

VENKATESH VINAYAKARAO

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PhD Student, IIIT Delhi

Okhla Industrial Estate Phase III, New Delhi, India 110020

RESEARCH INTERESTS

Information Retrieval, Software Engineering and Program Analysis.

EDUCATION

Indraprastha Institute of Information Technology (IIIT) Delhi

Oct 2013 - Present

PhD Student

Overall GPA: 9.43/10

Advisor: Dr. Rahul Purandare. Industry Mentor: Dr. Aditya Nori.

Topic: Building Code Search Engines

Department of Computer Science and Engineering

Carnegie Mellon University

Aug 2002 - Dec 2003

MS in Information Technology

Overall GPA: 4.1/5

Specialization: Software Engineering

School of Computer Science

University of Madras

May 1996 - Apr 2000

BE Computer Science and Engineering

Percengate: 79%

Department of Computer Science and Engineering

EXPERIENCE [11+ YEARS IN SOFTWARE INDUSTRY]

Microsoft Research Cambridge

Apr 2017 - Jul 2017

Research Intern

- InnerEye is a research project that uses state of the art machine learning technology to build innovative tools for the automatic, quantitative analysis of three-dimensional radiological images.
- **Role:** Porting the inner eye ML models to Azure cloud thereby delivering them as a service.

Microsoft India Development Center

Jun 2012 - Sep 2013

Senior Software Development Engineer

- Content Processing & Ranking for Microsofts Bing (search engine) team at the Search Technologies Center India.
- **Role:** Contributed as a Machine Learning Developer for the ranking (Relevance) team. This work involves preparing training sets, understanding content, feature extractions, tuning rankers and measuring their performance.

Yahoo!

Mar 2010 - Jun 2012

Principal Engineer

- Content processing yahoo! Yahoo aggregates several million feeds from several thousand providers across more than 40 countries.
- **Role:** As a content processing yahoo, I am responsible for understanding the grid based platforms and build solutions on top of them so that the raw content is processed and made available to front-end groups. Involves understanding/building platforms and writing enrichment workflows using Pig, Java and J2EE technologies.

Nokia

Aug 2007 - Mar 2010

Senior R&D Engineer

- To own and engineer tools for the personalization of Nokia phones. To work closely with the SDK (S60, Series40) team and provide appropriate tooling support using eclipse (RCP) framework.
- **Role:** Hands-on Development using Core Java, Eclipse Plugins/RCP and XML. Act as Scrum-master. Responsible for build setup (ant, cruise control) and fixes.

CoreObjects

Jul 2006 - Aug 2007

Principal Product Engineer

- To build and maintain robust License Management product under demanding schedules for an aggressive market. Used Java/J2EE.
- **Role:** As a project lead, involved in customer interaction, design discussions, plan, review, development, bug fixing, release management and people management.

HCL Technologies [CMM Level 5]

Oct 2004 - Jun 2006

Senior Technical Management Trainee

- To communicate with customers and lead the software development teams at the Core Technologies Division of HCL. Used Java, InfoPath along with some technical writing for GM.
- **Role:** Understand requirements, develop throw away prototypes using Java, InfoPath, and write requirement specifications.

Carnegie Mellon University

Aug 2003 - Aug 2004

Research Scholar

- Development of high performance conferencing module with major emphasis on customer interaction, requirements management and software architecture. Used Core Java and SIP.
- **Role:** End-to-end development.

Silverline Technologies [CMM Level 4]

Jul 2000 - Jun 2002

Software Engineer

- Several short-term projects (ranging from 3 months to 1 year long) in Java/J2EE for different domains and customers. Major responsibilities include implementation, reviewing specifications, suggesting new tools and procedures and facilitating all life-cycle phases.
- **Role:** Major responsibilities include implementation, reviewing specifications, suggesting new tools and procedures and facilitating all life-cycle phases.

TEACHING EXPERIENCE

IIT Delhi

Jan 2014 - Apr 2014

Teaching Assistant

- **Course:** Information Retrieval
- **Instructor:** Dr. Srikanta Bedathur

IIT Delhi

Aug 2014 - Nov 2014

Teaching Assistant

- **Course:** Statistical Computation
- **Instructor:** Dr. Ashwin Srinivasan

BITS Pilani (Off Campus - HCL Technologies)

Aug 2005 - Jul 2006

Faculty/Supervisor

- **Course:** Software Architectures. As part of MS - Software Engineering course.

PUBLICATIONS

- Ridhi Jain, Sai Prathik Saba Bama, Venkatesh Vinayakarao and Rahul Purandare. A Search System for Mathematical Expressions on Software Binaries. In the Proceedings of the 15th International Conference on Mining Software Repositories (MSR 2018), Sweden.
- Venkatesh Vinayakarao, Anita Sarma, Rahul Purandare, Shuktika Jain and Saumya Jain. ANNE: Improving Source Code Search using Entity Retrieval Approach. In the Proceedings of the Tenth ACM International Conference on Web Search and Data Mining (WSDM 2017), UK.
- Venkatesh Vinayakarao, Rahul Purandare and Aditya Nori. Structurally Heterogeneous Source Code Examples from Unstructured Knowledge Sources. In the Proceedings of ACM SIGPLAN Workshop on Partial Evaluation and Program Manipulation (PEPM 2015), India.
- Venkatesh Vinayakarao. Spotting familiar code snippet structures for program comprehension. In the Proceedings of the 2015 10th Joint Meeting on Foundations of Software Engineering, (ESEC/FSE 2015), Italy.

SELECTED TALKS

NIIT University, Neemrana, India.

September 24, 2017

Code Search - Challenges and Applications

- Searching for source code is challenging for several reasons. The naturalness of source code cannot be compared with that of natural languages like English. How does this impact indexing and querying? In this talk, I highlight the major challenges and research opportunities in this field.

Microsoft Research, Cambridge, United Kingdom.

June 29, 2017

Porting InnerEye to Azure Cloud

- InnerEye is a research project that uses state of the art machine learning technology to build innovative tools for the automatic, quantitative analysis of three-dimensional radiological images. In this talk, I summarize my 12 weeks at Microsoft Research where I successfully migrated the InnerEye ML models to Azure cloud.

Doctoral Consortium, WSDM 2017, Cambridge, United Kingdom.

February 6, 2017

Modeling Source Code to Support Retrieval-Based Applications

- Advances in text retrieval do not apply directly to source code retrieval because of the difference in characteristics of source code when compared to text. Here, I discuss the role of source code models in retrieval.

Panjab University, Chandigarh, India.

March 24, 2015

Reflections from a PM Research Fellow

- My PhD is supported by Prime Minister's Research Fellowship Scheme. In this talk, first I give a glimpse of my research, then I discuss the challenges of doing PhD in India, and finally elaborate on ways in which PM fellowship helps in overcoming some of these hurdles.

IIIT Delhi, India.

November 12, 2014.

Bayesian Data Analysis

- Bayesian data analysis provides us a framework to systematically approach our belief update process. Suppose we know nothing about the fairness of the coin, and we see four continuous heads in the first four flips, what should we infer about the coin? Is it biased towards head? Should we bet on another head again?

CERTIFICATIONS

CSM	Certified Scrum Master (Mar, 2006)
CNA	Certified Novell Administrator in Novell Intranetware 4.11 (Jan, 2000)
HDCNM	Higher Diploma in Communication and Network Management (Jan, 1999) (from Asset Intl., Chennai)

ACHIEVEMENTS

1. All India Rank 81 in CBSE-UGC NET exam, Nov 2017.
2. Awarded Google Travel Grant to attend WSDM 2017.
3. Awarded Prime Ministers Research Fellowship, in 2014.
4. “Best Technical Knowledge and Best Commitment to Work” from Carnegie Mellon University.
5. “Best Technical Paper” on Testing Frameworks from Carnegie Mellon University.
6. World topper (Brainbench) in ASP (in the year 2001).
7. All India III Rank in Semester II of Higher Diploma in Communication and Network Management from Asset Intl.
8. Scored 800/800 in Quantitative Aptitude Section of GRE.
9. School Topper in Higher Secondary.

TECHNICAL STRENGTHS

Requirements Management	Use Cases with Rational Requisite-Pro, Story Cards
Configuration Management	Version Control and Release Management with SVN, VSS and CVS, Rational Team Concert / Jazz
Architecture / Design	UML with Rational Rose, ArgoUML
Implementation	
Web	HTML, JavaScript, CSS, JSP, Servlets and ASP
Stand-Alone	Java, Eclipse Plugins, RCP, Visual Basic
Database	SQL using SQL Server, MySQL and Erwin DB Modeller
Reports	Seagate Crystal Reports, Jasper Reports
Testing	RFT, JUnit and Cactus
Performance Management	JProfiler, Rational Purify, JProbe
Build and Release Management	Eclipse PDE Releng, Ant, LuntBuild, CruiseControl, Hudson, Maven
Process / Quality Assurance	Agile (Scrum), RUP, UML Components, SEI-CMM. Software metrics gathering using jMetra

REFERENCES

Available on request.