

Aviral Goel

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EDUCATION

PHD IN COMPUTER SCIENCE
NORTHEASTERN UNIVERSITY
Boston, MA | 2017 - 2022 (Expected)
GPA: 3.98/4.0

Courses

- Computer Systems
- Intensive Principles of Programming Languages
- Program Analysis Seminar
- Theory of Computation
- Machine Learning

MS IN COMPUTER SCIENCE
NORTHEASTERN UNIVERSITY
Boston, MA | 2016 - 2017
GPA: 4.0/4.0

Courses

- Program Design Paradigms
- Programming Languages
- Advanced Program Analysis
- Programming Models for Distributed Computing

BE IN ELECTRONICS AND COMMUNICATION ENGINEERING
NETAJI SUBHAS INSTITUTE OF TECHNOLOGY
New Delhi, India | 2008 - 2012

Aggregate: 81.56%
First Class with Distinction

Courses

- C Programming
- Numerical Methods
- Computer Systems Organization
- Systems Programming
- Microprocessors
- Digital Circuits and Systems
- Data Structures and Algorithms

TECHNICAL SKILLS

- C++
- C
- R
- Python
- Racket
- SQL
- Javascript
- Java
- Linux
- Git

RESEARCH EXPERIENCE

ANNOTATIONS FOR R

Jun 2016 – Present

- Modified the official GNU R implementation to add support for annotations on functions and a mechanism to process them and rewrite R code.
- Designed an R library to insert function parameter and return type contracts for annotated functions.

STUDY OF LAZINESS IN R

July 2017 – Present

- Dynamically analyzed R code to understand how laziness is used and its interaction with metaprogramming and other dynamic features of R.
- Developed a dynamic analysis framework; instrumented the R interpreter and developed a data analysis pipeline to efficiently compress, store, aggregate and visualize runtime events.

TEACHING EXPERIENCE

TEACHING ASSISTANT

- Intensive Principles of Programming Languages (PhD) Sep – Dec 2018
- Large-Scale Parallel Data Processing (MS) Sep – Dec 2017
- Introduction to Programming for Data Science (MS) Jan – Apr 2017
- Algorithms and Data (BS) May – Aug 2016

INDUSTRY EXPERIENCE

INTERN

May 2019 – Aug 2019

ORACLE AUSTRIA GMBH

Linz, Austria

- Implemented BLAS routines for GraalVM.

TECHNOLOGY MANAGER

Feb 2015 – Dec 2015

INSTITUTE FOR STEM CELL BIOLOGY AND REGENERATIVE MEDICINE, DBT Bengaluru, India

- Integrated a 3D neuronal network visualizer (Moogli) to a neuronal network simulator MOOSE (Multiscale Object Oriented Simulation Environment).
- Added support for loading and visualizing neuronal models in real time from user defined simulation workflows in MOOSE.

PROGRAMMER

Sep 2013 – Feb 2015

NATIONAL CENTER FOR BIOLOGICAL SCIENCES

Bengaluru, India

- Designed a C++ 3D graphics software, *Moogli*, for visualizing electrical and chemical activity data from neuronal network simulations.
- The software was used by a PhD student for visualizing a model of the Rat brain's Olfactory bulb.

SOFTWARE ENGINEER

Jul 2012 – Aug 2013

YAHOO!

Bengaluru, India

- Designed a data analytics dashboard for visualizing product usage trends with periodic report generation capabilities for better marketing and development decisions.
- Aggregated product usage statistics from big data sets on Hadoop cluster using Apache Pig.

INTERN

Jun 2010 – Jul 2010

SIEMENS LIMITED

New Delhi, India

- Designed a version management program for a distributed power plant automation and management system.

PUBLICATIONS

- ON THE DESIGN, IMPLEMENTATION AND USE OF LAZINESS IN R
Aviral Goel et al. OOPSLA 2019
- CORRECTNESS OF SPECULATIVE OPTIMIZATIONS WITH DYNAMIC DEOPTIMIZATION
Olivier Flückiger et al. POPL 2018