

Sanjay Saha

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WORK EXPERIENCE

- Research Assistant** May 2022 – Present
Centre for Trusted Internet and Community, NUS *Singapore*
- Project: Deep and Cheap Fakes – Effects on Audience’s Attitudes, Knowledge, and Literacy. Studying on different deepfake generation and synthesis methods, generating deepfakes and cheapfakes for the surveys, etc. are my major responsibilities in the project.
- Research Engineer (part-time)** Jun. 2020 – Present
Invigilo Technologies *Singapore*
- Developed Computer Vision solutions for automated construction work-site safety violation detection.
 - Built solutions using state of the art video analytics techniques for detecting, tracking objects, human action recognition, pose estimation, proximity estimation, etc.
- Graduate Teaching Assistant (part-time)** Aug. 2018 – May 2022
National University of Singapore *Singapore*
- Conducted tutorial classes for the following modules (some multiple times): Discrete Mathematics, Database Systems, Biometric Authentication, Applied ML for Business Analytics, Advanced Analytics and ML, Workshop of Visual Computing, SCALE AI & ML.
- Research Intern (PhD)** May 2021 – July 2021
ByteDance *Singapore*
- In this tenure I worked on a section of a project for tiktok video duplication detection where I had to work with variations of the transformer models, developing image matching algorithms based on requirements, working with SQL for informative report generation, etc.
- Assistant Professor** Oct. 2017 – July 2018
University of Asia Pacific *Dhaka, Bangladesh*
- Lectured, and designed curriculum of these courses: Structural Programming Language, Algorithms, Object Oriented Programming. Guided two student-groups to research projects, one leading to a [publication](#).
- Lecturer** Jul. 2014 – Sep. 2017
United International University *Dhaka, Bangladesh*
- Lectured, and designed curriculum of these courses: Theory of Computation, Structural Programming Language, Algorithms, Object Oriented Programming, Discrete Mathematics.

EDUCATION

- National University of Singapore (NUS)** Singapore
Ph.D. in Computer Science *Aug. 2018 – Present*
- University of Dhaka** Dhaka, Bangladesh
Master of Science in Computer Science & Engineering *Jun. 2014 – Feb. 2016*
- University of Dhaka** Dhaka, Bangladesh
Bachelor of Science in Computer Science & Engineering *Jan. 2010 – Mar. 2014*

RESEARCH PROJECTS

- Deep and Cheap Fakes – Effects on Audience’s Attitudes, Knowledge, and Literacy:** This research aims to advance the understanding of deepfake perception by adopting a communicative approach. Specifically, it seeks to collaborate to fill in the gap of obtaining empirical evidence about the psychological relationship users establish with deepfake technology. The work packages will observe user attitudes and knowledge about fake technologies and characterize the impact of deepfake on users, particularly youths.

- **Improved Deepfake Generation and Detection:** Deepfakes are a great tool for both good and bad usage. However, the current state of the art methods for creating and detecting deepfakes does not ensure great results and/or ease of use. In this project we explore many aspects in this field to improve the deepfake generation and detection methods.
- **Realizable Black-box Attacks on Face Recognition System:** Studies on Realizable black-box attacks on Face Recognition Systems are not common. In this project, we propose an attack scheme where the attacker can generate realistic synthesized face images with subtle perturbations and physically realize that onto his face to attack black-box face recognition systems.
Publication: [IJCB 2020](#) .
- **Step towards Continuous Authentication:** In order to provide the additional security required by modern mobile devices, biometric methods and Continuous Authentication(CA) systems are getting popular. This work is the first to compare between different biometric modalities based on the resources they use. We do this by determining the Resource Profile Curve (RPC) for each modality.
Publications: [ICB 2019](#), [IJCB 2020](#).
- **Identification of Protein Glycation Sites:** Glycation is chemical reaction by which sugar molecule bonds with a protein without the help of enzymes. In this work, we develop a protein lysine glycation site identification method based on features extracted from sequence and secondary structural information.
Publication: [Proteins 2018](#).

SELECTED PUBLICATIONS

- Is Face Recognition Safe from Realizable Attacks?* IJCB, 2020
- **Sanjay Saha**, Terence Sim
- Making the most of what you have. (Profiling biometric authentication on mobile devices)* ICB, 2019
- Sanka Rasnayaka, **Sanjay Saha**, Terence Sim | [Link](#)
- iProtGly-SS: Identifying protein glycation sites using sequence and structure based features.* Proteins (journal), 2018
- Md. M. Islam, **Sanjay Saha**, Md M. Rahman, S. Shatabda, D. M. Farid, A. Dehzangi | [Link](#)
- DPP-PseAAC: A DNA-binding protein prediction model using Chou's general PseAAC* JTB (journal), 2018
- M Saifur Rahman, S. Shatabda, **Sanjay Saha**, M Kaykobad, M Sohel Rahman | [Link](#)

TECHNICAL SKILLS

Languages: Python, Java, SQL, PHP
Frameworks: PyTorch, Tensorflow/Keras, Laravel
Developer Tools: Git, Google Cloud Platform, VS Code, PyCharm, IntelliJ

RECENT ACTIVITIES

- Attended Google Research Symposium, [Google India](#) 2022 Feb. 2022
- Placed on the [Honor List](#) of Student Tutors, NUS. Jan. 2022
- Reviewed MComp applications at SoC, NUS for Fall 2021 Jul. 2021
- Research Internship at [ByteDance](#) May - Jul. 2021
- Presented our paper at the [IJCB 2020](#) Oct. 2020
- Reviewer at the [ICAICT, Dhaka 2020](#) Sep. 2020
- Developed a 'face morphing' feature in [unMask.online](#) project from NUS CFA Jun. 2020