Himanka Kalita

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PhD Researcher CV
LinkedIn GitHub

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Technical Interests

Machine Learning and Deep Learning, Behavioural Biometrics, Mobile behavioural profile analysis, Mobile behavioural data analysis, Image Processing, Image Sharing and Reconstruction, NLP, Android applications, Git, RESTful APIs, Advanced data analytics, Web simulation and application frameworks, Real Time Embedded Systems, Microprocessors.

Education

Doctor of Philosophy | ***Applied Electronics*** — Nov. 2017 – Nov. 2022
Università degli Studi Roma Tre — Rome, Italy

Master of Technology | ***Information Technology, CGPA: 4.12/5*** — Jul. 2013 – Jun. 2015
North Eastern Regional Institute of Science and Technology — Nirjuli, India

Bachelor of Technology | ***Computer Science and Engineering, CGPA: 6.8/10*** — Jul. 2009 – Jun. 2013
Assam Don Bosco University — Guwahati, India

Work Experience

Erasmus+ UI/UX Research Intern — Jul. 2020 – Feb. 2021
Time Village — Stockholm, Sweden

- Defined personas including motivation, actions, channels.
- Defined journey sketch and empathy map, analysis of touchpoints.
- Selection of appropriate UX/UI tool, definition of the optimal UX was done.
- Analysed current UI and its implementation in the front end.
- Designed and defined new UI with verification, testing, and implementation of UI.

Early Stage Researcher for ENCASE (EU H2020 Project) — Jul. 2019 – Aug. 2019
Signal Generix — Limassol, Cyprus

- Our designed CNN architecture was fed with real but anonymized OSN data.
- OSN is online social networks. The output from CNN was logged and analyzed.
- We captured extreme cases that fell outside our real OSN activity using CNN.
- The system also relied on synthetically generated input data. ENCASE website.

Early Stage Researcher for ENCASE (EU H2020 Project) — Sep. 2018 – Dec. 2018
Telefonica I+D — Barcelona, Spain

- Provided security to personal and sensitive text content sharing in online websites.
- Part of PhD research was conducted on EEG brainwave data acquisition and analysis.
- We developed fake posts from a user's friend in social media specifically Facebook.
- While viewing fake post (good/bad news) by the user, we recorded their EEG data.
- Studied the difference of behaviour of the EEG signals using CNN.

Early Stage Researcher for ENCASE (EU H2020 Project) — May 2018 – Aug. 2018
CyRIC — Nicosia, Cyprus

- Provided security to personal and sensitive text content sharing in online websites.
- Researched an NLP module to filter sensitive content from text to be posted online.
- Input text is supposedly the user's comment or message or any form of text.
- Successfully implemented a spring based RESTful API service for the NLP module.

Administration Assistant Mar. 2017 – Nov. 2017
Indian Institute of Technology Guwahati Guwahati, India

- Provided remote-access to virtual labs in various disciplines.
- Worked on code conversion, analysis, and testing based on C++ and CPPUnit.

Computer Science Teacher Mar. 2016 – Mar. 2017
Kendriya Vidyalaya IIT Guwahati Guwahati, India

- I taught HTML5, CSS, JavaScript, C++, Algorithms, and Computers Systems.
- Guided a high school science project with title "Disaster Management".

Developer Summer Intern Jun. 2012 – Jul. 2012
Indian Oil Corporation Limited Guwahati, India

- Developed a network subnet calculator with input, a sub-netted IP and its subnet mask.
- Output provides the detailed information of the whole subnet to which the IP belongs.

Projects and Research

ENCASE, a European Union H2020 funded project 2018 – 2020
Università degli Studi Roma Tre

Virtual Labs Integration Project Phase 2 2017 – 2017
Indian Institute of Technology Guwahati

Publications

[1] H. Kalita, E. Maiorana, and P. Campisi. "Keystroke Dynamics for Biometric Recognition in Handheld Devices". In: *2020 43rd International Conference on Telecommunications and Signal Processing (TSP)*. Paper link. 2020, pp. 410–416. DOI: 10.1109/TSP49548.2020.9163524.

[2] H. Kalita, M.M. Singh, and T. Tuithung. "A Reversible Secret Image Sharing Scheme in Matrix Projection Using Discrete Haar Wavelet Transform". In: *2015 National Conference on Computing, Communication and Information Processing (NCCCIP)*. Paper link. 2015, pp. 105–111.

[3] E. Maiorana, H. Kalita, and P. Campisi. "Deepkey: Keystroke Dynamics and CNN for Biometric Recognition on Mobile Devices". In: *2019 8th European Workshop on Visual Information Processing (EUVIP)*. Paper link. 2019, pp. 181–186. DOI: 10.1109/EUVIP47703.2019.8946206.

[4] Emanuele Maiorana, Himanka Kalita, and Patrizio Campisi. "Mobile keystroke dynamics for biometric recognition: An overview". In: *IET Biometrics* 10.1 (2021). Paper link, pp. 1–23. DOI: https://doi.org/10.1049/bme2.12003.

[5] R. K. Sharma et al. "Android interface based GSM home security system". In: *2014 International Conference on Issues and Challenges in Intelligent Computing Techniques (ICICT)*. Paper link. 2014, pp. 196–201. DOI: 10.1109/ICICICT.2014.6781278.

Skills

Operating System: Windows, Linux
Languages: Assamese (Native), Hindi (B2), English (C2), Italian (A1)
Programming: Python (NumPy, SciPy, Matplotlib, Pandas), Kotlin, C, C++, MATLAB, Java
Web Technologies: HTML5, CSS3, JavaScript, JSON, RESTful APIs
Database: MySQL, Firebase for Android, MongoDB
Document Creation: LaTex, Microsoft Office Suite
Machine/Deep Learning Frameworks: SciKitLearn, Tensorflow, PyTorch, Keras

References

References available upon request.