

Rudraksh Kapil

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EDUCATION

UNIVERSITY OF ALBERTA | M.Sc. IN COMPUTING SCIENCE

September 2021 - Present | Edmonton, Canada

- **Relevant courses:** 3D Computer Vision, Machine Learning, Privacy and Fairness in Machine Learning.
- **Current GPA:** 4.0 / 4.0

NATIONAL INSTITUTE OF TECHNOLOGY, WARANGAL | B.TECH. IN COMPUTER SCIENCE & ENGINEERING

July 2017 - June 2021 | Warangal, India

- **Final-year Project:** *AN in G: Attentive Generation of Images Using Semantic Layout Information.*
- **Relevant Courses:** Computer Vision and Image Processing, Introductory Machine Learning, Data Science.
- **GPA:** 8.87 / 10 - First Division with Distinction.
- **GRE:** 338 / 340 - 170 Quantitative, 168 Verbal, 5.5 Analytical Writing and Analysis.

EXPERIENCE

LEAD STUDENT INSTRUCTOR | COMPUTING SCIENCE DEPARTMENT AT THE UOFA

September 2021 - Present | Edmonton, Canada

- Manage the Content Support functional team (5 TAs) for a large introductory python programming course.
- Conduct weekly meetings for training first-time TAs on pedagogy and carrying out functional tasks.
- Review lab assignments, quizzes, and lecture slides pre-release to proactively identify and correct potential issues.
- Teach concepts during weekly labs. Mark assignments and provide one-on-one feedback to students.

RESEARCH ASSISTANT | PROF. NILANJAN RAY'S VISION AND ROBOTICS LAB

September 2021 - Present | Edmonton, Canada

- Conduct cross-disciplinary research with a group from the renewable resources department as a part of M.Sc. Thesis.
- Deliver presentations on the latest advancements in computer vision research during weekly group meetings.

LEAD PROGRAMMER | GBIT STUDIOS (GAME DEVELOPMENT STARTUP)

January 2019 - June 2021 | Warangal, India

- Spearheaded the production of several games and published them to the Apple App Store and Google Play Store.
- Interviewed and trained prospective recruits by hosting tutorial classes and one-on-one sessions.
- Trained autonomous AI systems via reinforcement learning using Unity ML Agents.

SUMMER INTERN | ORACLE CORPORATION - SMART CONTENT TEAM

July 2020 | Hyderabad, India

- Developed models to determine the color distribution of objects from images using Mask R-CNN for segmentation.
- Integrated these into Oracle's Content Management System to enhance the visual search engine via tagging automation.
- Awarded 2nd place in the Oracle All-India Interns' Hackathon alongside two teammates by top ranking executives.
- Received a full time employment offer from Oracle based on exceptional performance, a year in advance of graduating.

PEER-REVIEWED PUBLICATIONS

For further details, kindly refer to my website.

- [1] **R. Kapil**, S. M. Marvasti-Zadeh, D. W. Goodsman, N. Ray, and N. Erbilgin, "Classification of bark beetle-induced forest tree mortality using deep learning," in *Visual observation and analysis of Vertebrate And Insect Behavior 2022, ICPR 2022 Workshop*, 2022.
- [2] S. Gupta, **R. Kapil**, G. Kanahasabai, S. S. Joshi, and A. S. Joshi, "SD-Measure: a social distancing detector," in *2020 12th International Conference on Computational Intelligence and Communication Networks (CICN)*, pp. 306-311, 2020.
- [3] A. S. Joshi, S. S. Joshi, G. Kanahasabai, **R. Kapil**, and S. Gupta, "Deep learning framework to detect face masks from video footage," in *2020 12th International Conference on Computational Intelligence and Communication Networks (CICN)*, pp. 435-440, 2020.

CONFERENCE PRESENTATIONS

SD-MEASURE: A SOCIAL DISTANCING DETECTOR | CO-SPEAKER

26 September 2020 | CICN 2020

- Illustrated our framework and key results on Microsoft PowerPoint and drafted the speaking notes for the presentation.
- Presented the highlights of our research paper with a co-author to an audience of researchers and professors over Zoom.
- Addressed questions and engaged in discussions regarding our work and its implications with the conference panelists.

RELEVANT PROJECTS

For an extended list, kindly refer to my website.

PREDICTIVE DISPLAY | UNITY, ROS, AND CARV 3D RECONSTRUCTION

Winter Term 2022 | 3D Computer Vision Course

- Implemented novel predictive display texturing to overcome communication delay in robotic arm teleoperation.

PRIVACY AND FAIRNESS OF GAN-GENERATED DATA | DIFFERENTIAL PRIVACY AND FAIRNESS

Fall Term 2021 | Privacy and Fairness in Machine Learning Course

- Investigated the relationships and tradeoffs between privacy, fairness, and utility in GAN-generated synthetic data.

ATTENTIVE-NORMALIZED IMAGE GENERATION | DEEP GANS

Winter Term 2021 | B.Tech Final Year Project

- Improved a deep network that generates images from layouts by using attentive normalization to produce better results.
- Authored a bachelor's thesis detailing the methodology, experimentation process, and results.

BACKPROPAMINE | REINFORCEMENT LEARNING

Spring Semester 2019-2020 | Data Science Course Term Project

- Implemented a self-modifying recurrent neural network with differentiable neuro-modulated plasticity to improve performance on reinforcement learning tasks like cue-reward association and maze navigation under Dr. V.R. Kagita.

MENTORING

GRE AND TOEFL PREPARATION | UNDERGRADUATE RESEARCH ASSOCIATION & IEI NITW

November 2020

- Distilled information on preparing for the GRE and TOEFL exams for 100 undergraduate students.
- Advised 70 aspirants from Indian universities on how they could pursue further education in STEM programs abroad.

THE GAME PLAN | GBIT STUDIOS

February 2020

- Coached 40 undergraduate students in the basics of Unity game programming over one weekend.

OTHER SKILLS

PROGRAMMING

OVER 5000 LINES:

Python • C++ • C • Java • C#

OVER 1000 LINES:

MATLAB • Unix Shell • R • SQL •

PL/SQL • LaTeX

FAMILIAR:

JavaScript • HTML • CSS • Kotlin

SOFTWARE TOOLS

LIBRARIES:

PyTorch • TensorFlow • Keras •

OpenCV • scikit-learn • NumPy •

Matplotlib • ROS

OTHERS:

Anaconda • RStudio • Unity • Android

Studio • Xcode • MS Office • GitHub

LANGUAGES

English | Fluent

• TOEFL: 120 / 120

Hindi | Native

German | Basic

HOBBIES

Soccer • Bass Guitar • Reading •

Video Games • Pixel Art