ANANYA SINGH

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EDUCATION

Nanyang Technological University, Singapore **Aug 2019 – Jul 2023**

Bachelor of Science in Data Science and Artificial Intelligence with Honours (Merit)

- **Awarded NTU Science and Engineering Undergraduate Scholarship** **2019 – 2029**
- Relevant Modules: Python, Linear Algebra, Data Science, Data Structures, Algorithms, Object Oriented Design and Programming, HCI, Software Engineering, SDLC, Data Analysis, AI, Databases, Data Mining, NLP, Neural Network & Deep Learning, Info Retrieval, Network Science, Web Development, Intelligent Agents

WORK EXPERIENCE

NTU Lee Kong Chian School of Medicine **Sept 2023 - Present**
Research Assistant

- Co-authored four impactful research papers, assuming co-first authorship on two and sole first authorship on another, showcasing expertise in infectious diseases modeling.
- Spearheaded the development of the laboratory website, significantly enhancing lab visibility and attracting prominent researchers to collaborate.
- Developed a sophisticated model to quantify antibody dynamics at both the population and societal levels, contributing valuable insights to the field of infectious diseases epidemiology.
- Leveraged advanced statistical techniques and proficiency in R programming language to design and implement cutting-edge models for infectious diseases, contributing to the advancement of epidemiological research.
- Played a pivotal role in the conceptualization and execution of research projects, demonstrating a keen understanding of complex data science methodologies.
- Actively participated in interdisciplinary collaborations, fostering a dynamic research environment conducive to innovation and knowledge exchange.

Publications:

- **Singh, A**. (2024). *Early neutrophil responses are potential biomarkers to predict severe COVID-19 in adults*. (Accepted)
- Ejima, K., Ajelli, M., **Singh, A**. *et al. Age- and vaccination status-dependent isolation guidelines based on simulation of SARS-CoV-2 Delta cases in Singapore*. *Commun Med***5**, 76 (2025). https://doi.org/10.1038/s43856-025-00797-8
- Chua, H.K., **Singh, A.**, *et al*. (2025). *Defining the Critical Requisites for Accurate Simulation of SARS-CoV-2 Viral Dynamics: Patient Characteristics and Data Collection Protocol.* Journal of Medical Virology, 97, e70174. https://doi.org/10.1002/jmv.70174
- Ponce, L., Wang, Y., & **Singh, A**. (2024). *Modeling antibody kinetics following mRNA booster vaccination and estimating protection durations against SARS-CoV-2 infection*. Manuscript in preparation.

Toyota Motor Asia Pacific **Jul 2022 – Dec 2022**
NTU EDGE Project

- Developed a dashboard to enable analysis of automotive parts sales and profit. PowerBI was leveraged for dashboard creation and data visualisation. The Excel automation tasks required for the project were achieved through the use of VBA.

A*Star, Centre for Frontier AI Research **Jun 2022 – Aug 2022**
CFAR Internship Award for Research Excellence (CIARE)

- Participated in a summer internship focused on applying AI research to real-world challenges, including drafting a survey paper on deep clustering under the guidance of Dr. Pan Yuangang.

Apple South Asia Pte. Ltd. **Jun 2021 – Dec 2021**
Data Enhancement & Automation Intern

- Collaborated with a cross-functional team to develop data automation scripts that streamlined and accelerated business data processing operations in the APAC region. Worked with technologies including JavaScript, Bash, VBA Macros and Python libraries xlwings and xlsxwriter to develop data automation scripts aimed at streamlining business data processing operations.
- Established intelligent workflows that saved 31.2 business hours per week across the entire team.

ACADEMIC PROJECTS

Final Year Project **Aug 2022 – May 2023**
Title: Learning Conditional Human Motion Prior

- Developed a system that enabled natural language control of 3D virtual avatars, generating coherent and meaningful human-like movements suited to specific scenarios using Brax.
- By leveraging a conditional human motion prior that considered scene information and language descriptions, and combining language-conditioned human motion generation and physics-based character control techniques, the team achieved their objective of producing physics-aware virtual characters from textual inputs.

- **Singh, A**. (2023). *Animate your avatar: Learning conditional human motion prior (*Final Year Project, Nanyang Technological University, Singapore). https://hdl.handle.net/10356/165971

Title: NLP Project **Oct 2022**

- Utilized SNScrape to scrape Twitter data via API after the Russia-Ukraine conflict, applying NLP algorithms for sentiment analysis to extract insights on public opinion and sentiment trends. https://youtu.be/fLZVJigxcKk

Title: Age, Gender and Ethnicity Classification Model **Sep 2022**

- Developed and trained CNN models, including Ground-up CNN, Inception V3, and VGG16, to predict gender, age, and ethnicity from facial data for security purposes, achieving 95.3% accuracy using a bagged model approach.

Title : Machine Learning Project **Apr 2022**

- Developed a solution to recognize blood-related faces leveraging techniques such as Facial Recognition, DeepFace, Classification, and Ensemble Learning. https://youtu.be/L1mp1albSFg

Title: Info Retrieval Group Project **Mar 2022**

- Developed a system using Twitter APIs for data crawling, classification, and query search on labeled data, with a React JS front-end for user interaction, resulting in a fully functional and accessible platform. https://youtu.be/VNwZwU3IW0Q

Title: Software Engineering Project **Feb – Apr 2021**

- Developed and integrated the UI for a job and course recommendation software using React JS, contributed to frontend-backend integration, and adhered to the SDLC for seamless development, testing, and deployment. https://youtu.be/Iq9XFGBZOY4

Title: Course planner using Java **Oct 2020**

- Developed a Console-based Student Automated Registration System using Java, enabling course management for students and staff by utilizing object-oriented programming to enhance the user interface and experience. https://youtu.be/mpoIJKblbaA

Title: Predicting Electrical Price in Spain using Data Science **Mar 2020**

- Developed predictive models in Python for hourly energy prices in Spain, utilizing time, weather, and energy generation data, and employed machine learning algorithms like linear regression, decision tree, and random forest to achieve accurate predictions.

LEADERSHIP CO-CURRICULAR ACTIVITIES

NAE Nanyang Technological University **2020 – 2023**
President of Nanyang Arts Ensemble **2021 – 2022**

- Led a team of 25 members to organise and host arts and crafts workshops for NTU students, demonstrating strong leadership skills in managing and coordinating the team.
- Collaborated with other organizations and CCAs to improve publicity and outreach, displaying effective communication and teamwork skills.

Won NTU IEEE iNTUition Hackathon in the best women in tech category https://youtu.be/SFyVLZMc4zA **28 Feb 2021**
Operations and Events Director in NTU Model United Nations **2020 – 2021**
Publicity Officer at MLDA @ EEE **2020 – 2021**

SKILLS & INTERESTS

- **Languages:** English (fluent), Hindi (Native), French (level 1)
- **Programming Skills:** Java, Python, AppleScript, C++, C, HTML5, CSS3, JavaScript, MATLAB, React JS, MSSQL, R, Dart, VBA, MonolixSuite2023, TensorFlow, Keras, PyTorch
- **Software Application Skills: Blender,** Microsoft Office 2019, PowerBI, MonolixSuite
- **Extra-Curricular Course:** UCMAS (Mental Math using Abacus), Bharatanatyam (Indian Classical Dance Form), Kathak (Prathama)
- **Interests:** Painting, Sketching, Singing, Coding, Robotics, **ML&AI**, **NLP, CNN, DNN, Text -to- Motion, Big Data, Modelling**
- **Online Courses:** Introduction to HTML5, Introduction to CSS3, Introduction to MATLAB, Introduction to JavaScript, Beginner in NodeJS, Introduction to IoT, Flutter, Big Data, Apache Hadoop, Apache Spark, Data Management, MongoDB, Data Modelling