Swapnil Gandhi

gandhis@stanford.edu • https://swapnilgandhi.com/

EDUCATION	**Ph.D., Stanford University**	Jul 2022 – Present

Interests: My broad research interests include distributed systems and cloud computing – in particular, I am interested in the system-side problems associated with learning and deploying machine learning models at scale.

M.Tech. (Research), Indian Institute of Science (IISc)   Aug 2017 – Jan 2020

Computer and Data Systems (CDS-CS)
Advisor: Yogesh Simmhan
Thesis: Distributed Programming Abstraction for Scalable Processing of Temporal Graphs

B.Tech., Bharati Vidyapeeth Pune   Jul 2010 – Jun 2014

Computer Engineering
Department Honors and Gold Medalist
Thesis: Mutation Testing Tool for C Programs

PUBLICATIONS

[Papers & Posters available here.]

PEER-REVIEWED CONFERENCES

[1] Swapnil Gandhi, Anand Padmanabha Iyer, "Fast & Efficient DNN Inference Using Practical Early-Exit Networks", [Under-Review]

[2] Swapnil Gandhi, Anand Padmanabha Iyer, "P^3: Distributed Deep Graph Learning at Scale", *In proceedings of the 15th USENIX Symposium on Operating Systems Design and Implementation (OSDI 2021), Jul 2021.*
Acceptance Rate: $31/165 = 18.78\%$

[3] Swapnil Gandhi, Yogesh Simmhan, "An Interval-centric Model for Distributed Computing over Temporal Graphs", *In proceedings of the 36th IEEE International Conference on Data Engineering (ICDE 2020), Dallas, Texas, April 2020.*
Acceptance Rate: $129/568 = 22.71\%$

PEER-REVIEWED POSTERS

[1] Swapnil Gandhi, "Wave: A Substrate for Distributed Incremental Graph Processing on Commodity Clusters", *2nd ACM Student Research Competition (SRC) at 27th Symposium on Operating Systems Principles (SRC- SOSP 2019), Ontario, Canada, Oct 2019.*
Received Bronze Medal, Student Research Competition (Graduate Category)

[2] Swapnil Gandhi, Sayandip Sarkar, Abhilash Sharma, Yogesh Simmhan, "Distributed Querying over Compressed Property Graphs", *Student Research Symposium at 24th IEEE International Conference on High Performance Computing, Data and Analytics (HiPC 2017), Jaipur, India, Dec 2017.*
Received Best Student Research Symposium Poster

AWARDS & HONORS	Selected to participate in The Cornell, Maryland, Max Planck Pre-doctoral Research School (CMMRS) 2020, Saarbrücken, Germany	Aug 2020

Bronze Medal, 2nd ACM Student Research Competition (Graduate Category), at SOSP   Oct 2019
For "Wave: A Substrate for Distributed Incremental Graph Processing on Commodity Clusters".

Won 12th IEEE International TCSC Scalable Computing (SCALE) Challenge   May 2019
For "Dynamic Scaling of Video Analytics for Wide-area Tracking in Urban Spaces".

Best Poster Award, 10th EECS Research Students Symposium, IISc Bangalore   Apr 2019
For "Distributed Processing Model For Temporal Graphs".

Invited to attend 3rd RIKEN R-CCS HPC Youth Workshop, Kobe, Japan   Feb 2019

Best Student Research Symposium Poster, IEEE HiPC, Jaipur, India   Dec 2017

For "Distributed Querying over Compressed Property Graphs".

Department Honors, Bharati Vidyapeeth, Pune	Jun 2014

For outstanding academic performance (Batch 2010 – 2014).

TCS Popular Student Project, Bharati Vidyapeeth, Pune	May 2014

For "Mutation Testing Tool for C Programs", Bachelors dissertation.

Best Undergraduate Project Award, TRDDC Annual Students Day, Pune	Apr 2014

For "Mutation Testing Tool for C Programs", Bachelors dissertation.

WORK EXPERIENCE

Research Fellow, Microsoft Research India — Jul 2021 – Sep 2022
Mentor: Anand Iyer
Exploring techniques for improving system-wide goodput for early-exit deep neural network inference at scale using heterogeneous resources.

Software Engineer II, Microsoft Azure R&D India — Mar 2021 – Jun 2021

Research Intern, Microsoft Research India — Sep 2020 – Mar 2021
Mentor: Anand Iyer
Explored implications of combining model and data parallelism with independent graph partitioning for training graph neural networks at scale (P^3).

Research Intern, Microsoft Research India — Mar 2020 – Aug 2020
Mentors: Bhargav Gulavani, Karthik Ramachandra
Worked on investigating and overcoming performance regressions in scalar UDF inlined queries.

Operations Engineer, PubMatic India — Jun 2014 – Jul 2016
Worked on reporting and ad-hoc data processing pipelines using combination of Hadoop, Hive, and Pig.

Research Intern, TATA Research Development and Design Centre India — Sep 2013 – Apr 2014
Mentors: Prasad Bokil, Ulka Shrotri, R. Venkatesh
Worked on investigating and prototyping Mutation Testing Tool for C Programs.

SERVICE

Artifact Evaluation Committee (AEC) Member, ACM EuroSys 2023	Aug 2022 – Oct 2022
Shadow PC Committee Member, ACM EuroSys 2022	Oct 2021 – Dec 2021
Shadow PC Extended Review Committee Member, ACM EuroSys 2021	Oct 2020 – Dec 2020
Artifact Evaluation Committee (AEC) Member, USENIX OSDI 2020	Aug 2020
Artifact Evaluation Committee (AEC) Member, ACM ASPLOS 2020	Dec 2019
Artifact Evaluation Committee (AEC) Member, ACM SOSP 2019	Aug 2019
Treasurer and General Secretary for IISc ACM Student Chapter	Apr 2019 – Mar 2020

TEACHING ASSISTANTSHIPS

DS 256: Scalable Systems for Data Science, IISc — Jan 2019
Graduate Teaching Assistant for DS 256. Handled weekly discussion sections, homework assignments and helped with class projects ($\approx$ 10 students).

E0 261: Database Management Systems, IISc — Oct 2018
Covered papers on Google's Spanner and Apache Giraph. ($\approx$ 30 students).

REFERENCES Available upon request.

[CV compiled on 2022-10-05]