

## TECHNICAL INTERESTS

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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

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<b>Doctor of Philosophy</b>   <i>Applied Electronics</i> Università degli Studi Roma Tre	Nov. 2017 – Present Rome, Italy
<b>Master of Technology</b>   <i>Information Technology, CGPA: 4.12/5</i> North Eastern Regional Institute of Science and Technology	Jul. 2013 – Jun. 2015 Nirjuli, India
<b>Bachelor of Technology</b>   <i>Computer Science and Engineering, CGPA: 6.8/10</i> Assam Don Bosco University	Jul. 2009 – Jun. 2013 Guwahati, India

## WORK EXPERIENCE

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<b>Erasmus+ UI/UX Research Intern at Time Village</b> Time Village <ul style="list-style-type: none"><li>Defined personas including motivation, actions, channels.</li><li>Defined journey sketch and empathy map, analysis of touchpoints.</li><li>Selection of appropriate UX/UI tool, definition of the optimal UX was done.</li><li>Analysed current UI and its implementation in the front end.</li><li>Designed and defined new UI with verification, testing, and implementation of UI.</li></ul>	Jul. 2020 – Feb. 2021 Stockholm, Sweden
<b>Early Stage Researcher for ENCASE (EU H2020 Project)</b> Signal Generix <ul style="list-style-type: none"><li>Our designed CNN architecture was fed with real but anonymized OSN data.</li><li>OSN is online social networks. The output from CNN was logged and analyzed.</li><li>We captured extreme cases that fell outside our real OSN activity using CNN.</li><li>The system also relied on synthetically generated input data.</li><li>More details in ENCASE <a href="#">website</a>.</li></ul>	Jul. 2019 – Aug. 2019 Limassol, Cyprus
<b>Early Stage Researcher for ENCASE (EU H2020 Project)</b> Telefonica I+D <ul style="list-style-type: none"><li>Provided security to personal and sensitive text content sharing in online websites.</li><li>Part of PhD research was conducted on EEG brainwave data acquisition and analysis.</li><li>We developed fake posts from a user's friend in social media specifically Facebook.</li><li>While viewing fake post (good/bad news) by the user, we recorded their EEG data.</li><li>Studied the difference of behaviour of the EEG signals using CNN.</li></ul>	Sep. 2018 – Dec. 2018 Barcelona, Spain
<b>Early Stage Researcher for ENCASE (EU H2020 Project)</b> CyRIC <ul style="list-style-type: none"><li>Provided security to personal and sensitive text content sharing in online websites.</li><li>Researched an NLP module to filter sensitive content from text to be posted online.</li><li>Input text is supposedly the user's comment or message or any form of text.</li><li>Successfully implemented a spring based RESTful API service for the NLP module.</li></ul>	May 2018 – Aug. 2018 Nicosia, Cyprus

<b>Administration Assistant</b> Indian Institute of Technology Guwahati <ul style="list-style-type: none"> <li>• Provided remote-access to virtual labs in various disciplines.</li> <li>• Worked on code conversion, analysis, and testing based on C++ and CPPUnit.</li> </ul>	Mar. 2017 – Nov. 2017 Guwahati, India
<b>Computer Science Teacher</b> Kendriya Vidyalaya IIT Guwahati <ul style="list-style-type: none"> <li>• I taught HTML5, CSS, JavaScript, C++, Algorithms, and Computers Systems.</li> <li>• Guided a high school science project with title “Disaster Management”.</li> </ul>	Mar. 2016 – Mar. 2017 Guwahati, India
<b>Developer Summer Intern</b> Indian Oil Corporation Limited <ul style="list-style-type: none"> <li>• Developed a network subnet calculator with input, a sub-netted IP and its subnet mask.</li> <li>• Output provides the detailed information of the whole subnet to which the IP belongs.</li> </ul>	Jun. 2012 – Jul. 2012 Guwahati, India

## PROJECTS AND RESEARCH

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<b>ENCASE, a European Union H2020 funded project</b> Università degli Studi Roma Tre	2018 – 2020
<b>Virtual Labs Integration Project Phase 2</b> Indian Institute of Technology Guwahati	2017 – 2017

## PUBLICATIONS

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- [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 (NCCIP)*. 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/ICICT.2014.6781278](#).

## SKILLS

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**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

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References available upon request.