Ribhav Kapur

http://www.ribhavkapur.com (647) 740-8459 ribhav.kapur99@gmail.com

Experience

Research Assistant
Learning and Neural Lab University of Toronto (Current)
• Analysis of brain and behavioural data.
• Designing experiments to measure different aspects of memory and how they are supported by the growing brain.
• Analysis on the relation of brain development to changes inn memory and learning ability.
• Learning more about Recursive Cortical Networks to better model the brain.

Teaching Assistant
UofT AI (May 2019 - Sept 2019)
• Worked on the syllabus for the introduction to AI course.
• Created video lectures for remote learning.
• Hosting office hours and tutorials weekly.

Co-Founder
Connct (Jan 2019 - Jan 2020)
• Developed a web app to aid and automate work social media influencers do on a daily basis.
• Heavy use of computer image understanding and natural language processing done manually.
• Familiarity with many APIs such as google's vision, NLP, Facebook's graph API, etc and used MongoDB.
• Pitched to investors and secured an offer for $200k in 2 months with a $2 Million valuation.

Co-Founder
DreamTune (Jan 2020 - July 2020)
• Web app to help public rights organisations identify and gather evidence against illegal use of copyrighted content.
• Made the process exponentially more efficient while requiring a fraction of the employees.
• Incorporated CI/CD for testing and development infrastructure
• Development in React and used various libraries in javascript for web scraping for data collection.
• Acquisition interest from Dataclef but not made headway till now due to the global pandemic.

Software and Vision Engineer
Robotics for Space Exploration (RSX) (Jan 2018 - June 2018)
• Worked on the spacial awareness for the UofT Mars rover. Used Ross Kinetic, and specifically RTabMap for this.
• Involved using python for object detection, foreground and background differentiation and distance approximation.

EDUCATION

University of Toronto - 2017-2021
Honours in the Bachelor of Science
• Computer Science Specialist focusing in Artificial Intelligence
• Mathematics Minor

Yearly GPA	
CGPA	3.47
Year 1	3.83
Year 2	2.67
Year 3	3.79

PROJECTS

Neural Network Style-Transfer in Images (May 2020 - Aug 2020)
• Research project including extensive use of image understanding concepts, like scale and rotation invariant feature detection, localisation and matching, are used in the framework of a Deep Convolutional Generative Adversarial Network (DCGAN) to make the outputs more realistic.
• Researched the performance of Variational autoencoders and Adversarial autoencoders in style-transfer.
• Deep understanding of underlying image structures required to teach a computer to create novel, realistic images.

Algorithmic Trading Research (Current)
• Goal is to understand the strengths and weaknesses of various machine learning models by predicting stock prices.
• Use of various deep networks like MLP, CNN, LSTM, etc.
• Use of non-deep machine learning methods like SVMs, Decision Trees with Bagging and XGA Boosting, etc.
• Principal Component Analysis to find important technical indicators for stock price prediction.
• Scraping information from Twitter for sentiment analysis for stock price prediction.

Virtual Trainer (May 2018)
• Fitness app to generate unique workouts to target functions and areas of different muscle groups optimally.
• CNN to determine body type based on picture and customise workout programs accordingly.

Security Drone (Feb 2019)
• Autonomous GPS enabled drone to replace students who escort other students at night across campus.
• Image processing for obstacle and facial detection done on server since something on the drone wouldn't be powerful.
• Arduino flight controller coded from scratch in C#.

My Website (2017)
• Basic website made during my first year to show my projects, grades, socials, etc. Make from scratch in vanilla JavaScript, HTML and CSS.

HACKATHONS

• MakeHarvard 4th place for autonomous security drone.
• Orbis Challenge top 5 for game winning AI that plays splix.io