Manraj Singh Grover

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GitHub, Google Scholar, LinkedIn

EXPERIENCE

- **TensorFlow.js, a Google Brain project** — Remote
  *Open Source Contributor, **Mentors: Nikhil Thorat, Daniel Smilkov*** — *Sept 2017 – August 2019*
  - Read and **implemented** widely used **optimizers (Adam, RMSProp etc.), metrics (precision, recall etc.), loss (log loss, hinge loss etc.), and math operations** towards the release of first version of TensorFlow.js.
  - Resolved documentation issues and bugs, reviewed pull requests, and mentored new collaborators, including a student for **Google Summer of Code project** who composed semantic segmentation and text detection models for the community.
  - Contributed multiple examples showcasing framework's capabilities and usability, later cited in a **book**.
  - **Statistics:** One of the **largest contributor to the project** with 114 commits made; **1M+ package downloads**

- **Indraprastha Institute of Information Technology, Delhi (IIIT-D)** — Delhi, India
  *Research Associate at MIDAS Lab, **Advisor: Dr. Rajiv Ratn Shah*** — *May 2019 – Present*
  - **Automatic Speech Grading [C1, S1, S2]**: Developed **a pipeline for extracting and modelling speech and text features for automatic scoring of L2 English oral proficiency** in collaboration with Second Language Testing Inc. and Columbia University. **Exploring multi-modal deep learning-based approaches** to improve system performance while keeping the system explainable. Deployed the first version of the pipeline on Amazon Web Services. **1 poster accepted and 2 other publications under review.**
  - **audino: Audio Annotation Tool [S3]**: Developed and open sourced **a secure web-based collaborative audio annotation tool** for segmenting, transcribing and labelling segments of audio for curation of large-scale speech datasets and resources. Currently being used for multiple projects at our lab. Publication under review.

- **Practo Technologies Pvt. Ltd.** — Bangalore, India
  *Senior Software Engineer, **Managers: Venkatesh Pagidimarri, Sandeep Pandey*** — *Sept 2016 – April 2019*
  - **Sepsis Detection**: Worked with experts to **extract and model relevant vitals and laboratory measures** from MIMIC-III Database for detection of sepsis at hospital admission. **Achieved an ROC AUC of 0.86.**
  - **Administrative Segregation**: Developed a tree-based model and **achieved an accuracy of 90% in predicting the risk of administrative segregation of prisoners for North Dakota Department of Corrections and Rehabilitation, US,** using demographics, past behaviour and historical information extracted from free text.
  - **Search Autosuggester**: Developed an **all product database-synced location-based Autosuggestion Service for improved suggestions** to prefix queries, giving more visibility to related products.

- **Netaji Subhas Institute of Technology (NSIT), University of Delhi** — Delhi, India
  *Undergraduate Researcher, **Advisors: Dr. Prerna Gaur, Dr. Umang Soni*** — *Sept 2014 - May 2016*
  - **Automated Conveyor Belt Sorting System**: Bachelor's Thesis on building **an Arduino-controlled Automated Conveyor Sorting System Hardware Prototype complete with graphical user interface to scan and sort packages** based on Barcode, QR Code, Color and other metadata.

- **Refiral** — Delhi, India
  Product Developer Intern — *June 2014 - July 2014*
  - **Business Management and Analytics Tool**: Developed a platform for business developers and leaders to track progress, follow up a client, managing conversions and much more.
  - **Mail Share**: Prototyped a new sharing option to allow users to refer products on gmail promoting viral marketing through emails.

OPEN SOURCE

Project(s)
- **audino**: A web-based collaborative annotation tool for audio and speech dataset curation. — 680★
- **halo**: A python package that provides beautiful spinners for the terminal, IPython and Jupyter; 1M+ downloads — 2.3k★
- **Single Div Project**: Explore possibilities of creating things using one html div element. — 1.6k★
- **football-cli**: A command line interface that allows developers to follow football right in the terminal. — 986★
- **algorithms-js**: Consumable Data Structures and Algorithms library in JavaScript. — 147★

Contribution(s)
- **DuckDuckGo**: Contributed to 30+ Instant Answers with bug fixes and improvements; Created 25+ new Instant Answer modules using JSON, Perl and JavaScript; Mentored new contributors and audited peer code.

PUBLICATIONS

Under Review

[**S1**] **M. S. Grover**, Y. Kumar, S. Sarin, P. Vafaee, M. Hama, R. R. Shah, "Multi-modal Automated Speech Scoring using Attention Fusion,". [**PREPRINT**]

[**S2**] P. Bamdev, **M. S. Grover**, Y. Kumar, P. Vafaee, M. Hama, R. R. Shah, "Automated Speech Scoring System Under The Lens: Evaluating and interpreting the linguistic cues for language proficiency,".

[**S3**] **M. S. Grover**, P. Bamdev, Y. Kumar, M. Hama, R. R. Shah, "audino: A Modern Annotation Tool for Audio and Speech,". [**PREPRINT**]

Published

[**J1**] K. S. Chahal, **M. S. Grover**, K. Dey, R. R. Shah, "A Hitchhikers Guide On Distributed Training Of Deep Neural Networks," *Journal of Parallel and Distributed Computing, Vol. 137, 2020, pp. 65-76.* [**PAPER**]

[**C1**] (Accepted Poster) P. Bamdev, **M. S. Grover**, Y. Kumar, P. Vafaee, M. Hama, R. R. Shah, "Classification, Regression or Ordinal Regression? Assessing oral proficiency of non-native English speakers and interpreting results," *15th Women in Machine Learning Workshop (WiML 2020 @ NeurIPS 2020).*

[**C2**] O. R. Nasir, S. K. Jha, **M. S. Grover**, Y. Yu, A. Kumar, R. R. Shah, "Text2FaceGAN: Face Generation from Fine Grained Textual Descriptions," *2019 IEEE Fifth International Conference on Multimedia Big Data (BigMM), Singapore, Singapore, 2019, pp. 58-67.* [**PAPER**]

[**C3**] B. L. K. Jolly, P. Aggrawal, S. S. Nath, V. Gupta, **M. S. Grover**, R. R. Shah, "Universal EEG Encoder for Learning Diverse Intelligent Tasks," *2019 IEEE Fifth International Conference on Multimedia Big Data (BigMM), Singapore, Singapore, 2019, pp. 213-218.* [**PAPER**]

[**C4**] G. Saxena, **M. S. Grover**, S. Chakervarty, "Generating Word Clusters By Graph Clustering Based On Hearst Patterns," *2016 1st India International Conference on Information Processing (IICIP), Delhi, 2016, pp. 1-7.* [**PAPER**]

VOLUNTEERING EXPERIENCE

- **Volunteer at 58th Annual Meeting of the Association for Computational Linguistics** *July 2020*
- **Google Summer of Code Mentor, TensorFlow** *May 2019 - Aug 2019*
- **Rails Girls Summer of Code Coach, Servo, Mozilla** *July 2018 - Sept 2018*
- **Google Code-In Mentor, Mifos Initiative** *Dec 2017 - Jan 2018*
- **Open Source Community Leader, DuckDuckGo** *May 2017 - May 2018*
- **Core Contributor, Mozilla Delhi** *Jun 2015 - Jun 2017*
- **General Secretary, IEEE NSIT Student Branch** *Jun 2014 - Jun 2015*

ACHIEVEMENTS

- **Recipient of Google Open Source Peer Bonus award** *Aug 2018*
- **Winner at National Practo Sandbox Hackathon 2017** *Dec 2017*
- **Winner at IndiaHacks National Machine Learning Hackathon 2017** *Sept 2017*
- **Listed in Github's Top 5 Trending Developers for projects: halo & SingleDivProject** *2016, 2017*
- **Global Rank of 2271 in Overall CodeChef Long Challenge rankings** *Dec 2015*
- **Recipient of University Academic Excellence Scholarship for 1st and 4th year** *2013, 2016*

EDUCATION

- **Netaji Subhas Institute of Technology, University of Delhi, India** 70%
  Bachelor of Engineering in Instrumentation and Control Engineering; ***First Class*** *2012 – 2016*

- **Mount Saint Mary's School, New Delhi, India** 87%
  Std. 12, Science with Computer Science; Best of four scores *2009 – 2011*

RELATED COURSE WORK

Machine Learning (Coursera), Deep Learning Specialization (Coursera), Artificial Intelligence, Introduction to Programming, Computer Graphics, Telemetry and Data Transmission, Programming (I, II, III, IV, V), Mathematics (I, II, III), Chemistry, Physics (I)