

Tejasvi Singh Tomar

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Software engineer (ML) at Google. Independently, works on open problems in mathematics: central configurations of the n -body problem, including Smale's sixth problem for five bodies in the plane, the rank of 3×3 matrix multiplication over F_2 , sorting networks, and confinement in lattice gauge theory. Most of the proofs are computer-assisted, and five are formalized in the Lean proof assistant.

Experience

2022 – now	Google, Software engineer (ML)
2021	Cisco, Software engineer intern
2020	ECMWF Summer of Weather Code, Team project: deep-learning wildfire forecasting
2020	Oloid, Machine learning intern
2020	Wikilimo, Machine learning intern: pest and disease detection

Education

2018 – 2022	IIT Guwahati, B.Tech, Department of Biosciences and Bioengineering
2021 – 2022	IIT Guwahati, Prof. Shankar Prasad Kanaujia's lab, B.Tech project: Operon Finder

Papers

Journal article

Operon Finder: A Deep Learning-based Web Server for Accurate Prediction of Prokaryotic Operons. Tejasvi Singh Tomar, Pratik Dasgupta and Shankar Prasad Kanaujia. *Journal of Molecular Biology* 435(14), 167921 (2023). doi:10.1016/j.jmb.2022.167921.

Preprints

Smale's sixth problem for five bodies in the plane, with a proof formalized in Lean. Preprint, October 2026. arXiv:2610.13100, doi:10.5281/zenodo.23257257.

The rank of 3×3 matrix multiplication over F_2 is 23. Preprint, October 2026. arXiv:2610.11823, doi:10.5281/zenodo.23236157.

Sorting networks on 13 inputs need at least 44 comparators. Preprint, October 2026. doi:10.5281/zenodo.23453292.

Area law for three-dimensional $U(1)$ lattice gauge theory with the Wilson action at every coupling. Preprint, October 2026. doi:10.5281/zenodo.23445737.

Uniqueness of four-body convex central configurations for all masses. Preprint, September 2026. arXiv:2609.35632, doi:10.5281/zenodo.23004306.

Smale's sixth problem for six bodies in the plane: finiteness of central configurations for generic masses, with a proof formalized in Lean. Preprint, October 2026. doi:10.5281/zenodo.23433406.

A formal proof in Lean of the finiteness of planar central configurations of five bodies. Preprint, October 2026. doi:10.5281/zenodo.23427943.

The number of planar central configurations of four bodies. Preprint, October 2026. doi:10.5281/zenodo.23256908.

Complex solution sets of the planar five-body problem at special masses. Preprint, October 2026. doi:10.5281/zenodo.23444948.

Report

A resource-efficient deep learning framework for pest and disease detection in plants. Report, 2020.

Software

Markless: Inline Markdown rendering in VS Code (47 stars, 4.4k+ installs).

Rainbow Brackets 2: Bracket colorizer for VS Code (160k+ installs).

Operon Finder: Operon prediction web server (Python, deep learning).

Lean proofs: Formal proofs for five papers (Lean 4, Mathlib).

Qualia: Knowledge graphs (Python, LMDB).

Wildfire forecasting: Deep learning for fire danger (Python, PyTorch).

Topology Transformer: VPN topology merging (Python, TS/React).

Routero: Route optimization (Python, Streamlit).

Adaptive 6TiSCH: Faster IoT network joins (C, Contiki-NG).

Markdown Continue: List continuation for VS Code (3k+ installs).

Merged contributions to open source

microsoft/vscode: Docs for `TextEditor.setDecorations`.

neovim/neovim: Python provider version check.

streamlit/streamlit: Map demo in streamlit hello.

Lightning-AI/pytorch-lightning: Batch-size scaling exception.

pytorch/audio: File extension parsing.

mlpack/mlpack: MD5 checks for downloaded libraries.

Essays

Who pays the line cook, October 2026.

A response to A Severe Misalignment of AI in Mathematics, October 2026.

Why tech does not grow in New York like SF Bay and Seattle?, August 2026.

Chase vs attract, August 2026.

Updated 19 October 2026. The current version is at www.mefyi.com/cv.