Nagarjun Chakilam

Signal Processing Engineer

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Summary

- 4 years experience developing digital signal processing algorithms applying object oriented methodologies.
- 4+ years experience using MATLAB and Simulink for automated testing of streaming algorithms
- Experience in developing tools to automate processes and save engineers time.
- Experience using version control systems like Git and Perforce.
- Strong fundamentals in digital signal processing concepts and advanced MATLAB programming.
- Strong communications skills, time management skills and well-versed team player.
- Passionate about signal processing applications in audio
- Hobbies include iOS app development, audio plugin development for DAWs and Raspberry Pi programming using Swift, C++ and Python respectively.

Experience

The MathWorks, Inc. — Natick, MA

Digital Signal Processing Engineer in Test *DSP System Toolbox ™* — *Feb '12 – Present*

- Developed audio and signal processing algorithms applying MATLAB object oriented methodolies as baseline for functionality testing of shipping components in DSP System Toolbox product.
- Developed automated test suites for complex software audio and signal processing components like dynamic range control algorithms, parametric equalizer & notch-peak filters, basic filters like low pass, high pass, differntiator filters using MATLAB and Simulink.
- Tested C code generation capability of MATLAB's FIR and Biquad filters on to ARM Cortex-A (Using NE10 library functions) and ARM Cortex-M (Using CMSIS library functions) processors.
- Gathered requirements, presented software design reviews, developed and tested easy to use tools and save engineers time in developing a feature and writing automated tests in MATLAB.
- Mentored other engineers in the team on testing audio related features.
- Replaced legacy test cases with more efficient test cases without losing the code coverage and functional coverage which reduced the automated test run time by significant amount.

Signal Processing Engineer Intern ***Phased Array System Toolbox ™*** *Aug '11 – Jan '12*

- Developed functions for the Phased Array System Toolbox product in MATLAB.
- Documented and presented software designs for review.
- Fixing several software related bugs and enhancements.
- Updated the product code base to a new infrastructure that makes it easier to localize the software in different languages.

Villanova University — Villanova, PA

Research Assistant *Dec '09 – July '11*

- Developed watermarking algorithm in MATLAB to detect sonar signals in underwater acoustic channels.
- Estimated underwater channel using least squares estimation algorithm in MATLAB.
- Tested the watermarking algorithm in the estimated underwater channel and performed ROC analysis.
- Detected the watermarked sonar signal in the actual sea trials at the South Florida Ocean Measurement Facility.

Education

Villanova University — Villanova, PA

Masters degree in Electrical Engineering ***GPA: 3.97/4.0*** *2009 – 2011*

Relevant coursework include – Digital Signal Processing, Statistical Signal Processing, Radar Systems and Detection & Estimation

Jawaharlal Nehru Technological University — Hyderabad, India

Bachelor degree in Electronics & Communications Engineering ***GPA: 3.92/4.0*** *2005 – 2009*

Relevant coursework include – Signals & Systems, Digital Signal Processing, Analog Communications, Digital Communications, Linear Algebra, Matrix Theory, Probability Theory and Stochastic Processes

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Skills

Programming languages: MATLAB, C, C++, JAVA, Python, Swift

Operating systems: MAC, UNIX, WINDOWS

Tools: Simulink, Xcode, Git, Perforce, LaTeX

PUBLICATIONS

Mobasseri, B.G.; Lynch R.S.; Chakilam, N.; "Watermarking sonar waveforms using knowledge of channel coherence " *OCEANS 2010*, pp 1-8, 20-23 Sept. 2010.

Mobasseri, B.G.; Chakilam, N.; Lynch R.S.; "Sonar Watermark Embedding and Detection: A Sea Trial Report " *2012 SPIE Defense*, Security and Sensing, Baltimore, MD