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## Jayant Kumar

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### RESEARCH INTERESTS

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Computer Vision, Document Image Analysis and Machine Learning

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### EDUCATION

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**PhD student in Computer Science** *Fall 2008 Onwards*

**University of Maryland College Park**

- Advisors : Dr. David Doermann and Prof. Larry Davis

**BE in Computer Science and Engineering** *Sept. 2002 - May 2006*

**R. V. College of Engineering, Bangalore**

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### WORK EXPERIENCE

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**Graduate Research Assistant** *Aug 2008 - Till Date*

**Language and Media Processing (LAMP) Lab**

**University of Maryland College Park**

- Working on Document Image Enhancement, Handwritten Text detection and Textline Segmentation in noisy documents and evaluation of these methods

**Research Assistant** *Feb 2007- June 2008*

**Medical Intelligence & Language Engineering (MILE) Lab**

**Indian Institute of Science, Bangalore**

- Worked for a research project titled - *Online Handwriting Recognition of Indian Languages*.  
Funded by Ministry of Information Technology, India
- Worked for a research project titled - *Field Extraction from Document Images*.  
Funded by First Indian Corporation (FIC), Bangalore, India

**Development Engineer** *July 2006 - Jan 2007*

**Aditi Technologies, Bangalore**

- Designed and implemented modules in C# for the Change Requirements related to a product called *Infospace Mobile Search*.

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### PUBLICATIONS

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- **Jayant Kumar**, W. Abd-Almageed and David Doermann, "Handwritten Arabic Text Zone Detection using A Shape Codebook", Submitted to Intl. Conf. on Pattern Recognition 2010, Istanbul, Turkey.
- **Jayant Kumar**, W. Abd-Almageed, Le Kang and David Doermann, "Handwritten Text Line Segmentation using Affinity Propagation", Submitted to Intl. Workshop on Document Analysis Systems (DAS) 2010, Boston, USA.
- Le Kang, **Jayant Kumar** and David Doermann, "An Approach for Creating Synthetic Handwritten Document Image Datasets Based on Proximity", Submitted to Intl. Conf. on Pattern Recognition 2010, Istanbul, Turkey.
- **Jayant Kumar**, W. Abd-Almageed and David Doermann, "Title skipped due to anonymity requirements", Submitted to ICML 2010.
- W. Abd-Almageed, **Jayant Kumar** and David Doermann, "Page Rule-Line Removal using Linear Subspaces in Monochromatic Handwritten Arabic Documents", Intl. Conf. on Document Analysis and Recognition (ICDAR 09), 2009. (Accepted).

- A. Srivastav, **Jayant Kumar**, "Text Detection in Scene Images using Stroke Width and Nearest-Neighbor Constraints" , In proc. of IEEE TENCON 2008 19-21 Nov. 2008 Page(s):1 - 5, Hyderabad, India
- **Jayant Kumar**, T Kasar, and A G Ramakrishnan, "Edge-based Connected-Component Approach for Skew Correction of Complex Document Images" , In proc. of IEEE TENCON 2007, Oct. 30 -Nov. 2 2007, Page(s):1 - 4, Taiwan
- T Kasar, **Jayant Kumar**, and A G Ramakrishnan, "Font and Background Color Independent Text Binarization " , Proc. of 2nd Intl. workshop on Camera Based Document Analysis and Recognition (workshop of ICDAR), pp 3-9, 2007, Brazil
- Arvind K R, **Jayant Kumar**, A G Ramakrishnan, "Line removal and Restoration of Handwritten strokes" , In proc.of Intl. Conf. on Computational Intelligence and Multimedia Applications, 2007, IEEE CS Press, Volume: 3, page(s): 208-214, Sivakasi, India
- Arvind K R, **Jayant Kumar**, A G Ramakrishnan, "Entropy based skew correction of document images" , 2nd Intl. Conf. on Pattern Recognition and Machine Intelligence, pp. 495-502, Lecture Notes in Computer Science, Vol. 4815 Springer 2007

## **TECHNICAL REPORTS**

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- Jayant Kumar, "Genetic Programming tool for Explicit Rule Extraction", Computer Science and Engineering, R V College of Engg.(2006)
- Jayant Kumar, Kiran Raj, "Parallelization of Samba on NonStop/OSS", NonStop Enterprise Division, Hewlett Packard (2006)

## **INTERNSHIP**

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### **Project Intern**

*Feb 2006 - May 2006*

### **NonStop Enterprise Division, Hewlett Packard, Bangalore**

- Undertaken BE final year project - *Parallelization of Samba on NonStop/OSS*

## **SKILLS**

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- Programming Languages - Proficient in C, C++, Familiar with C#, Java
- Familiar with OpenCV Library, DOCLIB library (UMD), LibSVM
- MATLAB - Image Processing Toolbox, LibSVM, NN toolbox, PRtools, DDtools

## **ACHIEVEMENTS & HONORS**

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- Qualified National Level Mathematics Olympiad (1999) with 84% marks
- Secured All India Rank - 406 (among 80,000 candidates) in Common Entrance Test 2002, Karnataka, India
- Qualified Indian Statistical Institute (ISI - 2002) entrance exam for B. Maths with All India Rank - 18
- Secured 100% marks in Engineering Mathematics in first year(2002-03) of BE
- Secured highest marks (98%) in University in subject - Concepts of C programming
- Secured third rank in Computer Science department in first year of bachelors

## **EXTRACURRICULAR ACTIVITIES**

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- Member of working committee in *Summer School on Document Image Processing (SSDIP)*, Indian Institute of Science, Bangalore, June 2-12, 2008
- Student member of SIAM
- Member of *Computer Society of India(CSI)*, 2004-2006
- Executive Director of Vritanth (2004-06) - Department Club of Computer Science
- Editor of *Souvenir*, Computer Science department Technical Fest Magazine(IOTA - 2005)

## **RELEVANT COURSES**

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- *Image Understanding, Fall 08* - Prof. Rama Chellappa
- *Neural Computation, Fall 08* - Prof. James A. Reggia
- *Approaches to Representing and Recognizing Objects, Spring 09* - Prof. David Jacobs
- *Design and Analysis of Computer Algorithms, Spring 09* - Prof. Samir Khuller
- *Image Segmentation, Fall 09* - Prof. David Jacobs
- *Scientific Computing I, Fall 09* - Prof. Dianne P. O'Leary
- *Computational Geometry, Spring 10* - Prof. David Mount
- *Computational Linguistics II, Spring 10* - Prof. Philip Resnik

## **REFERENCES**

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### **Dr. David Doermann**

Director, Language and Media Processing Lab.  
Inst. of Advanced Computer studies  
University of Maryland College Park  
**Email** : doermann@umiacs.umd.edu

### **Dr. Wael Abd-Almageed**

Asst. Research Scientist  
Language and Media Processing Lab.  
Inst. of Advanced Computer studies  
University of Maryland College Park  
**Email** : wamageed@umiacs.umd.edu