

Rupin Dalvi

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SUMMARY

Experienced in signal and image data analysis as well as machine learning. 8+ years' experience in MATLAB with proficiency in Python. Good command over machine learning libraries such as scikit-learn and TensorFlow/Keras and image processing libraries (OpenCV, ITK, etc.) Working knowledge of NLP libraries (NLTK, SpaCy). Good knowledge of cloud (AWS) based machine learning model development. Working knowledge of robotic process automation.

WORK EXPERIENCE

Teknobuilt Pvt. Ltd., Calgary (2020 – Present)

Data Scientist

- Building of cloud (AWS) based machine learning models to analyse risk and predict quality issues in construction data
- Building of voice based chatbots (using DialogFlow) for improved incident data acquisition on construction sites
- Utilisation of robotic process automation (RPA), OpenCV, Tesseract, Google Vision API and Keras to build a handwritten form reader to improve incident data acquisition from paper based inputs

Bank Of Montreal, Toronto (2018 – 2020)

Senior Analyst, Risk Capital

- Streamlining and automating of various risk reporting processes
- Running of various economic capital consolidation and forecasting processes (SAS)
- Modelling of multi-term defaulted asset behaviour in SAS and Python (Monte Carlo)
- Using machine learning algorithms to make in-house alternatives to replace existing third-party risk assessment products

University Health Network, Toronto (2015 – 2018)

Research Analyst II

- Development and testing of a prototype device (software+hardware) to analyse AF data in the catheter lab in order to guide and improve AF ablation procedures.
- Analysis of cardiac signal & image data to detect & diagnose various cardiac disorders, particularly atrial fibrillation (AF).

University Health Network (2011 - 2015)

Research Analyst I

- Analysis of cardiac signal & image data to detect & diagnose various cardiac disorders, particularly atrial fibrillation (AF).

Cerebral Diagnostics Canada Inc., Toronto (2010 - 2011)

Brain Imaging Research Analyst/ Signal Analyst

- Development and testing of software designed to provide realtime 3D cortical activity imaging based on EEG signal data.

EDUCATION

Machine Learning Engineer NanoDegree (2019)

Udacity

Certificate in Mathematical Finance & Data Science (2018)

Lantern Institute, Toronto, Canada

Deep Learning Foundations (2017)

Udacity

M.A.Sc. in Electrical and Computer Engineering (2009)

The University of British Columbia, Vancouver, BC, Canada

M.Sc. in Medical Imaging (2005)

University of Surrey, Guildford, Surrey, United Kingdom

B.E. in Electronics Engineering (2003)

University of Mumbai (Bombay), Mumbai (Bombay), Maharashtra, India

SKILLS

Computer Languages: MATLAB/Octave, Python, JavaScript, intermediate SQL, basic C++, basic SAS

Numerical & Machine Learning Libraries: NumPy, SciPy, Pandas, Matplotlib, OpenCV, NLTK, SpaCy, SciKit-Learn, TensorFlow, Keras, Tesseract, Google Vision API

Other: Robotic Process Automation, KubeFlow, Docker, DialogFlow, Flask, PowerBI

Applications: Word, Excel, Power Point

Operating Systems: Windows, Linux

Languages: English (fluent), Marathi (native), Hindi (native)

SELECTED PUBLICATIONS

Dalvi, Rupin, Ilker Hacihaliloglu, and Rafeef Abugharbieh. "3D ultrasound volume stitching using phase symmetry and Harris corner detection for orthopaedic applications." In *Medical Imaging 2010: Image Processing*, vol. 7623, p. 762330. International Society for Optics and Photonics, 2010.

Ghoraani, B., **R. Dalvi**, S. Gizurarson, M. Das, A. Ha, A. Suszko, S. Krishnan, and V. S. Chauhan. "Localized rotational activation in the left atrium during human atrial fibrillation: relationship to complex fractionated atrial electrograms and low-voltage zones." *Heart Rhythm* 10, no. 12 (2013): 1830-1838.

Spears, Danna A., Adrian M. Suszko, **Rupin Dalvi**, Andrew M. Crean, Joan Ivanov, Kumaraswamy Nanthakumar, Eugene Downar, and Vijay S. Chauhan. "Relationship of bipolar and unipolar electrogram voltage to scar transmural and composition derived by magnetic resonance imaging in patients with nonischemic cardiomyopathy undergoing VT ablation." *Heart Rhythm* 9, no. 11 (2012): 1837-1846.

Gizurarson, Sigfus, **Rupin Dalvi**, Moloy Das, Andrew CT Ha, Adrian Suszko, and Vijay S. Chauhan. "Hierarchical schema for identifying focal electrical sources during human atrial fibrillation: implications for catheter-based atrial substrate ablation." *JACC: Clinical Electrophysiology* 2, no. 6 (2016): 656-666.

Dalvi, Rupin, Adrian Suszko, and Vijay S. Chauhan. "Graph search based detection of periodic activations in complex periodic signals: Application in atrial fibrillation electrograms." In *2015 IEEE 28th Canadian Conference on Electrical and Computer Engineering (CCECE)*, pp. 376-381. IEEE, 2015.

Dalvi, Rupin, Adrian Suszko, and Vijay S. Chauhan. "Identification and annotation of multiple periodic pulse trains using dominant frequency and graph search: Applications in atrial fibrillation rotor detection." In *2016 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, pp. 3572-3575. IEEE, 2016.

Dalvi, Rupin, Sachin Nayyar, Adrian Suszko, and Vijay S. Chauhan. "A Least Squares Approach to Estimation of Far-field Voltage in Unipolar Electrograms in Atrial Fibrillation." In *2018 52nd Asilomar Conference on Signals, Systems, and Computers*, pp. 1230-1233. IEEE, 2018.

PATENTS

Chauhan, Vijay Singh, Sigfus Gizurarson, and **Rupin Haily Dalvi**. "System and method for focal source identification." U.S. Patent 10,111,598, issued October 30, 2018.

Chauhan, Vijay Singh, and **Rupin Haily Dalvi**. "System and method for rotor detection in cardiac fibrillation." U.S. Patent 10,362,956, issued July 30, 2019.

REFERENCES

References available upon request.