Christy L. Rogers, EIT
christy*cnel.ufl.edu (use the @ character in place of the * character)

OBJECTIVE

Electrical engineering internship position for analog/mixed signal circuit research and design to acquire experience and challenge my skills and education.

EDUCATION

Present University of Florida, Ph.D. in EE, expected graduation 2007, GPA 3.84
2004 University of Florida, MS, GPA 3.82
2002 University of North Florida, BSEE, summa cum laude, University Honors, Overall GPA 3.9, EE classes 4.0
1998 Robert E. Lee High School, Valedictorian, GPA 4.57

WORK HISTORY

UF Research Assistant	UF Brain Machine Interface (BMI) project 2002 – present Designing low-power analog VLSI hardware for neural spike feature extraction and detection.
IBM Intern	IBM Microelectronics Division, Analog and Mixed Signals Group 5/01-8/01 Assisted with analog circuit simulation and chip measurements for high speed (1-3Gbps) data communications. Automated chip testing using *LabVIEW*.
UNF Lab Assistant	UNF Microprocessor Laboratory 8/00-12/00 Taught lab section of microprocessor class and graded lab experiments and notebooks.
Assistant Teacher	UNF Middle School Math and Science Summer Camp 6/00-7/00 Co-taught middle school students basic logic concepts and helped them build circuits, such as a simple calculator, to demonstrate how logic gates work.

ENGINEERING AND COMPUTER SKILLS

Analog and digital IC design, AMI .5µm
Cadence, AnalogArtist, SpectreS, SPICE
MATLAB, Mathematica, LabVIEW, Protel
C, Verilog, assembly, and Java Languages
Motorola HC11 Microcontroller coding
TI TSM 320LF2402 and 320C6713 DSP coding
Microchip PIC 16F876 coding
Altera Soft Processor and Quartus Software
Intel 8086 Microprocessor Coding and *Xilinx*
GIS *ArcView* Spatial Database
MS Office and Lotus Suites Programs
Stepper and DC Motors

GRADUATE ENGINEERING CLASSES

Bipolar Analog IC Design
MOS Analog IC Design
Analog Signal Processing
VLSI Circuits and Technology
Advanced VLSI Design
Mixed-Signal IC Test
Graduate Seminar Class
Foundations of Digital Signal Processing
Adaptive Signal Processing
Automatic Speech Processing
Advanced Speech Processing
Pattern Recognition
Image processing and Computer Vision
Introduction to Computational Neuroscience

RELEVANT EXPERIENCE

Engineering

Low-Power Analog Spike Detector

Developed and simulated a novel multi-scale wavelet based algorithm to detect neural spikes amenable to analog circuit implementation. Fabricated a chip in AMI 0.5µm technology and tested it in vivo with a rat.

MOSFETS

- Designed tunable constant G_m rail-to-rail operational amplifier circuit in TSMC 0.35µm process and used it to design a 5^{th} order G_m-C 1.25dB ripple Chebyshev lowpass filter circuit with 1MHz cutoff frequency
- Designed switch-capacitor filter circuit using TSMC 0.35µm process technology

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BJTs
- Performed noise analysis of 741 op-amp at frequencies between 1Hz and 100kHz

VLSI Group Projects
- Designed 20-bit SRAM circuit and layout in AMI .5µm technology (5 4-bit cells)
- Developed Digital NEO spike detector with BIST in AMI .5µm technology

DSP
- Implemented Wiener-Hopf and LMS for adaptive noise cancellation
- Used TDL and Gamma filter for adaptive echo cancellation
- Designed real-time pitch shifter using TI TMS320C6713 DSP with two other students
- Phoneme recognition with LPC and HFCC feature extractors and HMM-based digit recognition
- Designed the basis of a digital stethoscope or voice recognition system with another student with a DSP and additional hardware to record sound and store the waveform in the time and frequency domain

Pattern Recognition
- Classified coke and diet coke soda can images using a mixture of Gaussians model with the EM algorithm
- Spike detection algorithm using PCA and k-means clustering

Image Processing
- Wrote a program to detect balls in an image and distinctly label the pixels of each ball
- Created a program to segment leopards in natural scene images

Microprocessor
- Designed a robot with a team of two other students to play pong using an overhead NTSC camera and microcontrollers for a robotics competition
- Collaborated with another student to design an embedded Motorola HC11 microprocessor controller to maintain a solar panel's ninety-degree angle to the sun's rays and microcoded programs for the HC11

Other

Basic oral and written communication skills in the Spanish language

PUBLISHED WORK

[1] Christy L. Rogers, John G. Harris, Jose C. Principe, and Justin C. Sanchez, "An Analog VLSI Implementation of a Multi-Scale Spike Detection Algorithm for Extracellular Neural Recordings", *IEEE EMBS Neural Engineering Conference* , pp. 213-216, Alexandria, VA, Mar. 2005.

[2] Christy L. Rogers and John G. Harris, "A Low-Power Analog Spike Detector for Extracellular Neural Recordings", *IEEE Intl. Conf. on Electronics, Circuits and Systems*, pp. 290-293, Tel-Aviv, Israel, Dec. 2004.

[3] Spatial database project published in El Escribano; The St. Augustine Journal of History 2000.

HONORS AND ACTIVITIES

NSF Graduate Fellowship Recipient
University of Florida Stephen C. O'Connell Presidential Fellowship
Reviewer for IEEE Transactions on Biomedical Engineering 2003-present
Participated in Neuromorphic Engineering Workshop Summer 2003
Member Eta Kappa Nu (EE Honor Society), Phi Kappa Phi, and Golden Key (academic honor societies)
Member of Institute of Electrical and Electronics Engineering (IEEE) and Society of Women Engineers (SWE)
EFAIR participant 2003-2004
Finalist for Eta Kappa Nu National Outstanding Electrical Engineering Student Award
Third place in IEEE Region Three 2001 Student Paper Competition
Outstanding UNF Engineering Student Award 2002
Outstanding Paper by an Undergraduate Student at UNF 2001
University of North Florida Dean's List every semester
University Honors Academic Program
UNF Engineering Advisory Council Member 2000-2002
President of Society of Women Engineers (SWE) UNF Chapter 2000-2002
Organized Free EIT/FE review sessions with SWE and IEEE fall 2001, 100% of attendees passed exam
Science Fair Judge 2002
FIRST (For Inspiration and Recognition of Science and Technology) high school robotic team volunteer 2002
Junior Engineering Technology Society (JETS) volunteer 2000-2002
Intramural volleyball, flag football, and basketball teams; volleyball and basketball champion team '99–'01