

Disha Shrivastava

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Education

Mila, Université de Montréal, Canada,

PHD IN MACHINE LEARNING, SUPERVISORS: HUGO LAROCHELLE AND DANNY TARLOW

Thesis: Contextual Cues for Deep Learning Models of Code.

SEPT 2018 - SEPT 2023

GPA: 4.3/ 4.0

Indian Institute of Technology Delhi, India

MTECH IN COMPUTER TECHNOLOGY

Thesis: Large Scale Distributed Deep Learning using Apache Spark.

JULY 2014 - 2016

CGPA: 9.44/ 10.0

Birla Institute of Technology Mesra, India

B.E. IN ELECTRONICS & COMMUNICATION ENGG.

MAY 2008 - 2012

CGPA: 8.64/ 10.0 (abs)

Experience

Google DeepMind

SENIOR RESEARCH SCIENTIST, RESEARCH SCIENTIST

- Core-contributor to the **Gemini Agents Area**, developing general-purpose AI agents to achieve superhuman performance in critical environments for humanity. My current focus includes building a background coding agent for internal tasks, designing agentic evals, and implementing algorithmic improvements, including RL training for long-horizon tasks.
- Led research on the agent harness for **Jules**, an asynchronous coding agent, driving innovations in localization, self-repair, unit test generation, and a novel multi-agent framework, while playing a key role in informing important product decisions.
- Core contributor to **Gemini 1.0**, **Gemini 1.5**, and **Gemini 2.0**, working on enhancing coding and reasoning abilities of the LLM through contributions in data for code repair, internal and leaked coding evals, and post-training recipes including synthetic data generation and multi-turn RL on code.
- Advising research on improved human-computer interfaces, with a focus on writing assistants.

AUG 2023 - PRESENT

London UK

ServiceNow Research

VISITING RESEARCHER, SUPERVISORS: TOSTEN SCHOLAK AND DZMITRY BAH DANAU

Worked on training LLMs of code to effectively utilize the context from the repository.

JAN 2023 - MAY 2023

Montreal, Canada

DeepMind

RESEARCH SCIENTIST INTERN, COLLABORATORS: YUJIA LI AND DAVID CHOI

Worked on **AlphaCode2**, an AI system that outperformed 85% of the participants in the domain of competitive programming.

JUN 2022 - OCT 2022

London, UK

Google Brain

STUDENT RESEARCHER, COLLABORATORS: HUGO LAROCHELLE, DANNY TARLOW AND CHARLES SUTTON

Worked on identifying and leveraging contextual cues to improve deep learning models for neural program synthesis and code autocompletion, resulting in two first-author papers at **NeurIPS 2021** and **ICML 2023**.

AUG 2019 - JUN 2022

Montreal, Canada

IBM Research

RESEARCH SOFTWARE ENGINEER

Worked on unsupervised construction of domain-specific knowledge graphs, reasoning for complex question answering, and developing metrics for computational creativity and topical coherence.

AUG 2016 - AUG 2018

Bangalore, India

Idea Cellular Limited

ASSISTANT MANAGER

Worked on configuring and maintaining network nodes responsible for real-time charging and billing of prepaid mobile subscribers.

JULY 2012 - NOV 2013

Hyderabad, India

Publications and Patents

Gemini team. **Gemini 2.5: Pushing the Frontier with Advanced Reasoning, Multimodality, Long Context, and Next Generation Agentic Capabilities.** (2025)

Aviral Kumar, Vincent Zhuang, Rishabh Agarwal, Yi Su, John D Co-Reyes, Avi Singh, Kate Baumli, Shariq Iqbal, Colton Bishop, Rebecca Roelofs, Lei M Zhang, Kay McKinney, Disha Shrivastava, Cosmin Paduraru, George Tucker, Doina Precup, Feryal Behbahani, Aleksandra Faust. **Training Language Models to Self-Correct via Reinforcement Learning** (ICLR 2025)

Avinash Bhat, Disha Shrivastava, Jin L.C. Guo. **Do LLMs Meet the Needs of Software Tutorial Writers? Opportunities and Design Implications** (DIS 2024)

Gemini team. **Gemini 1.5: Unlocking multimodal understanding across millions of tokens of context** (2024)

Mina Lee, Katy Ilonka Gero, John Joon Young Chung, Simon Buckingham Shum, Vipul Raheja, Hua Shen, Subhashini Venugopalan, Thiemo Wambsganss, David Zhou, Emad A Alghamdi, Tal August, Avinash Bhat, Madiha Zahrah Choksi, Senjuti Dutta, Jin LC Guo, Md Naimul Hoque, Yewon Kim, Simon Knight, Seyed Parsa Neshaei, Antonette Shibani, [Disha Shrivastava](#), Lila Shroff, Agnia Sergeyuk, Jessi Stark, Sarah Stermann, Sitong Wang, Antoine Bosselut, Daniel Buschek, Joseph Chee Chang, Sherol Chen, Max Kreminski, Joonsuk Park, Roy Pea, Eugenia Ha Rim Rho, Zejiang Shen, Pao Siangliulue. **A Design Space for Intelligent and Interactive Writing Assistants** (CHI 2024)

AlphaCode2 team. **AlphaCode2 Technical Report** (2023)

Gemini team. **Gemini: A Family of Highly Capable Multimodal Models** (2023)

Avinash Bhat, [Disha Shrivastava](#), Jin L.C. Guo. **Approach Intelligent Writing Assistants Usability with Seven Stages of Action** (CHI Workshop on Intelligent and Interactive Writing Assistants, 2023)

[Disha Shrivastava](#), Denis Kocetkov, Harm de Vries, Dzmitry Bahdanau, Torsten Scholak. **RepoFusion: Training Code Models to Understand Your Repository** (arXiv 2023)

[Disha Shrivastava](#), Hugo Larochelle, Daniel Tarlow. **Repository-Level Prompt Generation for Large Language Models of Code** (ICML 2023)

[Disha Shrivastava](#), Hugo Larochelle, Daniel Tarlow. **Learning to Combine Per-Example Solutions for Neural Program Synthesis** (NeurIPS 2021)

Edoardo Maria Ponti*, Rahul Aralikkatte*, [Disha Shrivastava](#), Siva Reddy, Anders Søgaard. **Minimax and Neyman-Pearson Meta-Learning for Outlier Languages** (Findings of ACL 2021)

[Disha Shrivastava](#), Hugo Larochelle, Daniel Tarlow. **On-the-Fly Adaptation of Source Code Models** (NeurIPS Workshop on Computer-Assisted Programming 2020)

[Disha Shrivastava](#)*, Eeshan Gunesh Dhekane*, Riashat Islam. **Transfer Learning by Modeling a Distribution over Policies** (ICML Workshop on Multi-Task and Lifelong Reinforcement Learning 2019)

[Disha Shrivastava](#), Saneem Ahmed CG, Anirban Laha, Karthik Sankaranarayanan. **A Machine Learning Approach for Evaluating Creative Artifacts** (SIGKDD Workshop on Machine Learning for Creativity 2017)

[Disha Shrivastava](#), Santanu Chaudhury, Dr. Jayadeva. **A Data and Model-Parallel, Distributed and Scalable Framework for Training of Deep Networks in Apache Spark** (arXiv 2017)

[Disha Shrivastava](#), Sreyash Kenkre, Santosh Penubothula. **Hypernyms through Intra-Article Organization in Wikipedia** (arXiv 2018)

[Disha Shrivastava](#), Abhijit Mishra, Karthik Sankaranarayanan. **Modeling Topical Coherence in Discourse without Supervision** (arXiv 2018)

Shavak Agrawal, Anush Sankaran, Anirban Laha, Saneem Ahmed CG, [Disha Shrivastava](#), Karthik Sankaranarayanan. **What is Deemed Computationally Creative?** (IBM Journal of Research and Development 2019)

Pankaj S Dayama, [Disha Shrivastava](#). **System and Method to Implement a Cognitive Quit Smoking Assistant** (US Patent App. 15/811, 964)

Anirban Laha, Vijay Ekambaram, Parag Jain, [Disha Shrivastava](#). **Displaying Dynamic Content on Multiple Devices** (US Patent 10,664,217)

Sreyash Kenkre, Santosh R.K. Penubothula, [Disha Shrivastava](#), Harish Guruprasad Ramaswamy, Vinayaka Pandit. **Automated Constraint Extraction and Testing** (US Patent 10,902,200)

Anush Sankaran, Pranay Lohia, Priyanka Agarwal, [Disha Shrivastava](#), Anirban Laha, Parag Jain. **Cognitive Assistant for Co-Generating Creative Content** (US Patent App. 16/169,001)

Positions of Responsibility

Organization	<ul style="list-style-type: none">• Deep Learning for Code (DL4C) workshops at ICLR 2022 and ICLR 2023• Neurosymbolic Generative Models (NeSy-GeMs) workshop at ICLR 2023• Advances in Programming Languages and Neurosymbolic Systems (AIPLANS) workshop at NeurIPS 2021• Machine Learning for Creativity workshop at ACM SIGKDD 2017• ML4Code reading group at Mila
Teaching Assistant	<ul style="list-style-type: none">• Pattern Recognition (July-Nov 2015), IIT Delhi• Software Lab (Jan-May 2016), IIT Delhi
Reviewer	COLM 2024, ICML 2022-24, NeurIPS 2020-23, ICLR 2022, ICML 2020, ACL 2020, AAAI 2020-21, MAIS 2019, GHCI 2017 (AI and ML Track), MSR 2021 Mining Challenge
Others	<ul style="list-style-type: none">• Invited speaker at the GenAI-based Software Engineering workshop at ISEC 2024.• Volunteer at WiML workshop at NeurIPS 2019.• Part of Diversity and Inclusion initiatives at IBM Research, India (July 2017 - July 2018).• Student Placement Coordinator at Training and Placement Cell, BIT Mesra (July 2011 - Apr 2012).