Guna Prasaad

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INTERESTS

I am interested in systems research. I like to build principled systems using techniques from databases, distributed systems and programming languages research.

In my recent work, I developed a low-latency, scalable, ordered stream processing system for shared-memory architectures. Currently, I am looking at synthesizing efficient concurrent implementations of database transactions based on a specified consistency level.

EDUCATION

University of Washington, Seattle — 2016-Present
Ph.D. Candidate, Computer Science & Engineering
Advisors: Alvin Cheung, Dan Suciu

Indian Institute of Technology Bombay, Mumbai — 2011-2015
B.Tech., Computer Science & Engineering
Advisor: S. Sudarshan

AWARDS & HONORS

- Computer Science & Engineering Research Fellowship, University of Washington, 2016
- Best Paper Award, CICLing 2015
- Narotam Sheksharia Scholarship for Undergraduate Studies, 2012
- Kishore Vaigyanik Protsahan Yojana Scholar, 2011
- Certificate of Merit in Computer Science, CBSE, 2011

RESEARCH EXPERIENCE

Graduate Student Researcher — 2016-Present
University of Washington — Seattle, WA

- Exploring APPROXIMATE RELATION DECOMPOSITION to handle aggregations over big tables using entropy and mutual information based techniques with Prof. Dan Suciu
- Working on SYNTHESIS OF DATABASE TRANSACTION IMPLEMENTATIONS from axiomatic specifications of consistency levels with Prof. Alvin Cheung

Research Fellow — 2015-2016
Microsoft Research India — Bangalore, India

Multicore Stream Processing Systems with Ganesan Ramalingam, Kaushik Rajan

- Designed SCALABLE LOW-LATENCY concurrent data structures for ORDERED STREAM PROCESSING, along with strong THEORETICAL GUARANTEES on non-blocking properties
- Explored a variety of DYNAMIC SCHEDULING TECHNIQUES for ADAPTIVE stream processing and to efficiently exploit the latency throughput trade-off

Resource Allocation in Clusters with Ganesh Ananthanarayanan (MSR Redmond)

- Analyzed RECURRING COSMOS JOBS for prediction of resource consumption and subsequent usage of these predictions in resource allocation decisions

Undergraduate Researcher — 2014-2015
Indian Institute of Technology Bombay — Mumbai, India

Index Structure for Key-Value Stores: with Prof. S. Sudarshan

- Designed and implemented an optimized version of BUFFER TREES (Lars Arge, 1995) to test on read-write balanced workloads. Improved design for primary key-inserts using bloom filters.
- Compared the implementation against B-Tree and LSM trees, both analytically and empirically on large workloads.

Research Intern   Summer 2014
Adobe Advanced Technologies Lab   Bangalore, India

Automated Linguistic Personalization of Email Campaigns with Rishiaj Saha Roy

- Developed a novel method of personalizing email campaign messages using Linguistic Style of target segment and proved its usefulness using crowd-sourced experiments

- Designed an Automated Personalization Tool for email marketing messages based on Linguistic Personality mined from social media content.

Research Intern   Winter 2013
Chennai Mathematical Institute   Chennai, India

Synthesis Modulo Bisimulation with Prof. Madhavan Mukund

- Worked on the open problem of synthesizing distributed transition systems from a global transition system, using bisimulation as the equivalence criterion.

PUBLICATIONS	**Peer-reviewed Conferences**

- R. S. Roy, A. Padmakumar, **G. P. Jeganathan**, and P. Kumaraguru
Automated Linguistic Personalization of Targeted Marketing Messages Mining User-Generated Text on Social Media
Computational Linguistics and Intelligent Text Processing (CICLing 2015) **[Best Paper Award]**

Patents

- R. S. Roy, **G. P. Jeganathan**, A. Padmakumar, and P. Kumaraguru
Linguistic Personalization of Messages for Targeted Campaigns
USPTO App No. 14/566,181 (Pending)

TEACHING &
MENTORING

Head Teaching Assistant, Computer Programming and Utilization (CS 101)   2014-2015
Headed a team of 10 teaching assistants, responsible for assignments, exams and projects for a class of 500 freshmen taking introductory course on computer science. Earlier, I also worked as a teaching assistant mentoring a group of 14 students in homeworks and course projects.

Teaching Assistant, Implementation of Programming Languages (CS 302)   Spring 2015
Responsible for helping with creation and evaluation of homework assignments and grading of exams for the undergraduate programming languages course.

Department Academic Mentor, IIT Bombay   2014-2015
Mentored a group of 14 junior students on academic issues and helped cope up with academic pressure and complete the course of study successfully.

LEADERSHIP &
SERVICE

Manager of Programming Club, IIT Bombay   2013-2014
Organized 22 events comprising talks, workshops and competitions over a wide range of programming topics. Promoted open source contributions through GSOC and participation in programming contests such as ACM-ICPC.

TALKS &
SEMINARS

- **FAQ: Questions Asked Frequently (PODS 2016)**
UWDB Seminar (Nov 2015)

- **Buffer Trees: Index Structure for Read-Write Balanced Workloads**
Microsoft Research India, Bangalore (Mar 2014)

- **Longest Increasing Subsequence in Streaming Data**
Applied Algorithms Seminar, IIT Bombay (Fall 2014)

- **Linguistic Personalization using Social Media**
Adobe Advanced Technologies Lab, Bangalore, India (May 2014)
NLP-AI Group Seminar, IIT Bombay (Aug 2014)

- **Hopfield Networks and Applications**
Artificial Intelligence Seminar , IIT Bombay (Fall 2013)