

Ashish Bhargave

OBJECTIVE

A challenging position involving design, simulation and implementation of signal processing or communication systems

SUMMARY

- In-depth understanding and experience with many signal processing and wireless communication techniques.
- Strong simulation/ implementation skills in C/C++/assembly/Java/Matlab
- Familiar with embedded C programming on Motorola DSP 56311
- Strong software analysis, design and development skills. Experience with large projects and web based development
- Experience with all phases of software life cycle including offshore development and maintenance

TECHNICAL SKILLS/ TOOLS

- C, C++ (Object Oriented Design), Java, Matlab 6.0, assembly languages
- Signal processing (speech and image processing) and wireless communication technologies. (MIMO, OFDM, CDMA, WLAN (802.11), LPC, modulation, detection, space-time processing, error correction codes etc.)
- Unix shell scripts, Perl, Python, MS SQL, Sybase, HTML Unix, Windows, Latex, MS-Office, Visual Source Safe

EDUCATION

Ph.D, Electrical and Computer Engineering, University of California, Irvine. 2002 - Present
MS, Electrical and Computer Engineering, University of California, Irvine. GPA: 3.83 / 4.00 Dec 2001
B.Tech, Electronics and Communication Eng., National Institute of Technology, Calicut, India (70%) Aug 1996

WORK EXPERIENCE

Broadcom Corp, Irvine, CA	System Engineer (Internship)	(Jun 03–Dec 03)
Hearing and Speech Lab, UCI	Research Engineer/Graduate Student Researcher	(Jul 00–Present)
IT Solutions, Inc, San Ramon, CA	Technical Lead/Software Engineer	(Aug 96–Aug 99)
University of California, Irvine, CA	Teaching Assistant	(Sept 99– Jul 02)

PATENTS

- “Wireless LAN receiver” applied Feb 2004 with Broadcom Corp.

PUBLICATIONS

- “Speech recognition with slowly-varying amplitude and frequency modulation cues” Fan-Gang Zeng, Kaibao Nie, Ashish Bhargave et. al. , Proceedings of the National Academy of Sciences
- “A Multi-Stage Decoding Strategy for the Multiple antenna System” A. Bhargave, Vehicular Technology Conference, Fall 2004
- “A Detection Algorithm for the V-BLAST system”, A. Bhargave, R. deFigueiredo, T. Eltoft, International Conference on Global Communications (GLOBECOM) 2001

EXPERIENCE/ PROJECTS

Broadcom Corp, Irvine, CA	System Engineer (Internship)	(Jun 03–Dec 03)
⇒ Design and simulation for next generation wireless LAN system		
• Analyzed, theoretically and with simulations, some well-known as well as novel signal processing MIMO techniques for WLAN		
• Invented a new technique useful to boost the WLAN data rates for over 100Mbps as proposed in next WLAN 802.11n standards		
• Completed extensive performance comparisons and simulations. Developed modules in C as well as used low level matlab BLAS functions in fortran/C to significantly decrease simulation run time		
• Also developed a modified viterbi detection method for two antenna system and derived/analyzed the error probabilities		
⇒ Filed a patent on wireless LAN receiver with iterative decoding.		
University of California, Irvine, CA	Graduate Student Researcher	(Jul 00–May 03)
⇒ A new speech recognition strategy for co-clear implants		
• Implemented a speech algorithm in C/assembly on Motorola DSP 56311 digital signal processor		
• Simulated the speech-processing algorithm in Matlab and developed Graphical User Interface in Matlab/Java		
⇒ Transmission and reception techniques for Multi-Input Multi-Output wireless systems		

- Invented a new detection method for the Vertical Bell Laboratories Layered Space Time (V-BLAST) system, which significantly outperforms the original detection scheme by Bell Labs, and also provides easy control over complexity-performance trade-off with the help of two parameters of the algorithm
- Developed another method for MIMO receiver, which gives improvement in performance
- Simulated the complete wireless system (transmitter and receiver) in Matlab and C to obtain error probabilities

⇒ As part of class projects, implemented various signal processing, image processing and error correction coding methods in C and Matlab (e.g. implemented turbo coder/decoder, edge detection for image recognition etc.)

University of California, Irvine, CA Teaching Assistant (Sept 99–Jul 02)

- Held discussions, review sessions and supervised laboratory assignments for DSP, Signals and Systems courses
- Held discussions and supervised laboratory work for advanced programming and data structures courses in C, C++, Java

IT Solutions, Inc, San Ramon, CA Technical Lead/Software Engineer (Aug 96–Aug 99)

- ⇒ Online Order and Commission Tracking System product by ITS
Designed the web based, object oriented system in java, with supporting CGI scripts in perl and MS SQL as backend database. The system was to track customer orders and related commissions to sales representatives. Equally responsible for, in a team of 4:
 - Involved in the complete software life cycle including design, development, testing and deployment
 - Implemented the GUI in Java and wrote CGI scripts in Perl to generate data reports in the web browser
 - Wrote the stored procedures in MS SQL. Used JDBC in java applets and perl CGI scripts to access the database
 - Wrote java modules for network connections and accessing local (client) resources
 - Completed unit testing, preliminary integration and system tests as well as performance testing
 - Analyzed different techniques like multithreading and caching to improve performance
- ⇒ Customer Risk Management System for Providian Financial, CA
The application analyzed the credit history and day-to-day credit card transactions for customers to manage their credit and related risks. Responsibilities included:
 - Development of modules and maintenance of thousands of lines of code with unix shell scripts C/C++ and Sybase
 - Development of strategy and write scripts to migrate of the data with thousands of records to the newly designed database
 - Coordination with and technical guidance for the offshore maintenance/development team
- ⇒ Maintenance and Support of the 3com website, 3Com Corporation. Santa Clara, CA
 - Helped the customer service operations group to put the web contents online on the Internet production Server
 - Administered and maintained the web pages

Some other projects in short

- ⇒ Software tool for DSP applications
 - Implemented various basic DSP algorithms (e.g. FFT, convolution, correlation, filtering) in C, C++ and tried to use the TMS 320 simulator. Worked on Speech Recognition using Time-Delay Neural Network
- ⇒ Software for Y2K impact analysis of Assembly programs, Bangalore, India
 - Analyzed IBM 360 assembly code to design and develop the C++ programs to find interrelationships and dependencies between different IBM 360 code modules, to extract date information and missing modules from the assembly files
- ⇒ Analysis, developing conversion methodology and conversion of data from FFF format to VISF
- ⇒ Testing of Web Based Data Warehouse Product

AWARDS:

- UC Regents Fellowship at UC Irvine
- Stood First in Computer Aided Design software development competition at IIT Delhi
- Stood First in the merit list at the National Level Drawing and Painting Competition in India

OTHER ACTIVITIES / SKILLS:

- Treasurer, IEEE Student Chapter at REC, Calicut
- Executive Committee member, Electrical Engineering Association at REC Calicut
- Represented the school and college soccer teams at district and state level championships
- Hobbies include photography, drawing, painting, and outdoor sports like skiing and rafting

REFERENCES: Available on request