

# Justin L. Allen

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1809 E. Gary St. \* Mesa, AZ 85203

## Summary

Highly proficient in designing and implementing advanced algorithms in software and hardware systems. Proficient in acoustics, audio processing, communications, random processes. Excellent understanding and application of hardware/software development process (design review, testing, etc.). Over 11 years experience in all aspects of product development from research, design, implementation, testing, and customer demonstration. Excellent systems engineering skills with practical experience.

## Experience

### Consultant

Utz Tech, Mesa, AZ

Jan. 2005 - Present

- Consulting on all aspects of system design, testing and software development. Expertise in Communications, Audio Processing, Echo Cancellation, Noise Reduction.
- Completed projects include audio enhancement algorithm development, echo cancellation and noise reduction development, digital filter design software implementation.
- Designed audio algorithms for bass enhancement, virtual surround sound, among others

### Senior Systems Engineer

General Dynamics, Scottsdale, AZ

Dec. 2004 – Jan. 2007

- Developed complete model for communications waveform for the HMS project, supervising team of 2 engineers.
- Designed and development of communications algorithms for High Frequency Radio. Carrier Tracking algorithm, signal generation, channel equalization algorithms.

### Senior Systems Engineer

Acoustic Technologies Inc, Mesa, AZ

Dec. 1999 – Dec. 2004

- Designed and developed the Voice Activity Detection and system control algorithms for ATI's integrated echo cancellation, noise reduction, and speech enhancement product.
- Project lead for second generation product, including responsibility for integration of refinements, regression testing, and platform verification. Primarily responsible for the preparation of product for customer demonstration. This included understanding the operation of each algorithm in the system to fix

system-wide bugs and issues.

- Supervised group of 4 junior and senior level engineers in exploring possible improvements for third generation product.

## Skills

- Systems level design, test, debug, and tune.
- Software development in C/C++, assembly
- Major DSP algorithms: LMS, RLS, APA, Spectral Subtraction, VAD, Double Talk Detection, Carrier Tracking, Phase Tracking, Detection and Acquisition, Channel Equalization, CDMA, GSM, Audio Enhancement.
- Expert on Simulink modeling and S-Functions.
- Embedded software challenges and optimizations.
- Customer interaction and demonstration.
- Team supervision.
- Software:  
Matlab, Simulink, Visual Studio C++, Perl, TI Code Composer, Source Safe, Subversion, Microsoft Apps.
- Hardware:  
Audio Precision, oscilloscopes, logic analyzers, spectrum analyzers, prototype circuit construction.

## Education

Arizona State University, Tempe, AZ

- B.S., Electrical Engineering 1999
  - Graduated Summa Cum Laude
- M.S., Electrical Engineering 2005
  - Emphasis on Digital Signal Processing and Adaptive Algorithms

## Patents

Granted

1. 'Separation of Plural Bandpass Filters' - #6404278
2. 'Analog Voice Activity Detector for Telephone' - #6847930
3. 'Comfort Noise Generator Using Modified Doblinger Noise Estimate' - #7649988
4. 'RF Receiver with NLMS Channel Estimator and Method Therefore' - #7561864
5. 'Voice Activity Detector for Telephone' - #7295976

Applications

1. 'Narrow Band Shadow Encoder' - #20020097861
2. 'Dual Threshold Correlator' - #2002014156

## References

References are available on request.