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| Alan K. Hunt 15820 Knoll Trail Dr, Apt 128 Dallas, TX 75248 | **Senior DSP Systems Engineer / Scientist** (Click for [pdf](http://alankhunt.com/www/doc/AKHResume.pdf), [doc](http://alankhunt.com/www/doc/AKHResume.doc), or [docx](http://alankhunt.com/www/doc/AKHResume.docx) format.) 2 April 2024 | [AKH@AlanKHunt.com](mailto:AKH@AlanKHunt.com) Mobile: 972.896.2407 |
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**Career Focus:** Research, development, & implementation of software, systems, & applications employing DSP  
(e.g., video, speech, audio, image, wireless data comm., radar), pattern recognition, or related technologies.

**SUMMARY OF QUALIFICATIONS**

 Decades of experience in development of wide-ranging signal processing systems, from concepts to products.

 Thirteen years experience as Chief/Principal Scientist of a leading speech technology company.

 Spearheaded the development of a successful, fundamentally new speech recognition technology.

 Self-motivated, optimistic, goal-driven, excellent at speaking, writing, teaching, and presenting.

**EXPERTISE**

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|  DSP (speech, audio, image, video)   Detection, Estimation, Filtering, Tracking   Pattern Recognition   Noise Reduction   Embedded Systems |  Image Restoration and Enhancement   Real-Time System Design, Simulation, & Testing   Signal Compression (incl. Audio & Video Codecs)   Software Design, Implementation, Testing, Porting   Telecom Systems & Applications |

**TECHNICAL SKILLS**

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|  MATLAB   Simulink |  C/C++   Fortran/Pascal |  TI Code Composer   TIC6x, C54x, C2000 |  Verilog   ModelSim |

**PROFESSIONAL HISTORY**

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| **Biamp, Plano, TX** *– Senior DSP Engineer* | Jul 2022-present |

Design & implement innovative advanced audio DSP algorithms: e.g. for noise reduction, beamforming microphones, & acoustic echo cancellation. Prepare & design digital audio datasets for DSP & machine deep learning projects. Maintain, manage, and upgrade machine learning infrastructure systems and codebases. Design & implement algorithms for digital audio (speech) feature extraction.

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| **Texas Instruments Kilby Labs, Dallas, TX** *– Senior DSP Engineer/Scientist* | Mar 2021-Mar 2022 |

Developed DSP algorithms, software, & embedded systems for optical sensing products (MATLAB, Code Composer).

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|  Optical sensors |  Optimal detection, estimation & classification |  Low-SNR detection |

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| **Garrett Metal Detectors, Garland, TX** *– Senior DSP Engineer/Scientist* | Aug 2019-Jan 2021 |

Developed DSP algorithms & software for metal detection products (MATLAB, Code Composer).

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|  Metal detection systems |  Optimal detection, estimation & classification |  Clustered statistical modeling |

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| **Raytheon Space & Airborne Systems, McKinney, TX** *– Senior Principal Systems Engineer* | Jun 2019-Aug 2019 |

Developed concepts, systems, DSP algorithms & software for advanced electro-optical systems (MATLAB).

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|  Electro-optical systems |  DSP algorithms |  Statistical signal science |  Target loc. & DF |

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| **L3 Mission Integration, Greenville, TX** *– Senior Systems Engineer* | Mar 2017-Jun 2019 |

Developed DSP algorithms, HDL/RTL, & software for electronic intelligence and surveillance systems (MATLAB).

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|  Radar systems |  Spectral estimation |  Digital mod/demod. |  Interferometry & DF |

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| **Authentix, Inc, Addison, TX** *– Principal Signal Scientist* | Jan 2008-Apr 2015 |

Developed algorithms and architectures for advanced processing of high-speed multi-spectral images (TI C64x/ C64x+ embedded DSP, C/C++, Code Composer, MATLAB, Scilab, Octave).

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|  Image enhancement & noise reduc.   Eigensystem analysis |  Principal components analysis   Digital modulation (CDMA) |  Detection, estimation, classification   Multivariate param. optimization |

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| **Aava Technology, LLC, Plano, TX** *– Member of Technical Staff (Independent Contractor)* | July 2007-Jan 2008 |

Ported and optimized proprietary video codec for TI C64x embedded DSP platforms (C/C++, Code Composer, XDAIS/XDM, DaVinci, XDC, Reference Frameworks, DM642, DM6446, DM648, Scilab, OpenOffice).

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|  H263, H264, MPEG2, MPEG4 |  Wavelet & DCT compression |  Arithmetic & QM codecs |

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| **Crane Wireless Monitoring Solutions, Plano, TX** *– Senior DSP Systems Engineer* | 2003-2007 |

Developed DSP systems, algorithms, HDL/RTL, software, & firmware for adaptive wireless network communication systems (MATLAB, Simulink, Verilog, ModelSim, C/C++, Xilinx, Altera, Lattice).

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|  Adaptive Array Processing   Digital Beamforming |  Spread-Spectrum Methods   TDMA/FDMA/CDMA |  Interference Suppression   Noise Reduction |

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| **Polycom, Austin, TX** *– Principal Audio Engineer* | 2000-2002 |

Developed algorithms & software for advanced real-time audio signal processing, (C/C++, Win32, Equator, MATLAB).

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|  Speech Detection   Beamforming   Polyphase Filtering |  Acoustic Echo Cancellation   Compression/Decompression   Adaptive Filtering |  Source Tracking   Noise Reduction   Low-Delay Filtering |

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| **Applied Science Fiction, Austin, TX** *– Senior Engineer* | 1999-2000 |

Developed algorithms and software for advanced real-time photographic image processing. – Developed and supported three major blocks of image processing system on five successive environments including two real-time, multi-processor platforms, and resolved critical image noise questions (C/C++, Win32, Mercury/SAL/Altivec, Unix, MATLAB, IDL, TCL/TK, WiT).

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| **Wizion.com, Richardson, TX** *- Technology Consultant* |  | (concurrent) 1999-2000 |

Provided strategic technical direction and support to CEO and engineering staff enabling successful demonstration to seed capital investors.

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| **DNA Enterprises, Richardson, TX** *– Senior Software Architect* | 1997-1999 |

Led development of architectures, algorithms, and software for real-time signal processing applications. – Real-time OCR for high-speed document inspection & sorting applications (C & C6x asm, Win32, DOS). – PC host software (board configuration, loader, debugger, etc.) for TI C6x EVM (C/C++, Win32). – E1 framer setup & control (Motorola 56k asm). – Signal processing software for programmable telecom switch console (C & 54x asm).

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| **Voice Control Systems, Dallas, TX** *– Chief Scientist* | 1983-1997 |

Served as: primary technical contributor, consultant, and mentor to R&D staff; chief architect of all major algorithms for discrete & connected speech recognition and speaker verification; principal author of patents; lead algorithm designer during all phases of product development, from initial concepts to final fielded systems. – Developed a fundamentally new speaker-independent speech recognition technology. – Extended technology to speaker-dependent, continuous, and speaker verification applications. – Spearheaded and managed program to radically redesign technology for single-chip implementation. – Continually developed new methods to achieve performance and efficiency improvements, permitting rapid proliferation of technology into new platforms, environments, vocabularies, and languages. – Functioned as the primary consultant in solving critical-path technical problems. – Developed an extensive library of software utilities for graphical/statistical analysis, etc. – Wrote, delivered papers and presentations at technical conferences, trade shows, customer briefings, etc. – Developed algorithms and software for: advanced vector quantization; time-domain and frequency-domain signal measurement design; echo cancellation; noise suppression; fast speech coding; eigensystem analysis; multivariate parameter optimization; signal simulation; automatic in-line source code generation.

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| **Martingale Research Corporation, Allen, TX** *– Senior Scientist* | (concurrent) 1992-1993 |

Developed concepts & software implementation of digital signal processing & pattern tracking & recognition algorithms, especially for application in the areas of speech & image understanding (C/C++, Fortran, Win32, Labview, MatrixX).

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| **Texas Instruments, Lewisville, TX** *– Systems Engineer* | 1980-1983 |

Performed systems analysis and conceptual development, especially: image tracking; image restoration; synthetic image sequence generation; subpixel image registration; spatial sampling error modeling and estimation; radar signal detection, location, and identification; multisensor recognition (Fortran, VMS, IMSL).

**EDUCATION**

**Southern Methodist University, Dallas, TX**  
*PhD Program, Statistical Signal Processing – Completed all phases of program except dissertation*

**Clarkson University, Potsdam, NY**  
*B.S.E.E., M.E.E.E. – Thesis on microprocessor-based music technology*