

Sahil Garg

[Homepage](#), [Google](#), sahil.garg.cs@gmail.com, +1-3236372603, add: 333 E 93rd St, Apt 5c, NY-10128

Research Interest MACHINE LEARNING (low resource, robustness, interpretability, semi-supervision, information theory, nonparametric), NATURAL LANGUAGE PROCESSING (relation extraction, dialog modeling, text clustering), DEEP LEARNING (continual learning), COMPUTATIONAL PSYCHIATRY (early diagnosis, therapeutic dialogues), NEUROSCIENCE (auto encoding, neurogenesis), ROBOTICS (information gathering, spatio temporal modeling).

Education **University of Southern California (USC)** Aug 2013 -Aug 2019
PhD in Computer Science (Machine Learning) Advisor: Aram Galstyan
Title: “Hashcode Representations of Natural Language for Relation Extraction”
Committee: Aram Galstyan (chair), Kevin Knight, Irina Rish, Greg Ver Steeg, Roger Ghanem.

Thapar Institute of Engineering and Technology July 2005 - July 2009
Bachelor of Engineering (B.E.) in Computer Science

Selected Publications

(Tier-1) Conference Proceedings

Modeling Dialogues with Hashcode Representations: A Nonparametric Approach. Sahil Garg*, Irina Rish, Guillermo Cecchi, Palash Goyal, Sarik Ghazarian, Shuyang Gao, Greg Ver Steeg, Aram Galstyan. Proceedings of Thirty-Fourth AAAI Conference on Artificial Intelligence (**AAAI-20**).

Nearly-Unsupervised Hashcode Representations for Relation Extraction. Sahil Garg*, Aram Galstyan, Greg Ver Steeg, Guillermo Cecchi. To appear in proceedings of the Conference on Empirical Methods in Natural Language Processing (**EMNLP-19**).

Kernelized Hashcode Representations for Biomedical Relation Extraction. Sahil Garg*, Aram Galstyan, Irina Rish, Guillermo Cecchi, Shuyang Gao. Proceedings of Thirty-Third AAAI Conference on Artificial Intelligence (**AAAI-19**).

Neurogenesis-Inspired Dictionary Learning: Online Model Adaption in a Changing World. Sahil Garg*, Irina Rish, Guillermo Cecchi, Aurelie Lozano. Proceedings of the Twenty-sixth International Joint Conference on Artificial Intelligence (**IJCAI-17**).

Extracting Biomolecular Interactions Using Semantic Parsing of Biomedical Text. Sahil Garg*, Aram Galstyan, Ulf Hermjakob, Daniel Marcu. Proceedings of the Thirtieth AAAI Conference on Artificial Intelligence (**AAAI-16**).

Persistent Monitoring of Stochastic Spatio-temporal Phenomena with a Small Team of Robots. Sahil Garg*, Nora Ayanian. Proceedings of Robotics: Science and Systems (**RSS-14**).

Learning Nonstationary Space-Time Models for Environmental Monitoring. Sahil Garg*, Amarjeet Singh, Fabio Ramos. Proceedings of the Twenty-Sixth AAAI Conference on Artificial Intelligence (**AAAI-12**).

Workshop Proceedings (co-located with tier-1 conferences)

Therapeutic Dialogue Modeling via Locality Sensitive Hashing. Sahil Garg*, Guillermo Cecchi, Irina Rish, Shuyang Gao, Greg Ver Steeg, Palash Goyal, Aram Galstyan. Presented in *ICML 2018 Workshop, AI and Computational Psychology: Theories, Algorithms and Applications (CompPsy 2018)*.

Dialogue Modeling via Hashing Functions. Sahil Garg*, Guillermo Cecchi, Irina Rish, Shuyang Gao, Greg Ver Steeg, Sarik Ghazarian, Palash Goyal, Aram Galstyan. Proceedings of *IJCAI 2018 Workshop, Linguistic and Cognitive Approaches to Dialog Agents (LaCATODA 2018)*.

Neurogenesis-Inspired Dictionary Learning: Online Model Adaption in a Changing World. Sahil Garg*, Irina Rish, Guillermo Cecchi, Aurelie Lozano. *ICLR 2017 - Workshop Track*.

Efficient Space-Time Modeling for Informative Sensing. Sahil Garg*, Amarjeet Singh, Fabio Ramos. Proceedings of *KDD 2012 Workshop, Knowledge Discovery from Sensor Data (SensorKDD 2012)*.

Professional Services**Program Committee Member for (Tier-1) Conferences in CS**

The AAAI Conference on Artificial Intelligence (AAAI)	2017, 2018, 2020
Neural Information Processing Systems (NeurIPS)	2017, 2018, 2019
International Conference on Machine Learning (ICML)	2018, 2019, 2020
International Conference on AI and Statistics (AISTATS)	2019, 2020
International Conference on Learning Representations (ICLR)	2019, 2020

Reviewer for Journals

IEEE Robotics and Automation Letters (2019)

Research Experience**Icahn School of Medicine at Mount Sinai**

Sept 2019 - present

Postdoctoral Fellow

Advisor: Cheryl Corcoran

Developing machine learning models, interpretable and data-efficient, for research problems in computational psychiatry.

University of Southern California (USC)

Mar 2015 - Aug 2019

Research Assistant

Advisor: Aram Galstyan

Developing machine learning models, which are computationally scalable, trainable in a robust manner on small sets of labeled examples, applicable to natural language processing for healthcare.

May 2015 - Mar 2016

Advisor: Aram Galstyan

Info-theoretic modeling of brain fMRI dynamics using CorEx.

June 2014 - Oct 2015

Advisor: Aram Galstyan

Phase transitions in community detection using CorEx.

April 2014 - Sept 2014

Advisor: Aram Galstyan

Generative modeling of a complex network and its structural properties like clustering, power law degree distribution, degree correlation, etc.

Oct 2013 - April 2014 Advisor: Nora Ayanian
Persistent sensing of environmental phenomena with a team of robotic sensors.

June 2013 - Sept 2013 Advisor: Milind Tambe
Developing computationally scalable game theoretic algorithms for securing nat-
ural resources.

IIIT Delhi

April 2011 - May 2013 Advisor: Amarjeet Singh and Fabio Ramos
Learning non-stationary models efficiently for sensing environment dynamics.

Research Internship Experience

Summers of 2016, 2017

Mentors: Irina Rish & Guillermo Cecchi

June 2017 - present Collab: Irina Rish & Guillermo Cecchi
We developed an info-theoretic framework for modeling therapeutic dialogues via hash functions.

June 2017 - Aug 2017 Collab: Elif K Eyigöz & Guillermo Cecchi
Language based Discrimination for Parkinson's Disease.

July 2016- Aug 2016 Collab: Stephen J. Heisig
We investigated into the spatio-temporal modeling of pressure Mat data dynamics for an early detection of Parkinson's disease.

Teaching Experience

Coordinated Mobile Robotics, Spring 2014 Teaching Advisor: Nora Ayanian

Software Engineering Experience

June 2010 - Dec 2011 Manager: Harman Singh & Krish Palaniappan
Developed a server side application in education domain including database design and a RESTful API.

Commudel, India

Aug 2009 - June 2010 Manager: Srinivasareddy Chennareddy
Developed a component to parse the data packets, as per the configurable
ISO8583 format, into business objects for financial transactions.

Global Logic, India

Feb 2009 - Aug 2009 Manager: Atul Srivastava
Developed a component for subscribing RSS feeds in a user friendly manner
with an efficient search utility.

Graduate
Coursework

chine Learning, Applied Linear Algebra, Estimation Theory, Advanced Analysis of Algorithms, Randomized Algorithms (A), Digital Geometry Processing, Scientific Computing and Visualization.

Educational programs

2015 Complex Systems Summer School, Santa Fe Institute.

Other Accomplishments

99% percentile secured in all India entrance exams IIT-JEE-05 (200k participants) and AIEEE-05 (600k participants).
1st rank secured in C++ skill exams (for online placements in undergrad school) conducted by companies Informatica Business Solutions (CS batch of 80 students), and Global Logic (220 students).

Research References

Aram Galstyan galstyan@isi.edu
Research Associate Professor Univ. of Southern California
Director of AI Division ISI USC

Irina Rish rish@us.ibm.com
Associate Professor MILA, Univ. of Montreal

Guillermo A. Cecchi gcecchi@us.ibm.com
Principal Research Staff Member IBM T. J. Watson Research Center

Greg Ver Steeg gregv@isi.edu
Research Associate Professor Univ. of Southern California

Amarjeet Singh amarjeet@iiitd.ac.in
Assistant Professor IIIT Delhi
Co-Founder & Chief Technology Officer Zenatix

Fabio Ramos fabio.ramos@sydney.edu.au
Associate Professor Univ. of Sydney

Daniel Marcu marcu@isi.edu
Research Associate Professor Univ. of Southern California
Director of MT/NLP Amazon

Kevin Knight kevin.crawford.knight@gmail.com
Professor Univ. of Southern California
Chief Scientist for NLP Didi Chuxing

Engineering References

Nitin Gupta nitin@commdel.net
Co-Founder & Managing Partner Commdel Consulting Services Pvt Ltd
Co-Founder & Director- Product & Strategy Agility MobileForce Solutions
Co-Founder & Director Core Doc2Info Services Pvt. Ltd.

Amit K Verma amit@commdel.net
Co-Founder & Director Commdel Consulting Services Pvt Ltd
Co-Founder & Director Agility MobileForce Solutions

Co-Founder

Srinivasareddy Chennareddy

VP Products, Digital Marketing & Sales

Co-Founder (exited in 2015)

Harman Singh

Senior Software Engineer

Co-Founder (exited in 2011)

Core Doc2Info Services Pvt. Ltd.

srinivasa.chennareddy@gmail.com

CG Parivar Group

Agility MobileForce Solutions

hpssahni@gmail.com

Amazon

Snowpal Software Services