurst, M. (2022). Wearable Sensing of Facial Expressions and Head Gestures. In *NordiCHI'22 Workshop. https://doi. org/10.13140/RG* (Vol. 2, No. 26960.38408, p. 2).

Barde, A., **Saffaryazdi, N**., Withana, P., Patel, N., Sasikumar, P., & Billinghurst, M. (2019, October). Inter-brain connectivity: Comparisons between real and virtual environments using hyperscanning. In *2019 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)* (pp. 338-339). IEEE.

Yazdi, Z. S., Karimi, N., Samavi, S., & Shirani, S. (2010, November). Perceptually lossless compression of angiogram sequences. In *Proceedings of the 10th IEEE International Conference on Information Technology and Applications in Biomedicine* (pp. 1-4). IEEE.

Karimi, N., Samavi, S., Shirani, S., Amraee, S., **Safaryazdi, Z**., & Mahmoodzadeh, E. (2009, May). A region based predictor for lossless compression of RNAi images. In *2009 Canadian Conference on Electrical and Computer Engineering* (pp. 987-990). IEEE.

M. Babaie, **Z Saffaryazdi**, Mohammad Hosein Saraee, "Pre-processing Techniques for Data mining Applications", Second Iranian Data mining Conference, Tehran.

Skills and Accomplishments

- Experienced in Python, C++, and C#
- Experienced in Machine learning, TensorFlow, Keras
- Experienced in Multimodal Emotion Recognition using Physiological Modalities
- Experienced in Neural and Physiological signal processing
- Experienced in Image Processing (Facial Expression Recognition, Medical image Compression)
- Experienced in Matlab, SQL, OOP
- Experienced in Teaching and Training

    Teaching different courses in the University

    Mentoring Interns during my PhD

    Teacher Assistant in different courses
- Experienced in Gnu/Linux
- Familiar with Statistical Analysis and R
- Familiar with Robotic Operating System (ROS)
- Familiar with 3D Modeling with Blender (open-source 3D modeling software)

Other Skills/Activities

- Crafting (Including woodworking and sewing)
- Drawing and Painting
- Mountain Climbing, Bouldering, Sea Kayaking
- Gardening
- Working as an active volunteer in Kaipatiki Project (https://kaipatiki.org.nz/)