Adarsh Patil

Personal Details

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Education

Current — Doctor of Philosophy
University of Edinburgh, United Kingdom [ARM PhD Fellowship]
Research: *Co-designing reliability and performance for datacenter memory*

July 2017 — M.Tech. (Research)
Indian Institute Of Science, Bangalore, India
Thesis: *Heterogeneity Aware Shared DRAM Cache for Integrated Heterogeneous Architectures*
GPA: 6.33/8.0 - *magna cum laude*

May 2012 — Bachelor of Engineering
M S Ramaiah Institute of Technology, Bangalore, India
GPA: 9.40/10.0 - *summa cum laude*

Work Experience ∼ 4 years

Aug 2017 - Apr 2019 (1 year 8 months)	Research Scientist at Intel Corporation, Bangalore, India HPC Ecosystem and Application Team
Jun 2012 - Jul 2014 (2 years 1 month)	Technology Analyst at Goldman Sachs, Bangalore, India Core Platform Engineering
Jun 2011 - Aug 2011	Summer Analyst at Goldman Sachs, Bangalore, India Runbook Process Automation
Jun 2010 - Sep 2010	Intern at Gavista Tech, Bangalore, India Search Optimization and User Interface for systematic results display

Publications & Talks

DSN 2023	$\bar{A}$pta: Fault-tolerant object-granular CXL disaggregated memory for accelerating FaaS https://adar.sh/apta
ISCA 2021	Dvé: Improving DRAM Reliability and Performance On-Demand via Coherent Replication https://adar.sh/dve
TACO 2017 Best Poster EECS 2017, Presented HiPEAC 2018	HAShCache: Heterogeneity-Aware Shared DRAMCache for Integrated Heterogeneous Systems https://adar.sh/hashcache-taco
ARM/UEd Conf 2021 (Talk)	Improving Reliability and Performance of Datacenter Systems via Coherence https://adar.sh/arm-ed-conf-2021
UK Systems 2021 (Talk)	FaaS with CXL Disaggregated Shared Memory

Projects

Ongoing Projects

Redesigning datacenter co-ordination services for next generation CXL based shared memory

Achieving persistence through replicated disaggregated memory

Projects at Indian Institute of Science

TLB and Pagewalk Performance in Multicore Architectures with large Die-Stacked DRAM Cache [Tech Report 2015, arXiv]
https://adar.sh/caffe-compiler-optimize

A Study of Branch Prediction in Android
https://adar.sh/BranchPredAndroid

Compiler Optimization Transforms
Harris Corner Detection: https://adar.sh/compiler-optimize
Caffe Neural Networks: https://adar.sh/caffe-compiler-optimize

VarMutate: Dynamic Scoping for C Language in clang
https://adar.sh/VarMutate

Plan IKEBANA: ESS Dimensions Reduction for Plan Bouquet
https://adar.sh/PlanIkebana

Projects at Goldman Sachs

Architect, design and implement solutions of various virtualization & linux technologies spanning datacenter compute, storage, networking

Hardware and OS Performance Benchmarking & Analysis
- Authored an automated benchmarking framework to run and report performance by running test suites on VMs and Baremetals
- Performance analysis & tuning for specialized internal apps (e.g. low Latency, high I/O, memory, network intensive)
- Test Suites – SpecJBB, kmake, blacksholes, Dhrystone, Whetstone, Hackbench, Disk tests, Network uperf, lat proc

Linux Containers
- Architecting and implementing Containers for Goldman Sachs Cloud
- Possess a good understanding of underlying technology Namespaces, Cgroups, SELinux, Network configuration, Libvirt API

Thin client desktop VDI solution
- Engineered a Minimized and locked down Linux based solution
- Authored several PyGTK and X11 based applications for remote management, diagnostics, troubleshooting and NEA
- Network booted, kickstart and preseed based unsupervised install
- Engineered a stateless RAM-based network booted system on ARM based hardware

Engineering Nested Virtualization (Bromium vSentry) as a security solution

Vendor Interaction and liaising – Intel, VMware, Redhat

Projects at M S Ramaiah Inst of Tech

Spoken language identification using machine learning
[Bachelor's dissertation] https://adar.sh/spokenlang

SNIDS: An Intelligent & Multiclass Support Vector Machines Based NIDS
[ICECIT 2012] https://adar.sh/S-NIDS
funded by Defense Research and Development Organization (DRDO), India

Line Birds (game) using OpenGL https://adar.sh/linebird
A parallel algorithm for Max Flow Algorithm using Ford-Fulkerson method
Lead developer of a student focused Linux Distro "ANDROMEDA Linux"

Achievements and awards

- Founding trustee of Dr. M R Gorbal Foundation - a charitable organization which aims to promote research in Physics (2022)
- Best Poster at Electrical Science Divisional Symposium at IISc, Bangalore (2017)
- Completed with certificate of distinction several Data Science Courses from Johns Hopkins University on Coursera (2014)
- *"Best outgoing achiever (2012)"* - Dept. of CSE at M S Ramaiah Instiute of Technology
- First Place at National Level Project Competition held at M S Ramaiah Inst. of Tech (2012)
- Second Place at "Random Hacks of Kindness #2" hackathon (2010)

Voluntary Positions Held

- Informatics Science Communication Group — Dec 2021 - Current
- ICSA@Informatics social media communication — Sept 2021 - Current
- Teaching assistant/Tutor INF2C-CS, University of Edinburgh — Aug 2019 - Dec 2019
- Student System Admin at CSA Department, IISc — Aug 2014 - Dec 2016
- Teaching Associate for the CUDA Teaching Centre, sponsored by NVIDIA, at the Department of CSE, MSRIT — Jan 2012 - May 2012
- Chairman of VRGLINUG (GNU/Linux users group at MSRIT) — 2011-12
  Secretary and member of executive committee of IEEE-MSRIT
  Influential Member of several committees
  (RoboMSR, CodeMSRIT, Assoc. of Computer Engineers)

Extra curricular activities

- Represented IISc in the 12 hour Bengaluru Stadium Run Relay for 2016 and 2018.
  Long distance runs : 4 villages half-marathon (UK), TCS World 10k, Bengaluru 10k Challenge, Standard Chartered Mumbai Marathon, Bengaluru Marathon etc.
  Personal best times - *5k (19mins), 10k (45mins), half-marathon (1:50hrs)*, marathon (4:17hrs)
- Periodically author blog articles about my experiences, assessments and outlooks related to my work and hobbies
- Member of environment committee at Goldman Sachs for conducting awareness drives/camps
- One of 4 Indians amongst participants from around the world on a Scholarship Delegation to attend TEDxSummit 2012 in Doha, Qatar
- TEDx licensee, TED Translator, TEDx organizer (TEDxMSRIT 2012)
- Organizer of "Pycon India 2010" and "Random Hacks of Kindness #4"
- Delegated at various conferences/workshops - ISCA 2022, IPDPS 2015, Open Hack India 2010/2011, PYCON India 2010, FOSSEE 2011, Microsoft DreamSpark 2012, Wikipedia Meetup/Bangalore

Miscellaneous

Strengths

- Adaptability, Quick learner, Hardworking and Dedication
- Effective communicator and good leadership skills
- Always updated with latest technology and trends of market.
- Analytical and mathematical problem solving ability

Hobbies

- Avid Runner, Cyclist and Swimmer
- Cardio/HiiT workouts - Les Mills Body Pump, Body Attack , GRIT Athletic
- Hiking enthusiast - 5 Munros, several Corbetts, coastal and trail walks

Other Links

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in.linkedin.com/in/adarshpatil

References

Academic References

Vijay Nagarajan, PhD Advisor
Professor, University of Edinburgh
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Prof. R Govindarajan, Master's Advisor
Professor, IISc
govind@serc.iisc.ernet.in

Industry References

Bharat Kaul
Director, Intel Parallel Computing Lab