

# Nagarjun Chakilam

Signal Processing Engineer

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## Summary

- 4+ years experience in signal processing software industry using MATLAB and Simulink.
- 3+ years experience in testing streaming / real-time signal and audio processing algorithms applying object oriented principles.
- 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.

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## 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 methodologies 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, differentiator 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 designs, 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 to test audio processing algorithms and other audio related features in the product.
- 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.
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## Education

**Villanova University**

VILLANOVA, PA

**Masters in Electrical Engineering** GPA: 3.97/4.0

2009 – 2011

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

**Jawaharlal Nehru Technological University**

HYDERABAD, INDIA

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

Relevant coursework – 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, L<sup>A</sup>T<sub>E</sub>X.

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## Publications

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

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