

# VENKATESH VINAYAKARAO

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Assistant Professor, IIIT Sri City

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## RESEARCH INTERESTS

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**Information Retrieval, Software Engineering and Program Analysis.**

## EDUCATION

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### **Indraprastha Institute of Information Technology (IIIT) Delhi**

PhD Student

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

Topic: Building Code Search Engines

Department of Computer Science and Engineering

*Oct 2013 - Present*

Overall GPA: 9.43/10

### **Carnegie Mellon University**

MS in Information Technology

Specialization: Software Engineering

School of Computer Science

*Aug 2002 - Dec 2003*

Overall GPA: 4.1/5

### **University of Madras**

BE Computer Science and Engineering

Department of Computer Science and Engineering

*May 1996 - Apr 2000*

Percengate: 79%

## EXPERIENCE [11+ YEARS IN SOFTWARE INDUSTRY]

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### **Indian Institute of Information Technology, Sri City**

*Assistant Professor*

Jun 2018 - Present

- IIIT Sri City is an institute of national importance, setting best-in-class technology education standards in India. The institute was setup by the Government of India - MHRD, Government of Andhra Pradesh and Industry Partners represented by Sri City Foundation as a Not-for-Profit Public-Private-Partnership.
- **Role:** Research, Teaching and Service.

### **Microsoft Research Cambridge**

*Research Intern*

Apr 2017 - Jul 2017

- 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**

*Senior Software Development Engineer*

Jun 2012 - Sep 2013

- 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**

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**IIIT Delhi**

*Teaching Assistant*

Jan 2014 - Apr 2014

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

**IIIT Delhi**

*Teaching Assistant*

Aug 2014 - Nov 2014

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

**BITS Pilani (Off Campus - HCL Technologies)**

*Faculty/Supervisor*

Aug 2005 - Jul 2006

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

## PUBLICATIONS

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- 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

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**NIIT University, Neemrana, India.**

*Code Search - Challenges and Applications*

September 24, 2017

- 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.**

*Porting InnerEye to Azure Cloud*

June 29, 2017

- 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.**

*Modeling Source Code to Support Retrieval-Based Applications*

February 6, 2017

- 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

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

## ACHIEVEMENTS

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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.

## REFERENCES

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Available on request.