

# VARSHINI PRAKASH

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## EDUCATION

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### Master of Science in Computing Science

University of Alberta, Edmonton, Canada

GPA: 3.9 / 4.0

### Bachelor of Technology in Computer Science

VIT University, Vellore, India

GPA: 9.26 / 10.0

## PUBLICATIONS

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**Prakash, V.**, Moorthy, K., & Jose, J. T., (2020). Enhancing Predictability of Handwritten Document Content using HTR and Word Substitution. *IJISME*.

**Prakash, V.**, & Tripathy, B. K. (2020). Recent Advancements in Automatic Sign Language Recognition (SLR). In *Computational Intelligence for Human Action Recognition* (pp. 1-24). Chapman and Hall/CRC.

## AWARDS

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Certificate of Accomplishment for 16th Annual Student Unmanned Air Systems Competition.

Certificate of Appreciation for oral presentation on Data Security for IOT Based Healthcare System - A cryptographic approach ICWRS & ICAFEE 2018.

Recipient of the Special Student Achiever Award from VIT University Vellore (2018-2020).

Finalist in HSBC Artificial Intelligence Hackathon conducted by HSBC and IIT Madras.

## RESEARCH EXPERIENCE

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### Graduate Research Assistant

2021 – present

*University of Alberta, Canada*

Worked with Prof. Alona Fyshe to study the semantic spaces and brain-behaviour relationships of language for people with Autism Spectrum Disorder (ASD).

### Undergraduate Summer Research Assistant

2019

*Cognitive Systems Lab, University of Bremen, Germany*

Worked under the guidance of Prof. Tanja Schultz and presented my three-month project on training an EMG-Speech system to operate on Silent Speech at CSL. Obtained phone level alignments for EMG signals through Lip Reading using 3D Convolutional Neural Networks.

### Undergraduate Research Project

2020

*VIT University, India*

Worked with Dr. Jasmin T. Jose to identify textual handwritten content in damaged handwritten documents. The accuracy of the Optical Character Recognition (OCR) system was improved by introducing the word substitution technique: using character and distance analysis to perform spellcheck.

Worked with Prof. B.K. Tripathy on studying Automatic Sign Language Recognition. The findings were published as a book chapter.

## WORK EXPERIENCE

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### Curriculum Development

Nov 2022 - Jan 2023

*Work Integrated Learning Opportunity*

*Alberta Machine Intelligence Institute (Amii)*

Conducted independent research to curate course content for an interactive online training platform. The courses *Building an AI Product* and *Understanding AI beyond the Lab* were aimed at providing graduate-level students and early-career AI professionals in Alberta with an understanding of AI Founders' career paths and the tools necessary to succeed in it.

### Technical Presentation

Apr 2022 - May 2022

*Work Integrated Learning Opportunity*

*Alberta Machine Intelligence Institute (Amii)*

Prepared and delivered a presentation for AI and Rehabilitation Workshop organized by Dr. Patrick Pilarski and AMII. Translated a workshop lesson plan into an engaging and interactive presentation.

### Content Development Support

Mar 2022

*Work Integrated Learning Opportunity*

*Alberta Machine Intelligence Institute (Amii)*

Assisted the creation of AI/ML-focused labs to introduce program participants to learn fundamentals of programming using Jupyter Notebook, and effectively translated technical information to non-technical learners.

### Graduate Teaching Assistant

Jan 2022 – Apr 2022

*Introduction to the Foundations of Computation*

*University of Alberta, Canada*

CMPUT 174 uses a problem-driven approach to introduce the fundamental ideas of Computing Science. As a TA, my duties include leading labs, grading assignments, and guiding students to understand the concepts better.

### One Fourth Labs, IIT Madras

Dec 2018

*Content Development Intern (Deep Learning)*

*Chennai, India*

I was responsible for curating programming assignments for an online course on Deep Learning for a start-up founded by Professors of IIT Madras: Mitesh Khapra and Pratyush Kumar.

### Siam Computing

May 2018

*Chatbot Developer*

*Chennai, India*

My responsibility was to develop a customer-friendly chatbot using Google's Dialogflow at a start-up for a retail enterprise. I also developed a chatbot using Python's NLP frameworks to answer contextual questions.

## PROJECTS

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**Hybrid UI** - A system to improve internet accessibility for the visually impaired through a browser extension. Hybrid UI's primary functionalities include changing dark-themed websites to a lighter theme, increasing the font size and changing it to bold font, and enabling the use of voice commands for the purpose of navigation.

**Noise Eliminator for Active Learning** - An interactive machine learning-based algorithm that helps produce automated systems that provide highly accurate predictions, with a low number of training instances. NEAL can be used to improve predictions of any automated system and needs only a small subset of labeled data to produce stellar results.

**Unmanned Aerial System** - Team Ardra was a participant in AUVSI SUAS'18, held in Maryland, USA. The team designed, integrated, and demonstrated an Unmanned Aerial System (UAS). Special contribution to interoperability connections, establishment, and real-time visualization of obstacles.

**Text Summarization** - Implemented a Text Summarizer using an Encoder-Decoder LSTM (Long Short Term Memory) Model in Python. The Encoder with an embedded input is followed by an LSTM layer to produce a fixed-length representation which is used by the decoder to generate the output summary.

## SUMMER SCHOOL ATTENDANCE

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**Summer Neurolinguistics School** Moscow, Russia 2021

**ACM Summer School for Data Science** Goa, India 2019

## COMMUNITY INVOLVEMENT

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**CSGSA Treasurer**

2021-2022

*Computing Science Graduate Students' Association, University of Alberta*

Responsible for drafting the budget of the CSGSA and making sure that the organization manages its finances well.

**GSA Councillor-at-Large (CAL)**

2021-2022

*Graduate Students' Association, University of Alberta*

Represent graduate students by advocating for their interests to the university and providing additional voices on GSA Council.

**GSA Equity, Diversity, and Inclusion Committee Member**

2021-2022

*Graduate Students' Association, University of Alberta*

Responsible for ensuring that the GSA reflects the principles of Equity, Diversity, and Inclusion (EDI) for all its members in the interests of enhancing the graduate student experience and ensuring the existence of a welcoming environment and cohesive community for graduate students on campus.

## VOLUNTEERING

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**Helphen, Project Kinder**

October 2019 - February 2020

*Vellore, India*

I taught English to young unprivileged children in interactive classroom settings. Through Project Kinder, we as an organization, strive to develop English-speaking skills among young minds and guide them to better opportunities in life.