DSP Research Laboratory

Electrical and Computer Engineering Department, Faculty of Engineering, University of Guilan, Rasht, Iran

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**Kamran Binaee**

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| **Objective** | | |
|  | Pursuing a Ph.D. Position in Medical Imaging Science in a Reputable University | |
| **Education** | | |
| Fall 2009  to  February 2012 | M.Sc. : University of Guilan, Rasht, Iran  Department of Electrical and Computer Engineering  GPA :18.15/20  Thesis: “Multiplicative Noise Removal of Ultrasound Images Using Adaptive Fuzzy Filters” Supervisor: [Dr. Reza P. R. Hasanzadeh](http://staff.guilan.ac.ir/pakrezaei/)  (19.5/20) | |
| Fall 2004  to  September 2008 | B.Sc. : University of Zanjan, Zanjan, Iran  Department of Electrical and Computer Engineering  GPA :15.10/20  Thesis: “Design and Fabrication of a Micro-step Stepper Motor Driver Using A3986 IC”. Advisor: [Dr. Vahid Rashtchi](http://www.znu.ac.ir/members/rashtchi_vahid) (19.5/20) | |
| **Honors and Awards** | | |
|  | * Ranked first in electronic engineering at the end of M.Sc. period at the university of Guilan * Ranked 4th in the national robotic competition * Ranked among the top 1% of the participants of both undergraduate and graduate university entrance exams * Ranked first among the students at the exhibition held for extracurricular activities at Alborz High school with a digital meter | |
| **Research Interest** | | |
|  | | * Digital Image / Signal processing * Medical Image Processing (Enhancement, Reconstruction, Segmentation, etc.) * Fuzzy Inference & Filters * Computational Vision and Pattern Recognition * Digital and Analog Hardware Systems Design * Robotics and Autonomous Systems |

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| **Research Experiences** | | | |
| Fall 2009  to  February 2012 | | Researches related to Digital Signal/Image Processing:   * Member of DSP research Lab. at University of Guilan and a rich experience on TI DSP processors C6000 series for implementation of medical image processing algorithms such as image enhancement, segmentation and morphological processing during M.Sc. (Under Supervision of Dr. Reza P. R. Hasanzadeh ) * Collaboration with Negah medical imaging clinic for providing real mecial ultrasound data regarding my research area during M.Sc. and especially valuable consultant with their radiologist * Extensive research on implementation of several state of the art segmentation methods mostly for US lesion extraction both using MATLAB and DSP Processor * Implementation of a user interface for radiologists medical imaging applications such as image enhancement and lesion segmentation using MATLAB * Implementation of digital filters using FPGA-XilinX as an internship during B.Sc. at ITRC | |
| Fall 2004  to  August 2008 | | Researches related to Robotic fields:   * 3 years of experience working as the head of electronic and protocol team for robotic research center during the B.Sc. at University of Zanjan and participating in national competitions with line follower and labyrinth robots and applying for an international robotic competition (china 2008) with rescue robot(Under Supervision of Dr. Saeid Fazli) * Design and fabrication of different PCBs up to size of 12\*10 cm2 consisted of analog and digital components * In depth experience in design and fabrication of several types of motor drivers for DC, Stepper and Servo-DC motors for the wheels and arms of the robot mostly using integrated components | |
| **Publications** | | | |
|  | | * K. Binaee, R. P. R. Hasanzadeh, “A Non Local Means Method Using Fuzzy Similarity Criteria for Restoration of Ultrasound Images”, *Machine Vision and Image Processing (MVIP2011), 7th Iranian Conference on*, pp. 56-60, 16-17 November 2011. ([Excellent Paper](http://mvip2011.iust.ac.ir/IJICT.pdf)) * K. Binaee, R. P. R. Hasanzadeh, “A Modified Disk Expansion method for segmentation of Ultrasound Images”, *Electrical Engineering (ICEE), 19th Iranian Conference on*, pp. 728-733, 17-19 May 2011. * K. Binaee, R. P. R. Hasanzadeh, “An Ultrasound Medical Image Enhancement Using Fuzzy Rule Base”, Journal Paper (Under Review) | |
| **Teaching Experiences** | | | |
|  | | Teaching Assistant : (Responsibilities included problem solving sessions, designing and grading both paper based and software based problem sets, exam problems and occasional lectures)   * Fuzzy Logic at ECE Department, University of Guilan ( Under Supervision of Dr. Reza P. R. Hasanzadeh ) * Microprocessor at ECE Department, University of Guilan (Under Supervision of Dr. Reza P. R. Hasanzadeh ) * Electronic III at ECE Department, University of Guilan ( Under Supervision of Dr. Alireza Saberkari) * Electronic I, II at ECE Department, University of Zanjan (Under Supervision of Dr. Saeid Fazli) * Electromagnetic at ECE Department, University of Zanjan (Under Supervision of Dr. H. Zolfkhani) * Microprocessor at ECE Department, University of Zanjan (Under Supervision of prof. Siavash Ahmadi ) * Electronics Lab II, Microprocessor Lab and Logic Circuits Lab both in undergraduate and graduate period. | |
| Spring 2009 | |
| Spring 2010 | |
| Fall 2009 | |
| Spring 2005-6 | |
| Fall 2006 | |
| Fall- Spring 2008 | |
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| **Lectures** | | | |
|  | | * Application of Fuzzy Logic in Image Processing * Image Denoising using Wavelet Transform Modulus Maxima and singularity point * Fuzzy Segmentation and Clustering * Image Processing in Robotics * Class D Audio Amplifiers * Motor Drivers Technology | |
| **Language Skill** | | | |
|  | | * TOEFL IBT score 108 (Reading : 26 Listening : 27 Speaking : 27 Writing : 28) * GRE general test score : Total 305 (1140) Verbal Reasoning : 145(380) Quantitative Reasoning 160 (760) Writing : 3/6 * Studying English at Simin Educational Association for 12 years starting from the age of five * Participated as a translator of the foreign guests, in the 13th Iranian Conference on Electrical Engineering at the University of Zanjan (ICEE 2005) during the first year of B.Sc. | |
| **Work Experiences** | | | |
| August 2010  to  present | | * **Farineh Fanavar** Working as a **digital hardware / software developer** on the firmware of IO modules: * In depth experience for development of the IO modules firmware using C/C++ on the platform of ATmega1280 AVR microcontroller considering the real time constraints * During the firmware development of the different types of Analog/Digital and input/output modules, I have gained an in depth experience in various fields of electronics both in discrete and integrated circuits * Implementation of 1MHz CAN Bus protocol (MCP2515) for data communication between the CPU and the IO modules * Design and implementation of an interface between FPGA (Xilinx) and PPC440EP for CAN Bus Redundancy | |
| **Special Skills** | | | | |
| * In depth practical experience with different microcontroller families such as AVR, ARM and PIC using their various peripherals such as Timer/Counter, USART, SPI/I2C Bus, ISR and DMA by C/C++ language in IAR Embedded workbench, Codevision and AVR Studio * In depth Experience of developing several projects in MATLAB, Simulink and its tool boxes * Intermediate experience of working with QNX Momentics IDE software for PPC405 platform and real time C++ programming * Intermediate experience of programming by VHDL and Verilog language using Quartus (Altera) and ISE (XilinX) * In depth Experience of working with Orcade and Protel DXP for hardware and PCB design * Intermediate experience of programming with code composer studio and Texas Instrument C6000 kit * In depth practical experience with many types of discrete electronic components like signal/power BJTs, MOSFETS, regulators, A/Ds, D/As, Optocouplers and integrated circuits such as CAN Controller, RAM, E2PROM, graphical and character displays, etc. | | | | |

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| **Personal Activities** |
| * Football * Swimming (The four regular strokes) * Mountain climbing * Cars and automobile technology * Music (specially Iranian traditional music) |
| **References** |
| * **Dr. Reza P. R. Hasanzadeh**, Assistant Professor, Dept of ECE, Faculty of Engineering University of Guilan, Rasht, Iran. Email: [hasanzadehpak@guilan.ac.ir](mailto:hasanzadehpak@guilan.ac.ir,hasanzadehpak@gmail.com) * [**Dr. Vahid Rashtchi**](http://www.znu.ac.ir/members/rashtchi_vahid), Associate Professor, Dept of ECE, Faculty of Engineering University of Zanjan, Zanjan, Iran. Email: [rashtchi@znu.ac.ir](mailto:rashtchi@znu.ac.ir) * **Dr. Manoochehr Nahvi**, Assistant Professor, Dept of ECE, Faculty of Engineering University of Guilan, Rasht, Iran. Email: nahvi@guilan.ac.ir * **Dr. Alireza Saberkari**, Assistant Professor, Dept of ECE, Faculty of Engineering University of Guilan, Rasht, Iran. Email: [a\_saberkari@guilan.ac.ir](mailto:a_saberkari@guilan.ac.ir) * **Dr. Saeid Fazli**, Assistant Professor, Dept of ECE, Faculty of Engineering University of Zanjan, Zanjan, Iran. Email: [fazli@znu.ac.ir](mailto:fazli@znu.ac.ir) |