Adarsh Patil

Personal Details

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Education

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

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* | List of Courses

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

Work Experience

Aug 2017 - Apr 2019	Research Scientist at Intel Corporation, Bangalore, India HPC Ecosystem and Application Team
Jun 2012 - Jul 2014	Technology Analyst at Goldman Sachs, Bangalore, India Core Platform Engineering
Jan 2012 - May 2012	Intern at Ignis Technology Solutions, Bangalore, India Android app developer
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

ARM / UoE Conference 2021	Improving Reliability and Performance of Datacenter Systems via Coherence
UK Systems Research 2021	FaaS with Disaggregated Shared Memory
ISCA 2021	Dvé: Improving DRAM Reliability and Performance On-Demand via Coherent Replication https://adar.sh/dve
TACO 2017 Best Poster EECS 2017	HAShCache: Heterogeneity-Aware Shared DRAMCache for Integrated Heterogeneous Systems https://adar.sh/hashcache-taco

Projects

Projects at Indian Institute of Science

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

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

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

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

Plan IKEBANA: ESS Dimensions Reduction for Plan Bouquet
http://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
- Test Suites include – SpecJBB, kmake, blacksholes, Dhrystone, Whetstone, Hackbench, Disk tests, Network uperf, lat proc
- Performance analysis & tuning for specialized internal apps (e.g. low Latency, high I/O, memory, network intensive)

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

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
http://adar.sh/spokenlang [Final Year undergrad Project]

SNIDS: An Intelligent & Multiclass Support Vector Machines Based NIDS
http://adar.sh/S-NIDS [ICECIT 2012, funded by DRDO]

Line Birds (game) using OpenGL
http://adar.sh/linebird

A parallel algorithm for Max Flow Algorithm using Ford-Fulkerson method
e-Blood Bank - a database Systems Application Project
Lead developer of a Linux Distro "ANDROMEDA - MSRIT Linux"

Voluntary Positions Held

- Informatics Science Communication Group — Dec 2021 - Current
- ICSA@Informatics social media communication — Sept 2021 - Current
- 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 — 2011-12
- Been an influential Member of several committees RoboMSR, CodeMSRIT, Assoc of Computer Engineers (ACE) — 2011-12

Achievements

- Best Poster at Electrical Science Division Symposium (EECS '17) at IISc, Bangalore
- Completed with Certificate of distinction several MooC Data Science Courses from Johns Hopkins University on Coursera
- *"Best outgoing achiever (2012)"* - Dept. of Computer Science & Engg. at M S Ramaiah Instiute of Technology
- First Place at the National Level Project Competition & Exhibition held at M S Ramaiah Institute of Technology for project "Spoken Language Identification using Machine Learning"
- Second Place at "Random Hacks of Kindness #2" hackathon (2010)
- IBM Certified DB2 9 Database and Application Fundamentals (2011)
- IBM Certified Rational Functional Tester(RFT) for Java (2011)
- Certificate course in "Java Programming" from NIIT-Bangalore by Sun Microsystems (2009)
- Study titled "Microneedles for medical advancement" (MEMS course project) - recognized by the Staff Council of IEEE MSRIT.
- Credited broad course electives like "Micro-Electro Mechanical Systems (MEMS)", "Digital Signal Processing" and "Supply Chain Management" at MSRIT

Extra curricular activities

- Represented IISc in the 12 hour Bengaluru Stadium Run Relay for 2016 and 2018.
  Long distance runs : 4 villages half-marathon, 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 the Environment committee at Goldman Sachs, regularly conducting awareness drives and camps

- One of few Indians amongst participants from all around the world on a Scholarship Delegation to attend TEDxSummit 2012 in Doha, Qatar representing TEDxMSRIT

- TEDx licensee, TED Translator, TEDx organizer (TEDxMSRIT 2012)
- Web Design, Development and treasurer for Samanway 2014 - Career fair at IISc
- Organizer of "Pycon India 2010" and "Random Hacks of Kindness #4" held at MSRIT
- Active Volunteer for Association of Computer Engineers (ACE), IEEE-MSRIT and have been instrumental in organizing several fests and events (2008-2011)
- Delegated at various conferences and Workshops - IEEE International Parallel & Distributed Processing Symposium (IPDPS 2015), Open Hack India 2010/2011, PYCON India 2010, FOSSEE Science and Engineering, Microsoft Dream Spark India, Wikipedia Bangalore Meet-ups, Mobile Camps

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
github.com/adarshpatil
in.linkedin.com/in/adarshpatil

References

Academic References

Vijay Nagarajan, PhD Advisor
Assoc Prof, University of Edinburgh
vijay.nagarajan@ed.ac.uk

Prof. R Govindarajan, Master's Advisor
Professor, IISc
govind@serc.iisc.ernet.in

Industry References

On Request

Master of Science in Engineering (IISc, Bangalore)

Grades

Course	Grade	Credit
Database Management Systems	A	4
Computer Architecture	A	4
Design and Analysis of Algorithms	C	4
Compiler Design (NOT IN RTP)	B	-
Final Thesis		Completed
	Total	16
	Gpa	6.33

Bachelors in Engineering (M S Ramaiah Inst. of Tech, Bangalore)

Principal Courses

- Engineering Mathematics
- Data Structures
- Operating Systems
- Engineering Design
- Web Programming
- Unix System Programming
- Compiler Design
- Discrete Mathematics
- Design & Analysis of Algorithms
- Computer Organization
- Computer Graphics and Visualization
- Advanced Computer Architecture
- Computer Networks
- Software Engineering

Electives

- Artificial Intelligence
- Digital Signal Processing
- Supply Chain Management
- Micro-Electro Mechanical Systems

Higher Secondary (Sindhi High School, CBSE)

Primary Courses

Physics, Chemistry, Mathematics, Computer Science

Languages

Hindi, English
