Kanav Vats

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EDUCATION

University of Waterloo, Waterloo, Ontario
Doctor of Philosophy, Systems Design Engineering, Ongoing

IIT Roorkee, Roorkee, Uttrakhand, India
Integrated Masters of Science , Applied Mathematics, May 2018 81.57%

PUBLICATIONS

K. Vats, H. Neher, D. A. Clausi and J. Zelek. Two-stream Action Recognition in Ice Hockey using Player Pose Sequences and Optical Flows. In *16th Conference on Computer and Robot Vision (CRV)*, 2019.

W. McNally, **K. Vats**, T. Pinto, C. Dulhanty, J. McPhee and A. Wong. GolfDB: A Video Database for Golf Swing Sequencing. In *2019 IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, 2019.

M. Fani, **K. Vats**, C. Dulhanty, D. A. Clausi and J. Zelek. Pose-projected Action Recognition Hourglass Network (PARHN) in Soccer. In *16th Conference on Computer and Robot Vision (CRV)*. 2019.

H. Neher, **K. Vats**, A. Wong, and D. A. Clausi. HyperStackNet: A hyper stacked hourglass deep convolutional neural network architecture for joint player and stick pose estimation in hockey. In *15th Conference on Computer and Robot Vision (CRV)* . Toronto, Canada, 2018.

Z. Cai, H. Neher, **K. Vats**, D. A. Clausi and J. Zelek. Temporal Hockey Action Recognition via Pose and Optical Flows. In *2019 IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, 2019.

EXPERIENCE

Visiting Graduate Student University of Waterloo
January 2018 - April 2018 Waterloo, Canada

- Worked on the problem "Pose Estimation in Ice Hockey using Convolutional Neural Networks" under the supervision of Prof David Clausi and Prof Alex Wong.

Data Analytics Internship Accenture Digital
May 2017 - July 2017 Bangalore, India

- Applied and compared several machine learning models like XGBoost, Artificial Neural Networks, Random Forests, Support Vector Machines etc for predicting whether a customer of a Telecom company needs service in a given time frame in future.
- Built an analytics dashboard application from scratch using R Shiny for descriptive data analysis and integrated it with the ML models.
- Did customer volume forecasting using ARIMA and DNN models such as Feedforward Neural Networks and Recurrent Neural Networks.

Data Analytics Internship Juspay
May 2016 - July 2016 Bangalore, India

- Calculated OTP latencies and analysed user dropout time and OTP flow for various banks and merchants and represented them visually in the form of histograms, box plots and sankey flow diagrams for getting an insight into user behaviour.

Software Development Internship Grofers
May 2015 - July 2015 Gurgaon, India

- Calculated retention rate of customers and classified users according to their cities.
- Worked on push-notifications on android and ios; sent automated time dependent

notifications and mails to the users.
• Made automated reports for the marketing team which involved extensive use of relational and non relational databases.

Coordinator Information Management Group
July 2016 - May 2017 IIT Roorkee
• IMG is a student group involved in the development and maintenance of campus intranet facilities for students and faculties.
• Contributed in the development of several web/mobile applications, mentoring juniors and dealing with the administration.

COMPUTER SKILLS

Languages: Python, C, C++, R, MATLAB, SQL, Javascript, LaTeX.
Applications: Vi/Vim, Git, MySQL

RELEVANT COURSES

MAN-001: Advanced Engineering Mathematics
MAN-102: Linear Algebra
MAN-326: Numerical Optimization
MAN-507: Statistical Inference
MAN-106: Data Structures
MAN-205: Design and Analysis of Algorithms
IEE-303: Artificial Neural Networks

PROJECTS

Joint Annotator Application for Pose Estimation: Developed an application to annotate and store human joint coordinate locations in images to be used in pose estimation algorithms.

Hybrid ARIMA and Artificial Neural Networks Model: Applied a hybrid of ARIMA and ANN to timeseries data which takes advantage of the linearity of ARIMA and non linearity of ANN, hence improving accuracy when compared to the above two models.

Stock Index Prediction: Predicted the closing index of a stock(NIFTY50) using historical index data like opening, high, volume etc with an Autoregressive(AR) approach using feedforward neural networks and recurrent neural networks (LSTM) .

Buy and Sell - The ecommerce portal of IIT Roorkee One of the most used intranet application, this application provides the students of IIT Roorkee a platform to buy and sell products like books, electronic goods etc.