SANJU XAVIAR
Pronouns: She/her

16527 Stony Plain Rd, Edmonton, Alberta, T5P 4E7 • 7802671694 • xaviar@ualberta.ca

www.linkedin.com/in/sanju-xaviar-865aa064

Ph.D. Candidate

Aspiring and results-driven PhD Candidate of 6 years experience with a Masters of Engineering degree in Wireless Network and applications. Professionally skilled in creative problem solving, project management, analytical training, software development and quality testing.

EDUCATION

UNIVERSITY OF ALBERTA, EDMONTON, CANADA | PhD in Computing science | 2021 to Currently pursuing | CGPA: 3.8/4
Research Interests: Multimodal sensor fusion, Sensor networking, Deep learning, Data analysis and IoT, Graph neural network

AMRITA UNIVERSITY – Kollam, INDIA | Masters of Technology in Wireless Networks and Applications | 2013 to 2015

MAHATMA GANDHI UNIVERSITY – Cochin, INDIA | Bachelors of Technology in Electronics and Communication Engineering | 2009 to 2013

EXPERIENCE

UNIVERSITY OF ALBERTA – EDMONTON, CANADA January 2021 to present **Graduate Teaching Assistant**

- (**Lead Student Instructor**) Aiding in the delivery of CMPUT 174: Introduction to Foundations of Computation I and CMPUT 275 - INTRO TO TANGIBLE COMPUTING II
- Handling programming languages Python and C++
- Hosting office hours, handling demos, grading quizzes and assignments

UNIVERSITY OF ALBERTA – EDMONTON, CANADA January 2021 to present
Graduate Research Assistant

- Deep Fusion networks must maintain their performance during momentary and long-term changes in the environment, be robust to sensor data quality issues, and have a reasonable size so that they can be deployed on resource-constrained devices.
    - The scope of this work is to address these challenges by building robust multimodal fusion networks that rapidly generalize to new environments and have a smaller number of trainable weights, hence lower memory and carbon footprints.

SINCLAIR ENERGY PARTNERS – INDIA January 2020 to January 2021
Research associate

- The scope of work is to support the development of magnetometer sensor technology for permanent monitoring of corrosion, erosion, and pipeline blockages in the subsea pipelines, used in O&G applications
- Understand and document client's requirements to meet the desired specifications
- Conduct technical research studies, data analysis and produce reports/presentations to design and develop systems
- Design, analyse and support business solutions for the clients
- To assess, test, troubleshoot and document procedures based on client's needs
- Assemble and manage team members to design, develop and implement software requirements and produce quality research works

OPNLABS – INDIA Jul 2018 to Oct 2018
Software Test Analyst

- Develop and document the software testing plans according to the requirement.
- Plan, set up and maintain the test environment which includes installing of testing software and configure operating system software needed for test case execution.
- Perform the manual functional testing on the product under development.

- Execute, analyse the software application tests and ensure that each component is working as per the functionality.

VELLORE INSTITUTE OF TECHNOLOGY – INDIA Dec 2016 to June 2017
Junior Research Fellow

- Preparing Research Reports/PPT slides/OHPs/Publications and so on relevant to the project
- Conduct laboratory sessions for graduate students in Computer Science department
- Collect necessary research papers (from journals and related web sites)/ study research papers in a focussed way/ write computer programs assigned by Principal Investigator.
- To conduct literature reviews surveys, laboratory experiments and analysis of results for use in scholarly publications.
- Duties assigned by Principal Investigator with regards to academics and research (like participating in work related to Conferences/ Workshops/ Seminars/Special Lectures and on).

MCKINSEY & COMPANY – INDIA ` Sep 2015 to Dec 2016
Business Presentation Specialist

- Handling an extensive schedule of design requests and assignments from clients in various locations with different priorities.
- To design research questionnaires to best analyse the given problem. Includes gathering, analysing information and communicating recommendations.
- Research/problem-solve within the teams and/or with the clients to develop ideas to transform data into more visually engaging and interactive documents for our clients.
- Understand the context (E.g.: Science and technology, Medical, Social sector, Healthcare, Operations, Finance etc.) dictated by the clients and incorporated into work using innovative strategies.

PROJECTS

- **Experimental Study Of Feature Weighting Techniques For URL Based Webpage Classification:** (Dec 2016 to Jun 2017)
  A URL based approach was proposed as it avoids downloading the web page contents. The different weighting methods are explored and various experiments are conducted on WebKB dataset. Results show that Mutual information feature weighting technique achieves an accuracy measure of 79% and outperforms other weighting methods.

- **A Wireless Sensor Network based Smart Irrigation System:** (Jan 2015 to Jun 2015)
  The objective of this project is to reduce the water usage in the irrigation process. A Wireless Sensor Network (WSN) is proposed for irrigation management. WSN consisting of atmospheric temperature, humidity and soil moisture sensors are used in the model to optimize water quantity for crop yield. The proposed system resulted in 30 % water savings for the tomato crop evaluated for 120 days and a yield improvement of $0.5 - 1kg/0.0314m^2$ (25 to 66 %).

- **LUIS: A Light Weight User Identification Scheme for Smart phones:** (Aug 2013 to Dec 2014)
  The main aim of this project is to develop a light weight gesture based authentication scheme for detecting and identifying the actual user of the phone. An application is created that takes inputs such as time to swipe, pressure applied by finger and X and Y coordinates for a swipe gesture performed by a user. Analysis is done on the data collected using a threshold based matching mechanism. Results show that the scheme is able to achieve 90% true positives and 10% false positives with a 0.5% of battery usage.

PUBLICATIONS

Xaviar, Sanju, Xin Yang, and Omid Ardakanian. "Centaur: Robust Multimodal Fusion for Human Activity Recognition." **IEEE Sensors Journal (2024)**.

Sanju Xaviar. 2021. Robust and Affordable Deep Learning Models for Multimodal Sensor Fusion. In Proceedings of the 19th ACM Conference on Embedded Networked Sensor Systems (SenSys '21). Association for Computing Machinery, New York, NY, USA, 403–404.

https://doi.org/10.1145/3485730.3492897

R. Rajalakshmi, SanjuXaviar, “Experimental Study of Feature Weighting Techniques for URL Based Webpage Classification”, Procedia Computer Science, Volume 115, 2017

Xaviar, Sanju et al. “*Luis: a Light Weight User Identification Scheme for Smartphones*” Sixth International Conference on Advances in Communication, Network, and Computing (CNC 2015), Chennai, India (2015)

INVITED TALKS

1. Delivered a presentation at ***Coding and More*** (personalised EdTech that teaches AI & Coding to K-12 students) 'Demystifying the World of AI: Understanding the Differences between AI, ML, Data Science and Data Analytics' to students, 2023.
2. Delivered a presentation at ***Business School of AI*** on ' Unleashing the potential of AI: A Deep Dive into Deep Learning' for the IoTDay Woman with Sudha Jamthe (Stanford Instructor) and Roxy Stimpson (VP of Engineering, Office of the CTO and Head of Innovation: F5) for IoTDay 2023.

RECENT CERTIFICATIONS

1. AI career Accelerator Program Participant issued by Alberta Machine Intelligence Institute (Amii): August 2023
2. Kickstart program participant issued by Alberta Machine Intelligence Institute (Amii): August 2023

TECHNICAL SKILLS

Operating Systems: Linux Ubuntu, Windows

Tools: MATLAB, Microsoft Office, Network Analyzers (Wireshark, Packet-Tracer), LATEX

Programming: C, Python (Scikit-learn, PyTorch, TensorFlow), NesC, HTML, SQL

ACHIEVEMENTS

- **Golden key award -** Awarded for academic and scholastic excellence for the top 15% students at University
- **Grace hopper Scholarship recipient** issued: University of Alberta, 2023, held at Orlando, Florida.
- **Presented the paper** “Robust and Affordable Deep Learning Models for Multimodal Sensor Fusion” for the PhD forum and participated Online in the 19th ACM Conference on Embedded Networked Sensor Systems (SenSys 2021) which was held on November 14-17, 2021.
- **Reviewer**: IEEE Sensors Journal, International Journal of Water Resources Development, IEEE/ACM international Symposium on Cluster, Cloud and Internet Computing (BITES: Blockchain, IoT, and Sustainable Energy for a Greener Future)
- **First runner up winner** of Alberta Power Industry Consortium (APIC) E-Hackathon 2021, This event was hosted with the help and support of AI4Society, ISAIC, Future Energy Systems, and the Energy Systems Signature Area at the University of Alberta.
- Volunteered as a **Python tutor at Ada’s team**, University of Alberta: Promoting diversity in STEAM with an emphasis on technology
- General Volunteer, **Role model guide** for SET (Science, Engineering and Technology) Conference 2022 held at University of Alberta, Edmonton. Part of panelist as **Mentor** for the Summer Research Program (SRP) 2023 for WISEST (Women in Scholarship, Engineering, Science & Technology).
- **Mentor** at Women in AI, 2023: mentored students and working professionals
- **Facilitator for Google developer Group Cloud Edmonton** IWD - Dare to be event at Alberta Machine Intelligence Institute (Amii) held on March 17th, 2023
- **Volunteer** at Future Energy Systems, University of Alberta for Sustainival Downtown, Edmonton
- **Volunteer** at University of Alberta Campus Food bank