

Md Taufeeq Uddin

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🌐 Website: <https://mtaufeeq.github.io>

Github: <https://github.com/mtaufeeq>

INTERESTS

Computer vision, machine learning, human-centered AI, natural language processing, human behavior (emotion) analytics

Summary. I develop computer vision algorithms to measure facial expressiveness to perform affective visual data analytics [WACV, ICPR], data anonymization, etc. I also develop machine learning models and framework (multimodal ML, active / incremental learning) for human activity, emotional behavior, and mental health perception to augment health sensing and well-being [IEEE TAC, FG, NeurIPS workshop]. During my Summer 2021 internship at PepsiCo R&D, I developed NLP and ML models for consumer behavior and product analytics.

EDUCATION

2018–May 2023 **Ph.D. in Computer Science and Engineering**, University of South Florida Tampa, FL, USA.

2018–2020 **M.S. in Computer Science**, University of South Florida Tampa, FL, USA.

2012–2016 **B.Sc. in Computer Science and Engineering**, International Islamic University Chittagong Bangladesh.

INDUSTRY EXPERIENCES

May–Aug., 2022 **Visa Research**, Ph.D. Research Intern Atlanta, GA, USA.

- I expect to work on a research project on trustworthy machine learning (fairness, transparency)

May–Aug., 2021 **PepsiCo R&D**, Data Science Intern Valhalla, NY, USA.

- Developed **NLP & ML** models to extract insights from big datasets (e.g., text, audio) for product analytics
- Developed and deployed AI-based product analytics dashboard app for stakeholders (e.g., product developers, QA, e-commerce)
- Worked in cross-functional cross-cultural team with experts from food science, statistics, data science, e-commerce

ACADEMIC EXPERIENCES

Aug. 2018–Present **University of South Florida**, Graduate Research Assistant Tampa, FL, USA.

Advisor (/PI): Dr. Shaun Canavan (Computer Vision & Pattern Recognition Lab)

May 2019–May 2020; Aug–Dec 2022 **University of South Florida**, Graduate Teaching Assistant Tampa, FL, USA.

SKILLS

Languages **Python, R, C/C++, Java, MATLAB, SQL, HTML, CSS, Javascript**

Libraries/APIs **PyTorch, Tensorflow, Keras, HuggingFace Transformers, Scikit-learn, plotly-dash, OpenCV, Numpy, Pandas, OpenFace, Spark, etc**

Tools **SSH, Git, Docker**, Markdown, Weka, MS Office (word, excel, etc), MS Power BI, Tableau

PUBLICATIONS

Total citations \geq **193**, h-index: **7**, i10-index: **5**, according to [Google Scholar](#) [Apr. 2022]

Peer-reviewed published & accepted

8. **Md Taufeeq Uddin**, Shaun Canavan. "Quantified Facial Expressiveness for Affective Behavior Analytics". IEEE Winter Conference on Applications of Computer Vision (**WACV**). 2022 [Link]
7. **Md Taufeeq Uddin**, Ghada Zamzmi, Shaun Canavan. "Context Incremental Learning for Affective Behavior Perception in the Wild". IEEE Transactions on Affective Computing (**TAC**). 2022. **Impact Factor = 10.51** [Accepted w/ revision]. [Link]
6. **Md Taufeeq Uddin**, Shaun Canavan, Lijun Yin. "Spatio-temporal Affective Graph Analytics on Privacy-preserved Secondary Affect Data". IEEE Transactions on Affective Computing (**TAC**). 2022. **Impact Factor = 10.51** [Abstract accepted; invited to submit full paper]
5. **Md Taufeeq Uddin**, Shaun Canavan, Ghada Zamzmi. "Accounting for Affect in Pain Level Recognition". Machine Learning for Health (**ML4H**) at **NeurIPS 2020** - Extended Abstract. (non-archival publication). [Link]
4. **Md Taufeeq Uddin**, Shaun Canavan. "Quantified Facial Temporal-Expressiveness Dynamics for Affect Analysis". International Conference on Pattern Recognition (**ICPR**). 2020. [Link]
3. **Md Taufeeq Uddin**, Shaun Canavan. "Multimodal Multilevel Fusion for Sequential Protective Behavior Detection and Pain Estimation". IEEE International Conference on Automatic Face & Gesture Recognition (**FG**). 2020. [Link]
2. **Md Taufeeq Uddin**, Shaun Canavan. "Synthesizing Physiological and Motion Data for Stress and Meditation Detection".

IEEE International Conference on Affective Computing and Intelligent Interaction Workshops and Demos (**ACIIW**). 2019. [Link]

1. Saurabh Hinduja*, **Md Taufeeq Uddin***, Sk Rahatul Jannat*, Astha Sharma*, Shaun Canavan. "*Fusion of Hand-crafted and Deep Features for Empathy Prediction*". IEEE International Conference on Automatic Face & Gesture Recognition (**FG**). 2019. (* = equal contribution). [Link]

Manuscripts under review & in progress

2. **Md Taufeeq Uddin**, Ghada Zamzmi, Shaun Canavan. "*Association between Chronic Back Pain and Protective Behaviors is Subjective and Context Dependent*". Nature Scientific Reports (**Nature SR**). 2022. [Submitted]
1. **Md Taufeeq Uddin**, Shaun Canavan. "*Quantified Facial Expressiveness to Enhance Data-centric Affective Computing*". IEEE Transactions on Artificial Intelligence (**TAI**). 2022. [In preparation]

Doctoral consortium presentation

1. **Md Taufeeq Uddin**. "*Affective AI: Expressivity, Context, and Human Behavior Perception*". IEEE Winter Conference on Applications of Computer Vision (**WACV**) Doctoral Consortium. 2022

PATENT

1. Shaun Canavan (PI), **Md Taufeeq Uddin***, Ghada Zamzmi. "*System and Method for Accounting for Affect in Pain Assessment*". Filed on Jan. 2021. App. ID: ***. US Patent & Trademark Office. (* = leading inventor). [Patent pending]

SELECTED PROJECTS

Aug. 2019–Present **Large-scale Affective Visual Data Analytics**

- Developed algorithms (computer vision, network science) to quantify facial expressivity from video data
- Demonstrated use cases on visual analytics: summarization, data quality inspection, subjectivity quantification

Publications: [WACV](#), [ICPR](#)

Jan. 2019–Present **Multimodal Machine Learning for Health Sensing**

- Developed multimodal ensemble machine learning model for chronic pain and protective behavior assessment (**won IEEE FG 2020 "emoPain Challenge" competition**)
- Developed context-aware active learning framework for human behavior prediction in the wild
- Developed machine learning model for pain prediction that accounts for affect / emotion
- Developed deep learning model for synthesizing human sensing and vital sign data such as ECG, EMG, respiration

Publications: [FG](#), [NeurIPS workshop](#), [ACII workshop](#), [IEEE TAC \(accepted w/ revision\)](#)

Aug. 2020–May 2021 **Deep Fake Video Detection Tool**

Worked as a member of team of 11 researchers to develop deep learning based deep fake video detection tool

(RESEARCH) COMMUNITY SERVICES

Reviewer.

- Journal: IEEE Transactions on Affective Computing (TAC)
- Conferences: IEEE FG, ICPR, ACM CHI, IEEE ICME, NeurIPS workshop

PC (program committee) Member.

- ML4H (machine learning for health) symposium at NeurIPS 2021
- ACII workshop: 2nd AMAR workshop, 2021
- MICCAI workshop: TDA4MedicalData (topological data analysis for medical data), 2021
- IEEE FG workshop: AMAR (applied multimodal affect recognition), 2020
- ICPR workshop: CAIHA (computational & affective intelligence in healthcare applications), 2020

HONORS & AWARDS

2020 **Winner, data science (/AI/ML) competition: "PepsiCo Data Science Innovation Challenge: Create the Unexpected"**, the New York Academy of Sciences (NYAS), NYC, USA, sponsored by PepsiCo.

Prize: Paid R&D internship at PepsiCo. NYAS membership

2020 **Winner (tracks 2 & 3), data science (/AI/ML) competition: "EmoPain Challenge: Pain-related Behavior Analysis"**, IEEE Automatic Face & Gesture Recognition conference (FG).

2018 **Graduate Fellowship**, University of Manitoba, Canada (I declined).

TRAINING & CERTIFICATIONS

Coursera Specialization: Deep Learning; Data Science; Software Product Management