# AKSHAY KRISHNA

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## EDUCATION

**University of Nevada Reno** — **Reno, NV**
*M.S. in Computer Science (GPA 4.0)* — *Aug 2020 - Present*
*M.S. in Statistics & Data Science*

**University of Nebraska Medical Center** — **Omaha, NE**
*Ph.D. student in Bio-Informatics (GPA 3.6)* — *Aug 2019 - Jul 2020*

**Visvesvaraya Technological University *(RNSIT)*** — **Bangalore, KA, India**
*B.E. in Electronics & Communication (GPA 3.7)* — *Aug 2015 - May 2019*

## TECHNICAL SKILLS

**Programming Languages:** *Python, C++, Bash, R*
**Software Tools & Packages:** *PyTorch, TensorFlow, OpenCV, Scikit-Image, NumPy, Keras*

## PROJECTS

**American Sign Language Translation & Production** (Ongoing Thesis Project)
- Responsible for developing a Deep Learning-based algorithm to translate sentence level sign language to text and also responsible for producing sign videos from spoken language sentences
- Going through the current research work to understand the implementation of existing models

**Golfball Detection & Tracking** (Github | LinkedIn)
- Developed a system to detect the green region where the player is putting, track the golf ball, detect the hole, and calculate metrics like velocity and shot angle
- Implemented color-based segmentation to detect the green region, background subtraction, and Hu-moments to detect and track the golfball and applied Homography transformations to get a bird's eye view of the green putt to convert the pixel coordinates to real-world coordinates

**Automatic Number Plate Recognition** (Github)
- Developed a system to localize the number plates of cars and perform OCR to extract and recognize the characters
- Implemented morphological transformation and Otsu's thresholding to detect the license plate in the image. Utilized connected component analysis, segmentation, and Hu-moments to identify the characters in the license plate
- Implemented block binary pixel sum as a feature descriptor for the characters and applied SVM on these features for character recognition

**Automatic Detection of Helmetless Rider using Deep Learning** (YouTube)
- Developed a system to detect two-wheeler riders without a helmet and identify their number plates to extract the characters using OCR on Indian traffic data
- Implemented YOLOv3 to identify two-wheelers and people. Developed a custom detection algorithm to identify the head portion of the rider to classify the presence of a helmet or not
- Performed transfer-learning on FastR-CNN to localize the license plates and performed OCR to extract the characters

## EXPERIENCE

**University of Nevada Reno** — **Reno, NV**
*Graduate Teaching Assistant* — *Aug 2021 - Present*
Graduate Teaching Assistant for Elements of Research Computing Course
- Responsible for grading assignments, class participation, and exams
- Managing course content through online Learning Management Systems
- Providing students with one-on-one tutoring and regular out-of-class assistance

**University of Nevada Reno** — **Reno, NV**
*Graduate Assistant* — *Jun 2021 - Aug 2021*
Graduate Assistant for Department of Mining & Metallurgical Engineering, UNR
- Development of Android mobile application for emergency evacuation in mine sites
- Integrated a system for designing custom roads and incorporating custom google mosaic tiles on the application
- Incorporated an algorithm to provide turn-to-turn voice and visual navigation on the custom roads using the ArcGIS platform

**University of Nebraska Medical Center** — **Omaha, NE**
*Graduate Research Assistant* — *Aug 2019 - Jul 2020*
- Development of a statistical system to upsample the HiC maps to get a better understanding of the 3D chromatin organization
- Responsible for designing bash scripts to perform data analysis of gene data and generate computational graphs

**NeenOpal Intelligent Solutions** — **Bangalore, KA, India**
*Data Engineering Intern* — *May 2018 - Aug 2018*
- Responsible for performing feature engineering for sales forecasting for a client in Sri Lanka
- Development of an algorithm to automate the process of extracting weather data from different websites
- Assisted in building predictive models for sales forecasting and attempted to improve the accuracy of the models

## PUBLICATIONS

- **Akshay Krishna**, Patrick Smith, Mircea Nicolescu, Steven C Hayes. "Vision-based Assessment of Instructional Content on Golf Performance." 2022 3rd International Conference on Computer Vision and Computational Intelligence (CVCI). | Accepted for publication
- Animikh Aich, **Akshay Krishna**, Akhilesh V, Chetana Hegde. "Preprocessing Web-based Data using Huffman Encoding for Efficient Storage in Machine Learning Applications." 2019 15th International Conference on Information Processing (ICInPro), pages 1-6, IEEE, 2019
- **Akshay Krishna**, Akhilesh V, Animikh Aich, Chetana Hegde. "Sentiment Analysis of Restaurant Reviews using Machine Learning Techniques." Emerging Research in Electronics, Computer Science and Technology, pages 687- 696, Springer Singapore, 2019
- **Akshay Krishna**, Animikh Aich, Akhilesh V, Chetana Hegde. "Sales Forecasting of Retail Stores using Machine Learning Techniques." 2018 3rd International Conference on Computational Systems and Information Technology for Sustainable Solutions (CSITSS), pages 160-166, IEEE, 2018
- **Akshay Krishna**, Akhilesh V, Animikh Aich, Chetana Hegde. "Analysis of Customer Opinion using Machine Learning and NLP Techniques." International Journal of Advanced Studies of Scientific Research, Vol 3 No. 9, 2018
- Animikh Aich, **Akshay Krishna**, Akhilesh V, Kumari Akanksha, Vipula Singh. "Automatic Detection of Helmetless Riders using Deep Learning." (Manuscript under preparation)

## HONORS & REWARDS

- Awarded **Best Project** for "Automatic Helmetless Rider Detection Using Deep Learning" at BITES Xcelerator Student Project Awards (BXSPA) 2019, organized by IIIT Bangalore, Jun 2019
- Received **Best Outgoing Student** of RNSIT 2019, awarded by RNS Institute of Technology, Jun 2019
- Received **Letter of Appreciation** from the Professor & Head of Department of Electronics and Communication, RNSIT, May 2019
- **Ranked among top 5%** in Data mining among 820 and Introduction to Machine Learning among 3147 certification courses offered by NPTEL, Mar 2018 & Oct 2018
- Awarded **Best Paper** for "Sentiment Analysis of Restaurant Reviews using ML Techniques" among 90 at International Conference on Emerging Research in Electronics, Computer Science & Technology, Aug 2018

## COURSE WORK

*Image Processing, Machine Learning, Deep Learning, Analysis of Algorithms, Multivariate Data Analysis, Applied Regression Analysis, Operating Systems*