Manraj Singh Grover

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GitHub, Google Scholar, LinkedIn

EDUCATION

- **Netaji Subhas Institute of Technology, University of Delhi, India** — 7.72 CGPA
  *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*

- **Mount Saint Mary's School, New Delhi, India** — 93.6%
  Std. 10; Best of five scores — *1998 – 2009*

EXPERIENCE

- **TensorFlow.js, a Google Brain project** — Remote
  Open Source Contributor — *Sept 2017 – Present*
  - Implemented and integrated various optimizers, metrics, loss and math operations in the framework.
  - Contributed multiple examples showcasing frameworks capabilities and usability; To be cited in a **book**.
  - Mentored student for Google Summer of Code project **"Reasonable Effectiveness of Mobile Inference: Adaptive Growth of the TensorFlow.js Model Garden"** who composed 3 models for the community.

- **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 System**: Building pipeline for extracting and modeling speech and text features for automatic grading of monologue test responses for a U.S. based language proficiency testing company. Developed speech annotation tool for segmenting and transcribing responses for training automated speech recognition system
  - **Robust Text Grading System**: Worked on automatic grading of essay responses using context-based embeddings and comparing its performance with current state-of-the-art models. Currently, working on checking robustness of models towards adversarial inputs generated by humans and machines. Publications under work.
  - **Social Media Mining for Health**: Worked on identifying Adverse Drug Reactions and Personal Health Mentions on Twitter using SMM4H dataset and checking model's generalizing capabilities for new diseases/conditions using self-annotated dataset. Publications under work.
  - **Text2FaceGAN [C1]**: Worked on generating captions for CELEB-A dataset and used these captions to generate face using DC-GAN with GAN-CLS loss and evaluated results using Inception Score.
  - **Universal EEG Encoder [C2]**: Compared various architectures for encoding EEG signals and proposed generic architecture for classification tasks. Analyzed results on BMNIST, SEED, ERN, SMR and ThoughtViz datasets.

- **Practo Technologies Pvt. Ltd.** — Bangalore, India
  Senior Software Engineer — *Sept 2016 – April 2019*
  - **Distributed Training Paper [J1]**: Surveyed various algorithms and techniques used in distributed training of models and presents current state-of-the-art for a modern distributed training framework.
  - **Sepsis Detection**: Worked with doctors to extract relevant vitals and laboratory results from MIMIC-III Critical Care Database and modeled them using boosting trees for detection of Sepsis at hospital admission.
  - **Risk of Administrative Segregation**: Developed a Boosting tree-based model for predicting risk of administrative segregation of prisoners for North Dakota Department of Corrections and Rehabilitation, U.S. using demographics, criminal activities, past behaviour and historical information shared in free text.
  - **Automated Insights**: Developed a time-series based framework to analyze hospital business metrics trends and notify significant change in trends and the reason behind the change using template-based NLG library.
  - **Practo Search Autosuggester**: Aggregated various data sources of Practo Data Warehouse and developed a database-synced location-based Autosuggestion Service for improved suggestions giving more visibility to products

- **Netaji Subhas Institute of Technology (NSIT), University of Delhi** — Delhi, India
  Undergraduate Researcher — *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 user interface to scan and sort packages based on Barcode, QR Code, Color and other metadata. **Advisor: Dr. Prerna Gaur, Dr. Umang Soni**
  - **Pattern based word clustering [C3]**: Research work that aimed at grouping words together using Hearst Patterns and generating clusters to find semantically related words.

- **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 using PHP, JavaScript and MySQL.
  - **Mail Share**: Provided a new sharing option to allow users to refer products on Gmail. Developed using Google Contacts API, PHP, and MySQL.

VOLUNTEERING EXPERIENCE

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*

PUBLICATIONS

Journal Publication(s)

[**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, 2019, ISSN 0743-7315.* [**PAPER**]

Conference Publication(s)

[**C1**] 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).* [**PAPER**]

[**C2**] 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).* [**PAPER**]

[**C3**] 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**]

OPEN SOURCE PROJECTS/CONTRIBUTIONS

- **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
- **halo**: A python package that provides beautiful spinners for the terminal, IPython and Jupyter. — 2.1k★
- **Single Div Project**: Explore possibilities of creating things using one div element. — 1.6k★
- **football-cli**: Command Line Interface that allows developers to follow football right in the terminal. — 962★
- **algorithms-js**: Consumable Data Structures and Algorithms library in JavaScript. — 121★

CONFERENCES ATTENDED

- **TensorFlow World, 2019, Santa Clara, California**: Invited by Google to learn more about how industries and research groups use TensorFlow in their workflows and new developments and features in TensorFlow 2.0.
- **5th IEEE International Conference on Multimedia BigData, 2019, Singapore**: Presented two papers [C1, C2]
- **Mozilla Leadership Summit, 2015, Singapore**: Invited by Mozilla to understand the organization's vision, help shape, plan and strategize how to grow the community, both regionally and globally.

ACHIEVEMENTS

Recipient of Google Open Source Peer Bonus award	*Aug 2018*
3rd Place Winner at Practo Sandbox Hackathon 2017	*Dec 2017*
6th Place Winner at IndiaHacks Machine Learning Hackathon 2017	*Sept 2017*
Listed in Github's Top 5 Trending Developers for projects: halo & SingleDivProject	*2016, 2017*
Highest Rating of 2024 in Overall CodeChef Long Challenge rankings	*Dec 2015*
Recipient of University Academic Excellence Scholarship for 1st and 4th year	*2013, 2016*