

Ken Lindsay  
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**Skills:**

- \* Flexible team player with strong technical skills in software, graphics, real world problem solving
- \* Information analysis and visualization, Systems Analysis and optimization
- \* Software engineer: application software design, implementation and validation
- \* Computer simulation and modeling
- \* Technical writing and editing
- \* Digital signal processing (DSP) and pattern recognition (neural nets)

**Work Experience:**

**Senior Software Engineer.** UC Santa Cruz UARC, NASA Ames Research Center, Moffet Field, CA. 2008 - 2009  
Develop new features and maintain existing code in Java, C and JNI for Air Traffic Management research. Implemented new visual and data handling features for GRIB2/RUC, NOWRAD and NCWF6 weather products. GUI development and maintenance using Swing. Extensive use of Eclipse, GDB, Subversion and Clearcase.

**Senior Software Engineer.** Venture AdAstra, Wilsonville, OR. 2008  
Design and code GUI tools in Matlab for QA and Validation of advanced algorithms and simulator for basic/applied research project, which applies statistical analysis to GPS satellite signals to improve position and timing information by 1 to 3 orders of magnitude. Develop workflow for QA and Validation. Test C++ utilities for embedded custom hardware communication with Windows and Linux hosts. Mentor junior engineers.

**Software Engineer, Research Scientist, and Consultant.** tlafox. Ashland, OR. 2003 - 2008  
Conduct original, innovative research in computer analysis of music and rhythm. Write grant and research proposals and reports. Develop software using Objective-C, Cocoa, MATLAB and Java. Publish research articles. Curriculum design and development. Advisories and tutorials on computer graphics and programming. Various commercial and academic jobs during graduate school.

**Flight Simulator Development Engineer.** NASA Ames Research Center, Moffet Field, CA. 1995 - 2003  
Principal software engineer of real time graphic simulators for flight controls research. Job tasks included:  
\* Development and maintenance of 3D graphics runtime code using c/c++, OpenGL Performer.  
\* Specification/purchase and installation/maintenance of SGI and linux computer systems, high end display systems, video and support equipment.  
\* Develop and integrate 3D models of aircraft, terrain, airports, clouds and other visual elements.  
\* Utility code to support the simulator with unix scripting, TCL/TK/expect.  
\* Production of video and still images from realtime sim for NASA PR, briefings and reports.  
\* Sound effects development.  
\* Demonstrations and briefings for wide range of personnel, including NASA Administrator, Aerospace Executives, Military Officers, USA & Foreign Dignitaries, TV documentaries.  
\* Job titles: Computer Scientist, NeuroGraphic Engineer, System Analyst IV.

*Intelligent Flight Control* was on an ongoing NASA research project. Employed by several subcontractors, not a government employee. All milestones finished on or ahead of schedule to the satisfaction of NASA.

**Awards and recognition for the project:**

- \* 1998: NASA Group Technical Achievement Award
- \* 1999: Discover 100 finalist

**Software Tester.** Netscape Communications Corp, Mountain View, CA. 1994 - 1995.  
Test new internet browser product for bug identification and tracking.

**Technical Support Staff.** Industrial Light and Magic, San Raphael, CA. 1994.  
Data management and support for special effects production house.

**Engineering Staff.** Silicon Composers, Palo Alto, CA. 1992.  
Manage production for high performance embedded computer hardware and software products. Write tech manuals and documentation. Design test procedures. Design printed circuit boards.

**Software Engineer.** IMCS Corp, Santa Clara, CA. 1990 - 1992.  
Design, code and support UI and control software for automated IC tester. Provide customer support.

**Electronic Technician.** Tektronix, Beaverton, OR. 1988 - 1989.

- \* Test/calibrate and troubleshoot/repair circuit boards for TV studio monitor model 650.
- \* Build, package, document digital and analog circuitry for plasma flat panel R & D project.

**Assistant Radio Engineer and Air Host.** KRBD-FM, Ketchikan, AK. 1987.

Assist chief engineer in maintenance of radio station. Produce spots and record NPR feeds for on-air rebroadcast. Host live music shows. Check air tapes and manage weekly rotation.

**Stage Manager and Assistant Technical Director.** Naa-Kahidi Theatre, Ketchikan, AK. 1987.

Build show and manage daily operation for summer production of Native American Theatre. Record audio for 16mm film production of the play. Install/maintain computerized lighting control system.

**Assistant Radio Engineer and Air Host.** KBOO-FM, Portland, OR. 1986 - 1989.

Similar to KRBD gig. Also helped build high quality audio production studio. Produced a weekly show with summer high school students, mostly original comedy by the kids. Included lots of studio production and field recordings. Trained students in radio and audio production technique, and broadcast writing.

**Circuit Board Design Verification Engineer.** CircuitPac, Beaverton, OR. 1985 - 1988.

**Electronic Technician.** Western Transportation, Portland, OR. 1986 - 1987.

**Education:**

- 2006 Southern Oregon University. Ashland, OR. MS Mathematics and Computer Science.  
Thesis: Rhythm Analyzer, a Technical Look at Swing Rhythm in Music.  
Math coursework: Numerical Analysis, Differential Equations, Partial Differential Equations, Optimization, Complex Analysis. Wrote numerical methods code in MATLAB for differential equations including Adams-Bashforth and Runge-Kutte. Wrote MATLAB code for spectral analysis and feature extraction for thesis research in music analysis of micro-timing in rhythm. Gave guest lectures to undergraduate math classes in Fourier analysis, numerical methods, and optimization (RK4, Simplex method, neural nets).
- 2004 Southern Oregon University. Ashland, OR. BS Computer Science.  
Award: Distinguished Student Researcher of the Year, SOU School of Sciences.

Other education:

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|----------------------------------|---|
| UC Santa Cruz Extension.         | 3D graphics, and c++ object oriented programming.       |
| Foothill College. Los Altos, CA. | 3D graphics, c/c++ programming, 3D modeling/animation.  |
| SOSC. Ashland, OR.               | Theatre technology, Computer science, Radio production. |
| Reed College, Portland, OR.      | Math/Physics and Theatre/Dance.                         |
| High School                      | International School, Bangkok Thailand.                 |

**Professional Training:**

- 2004 Regumed Institute, Germany. Electromagnetic bioresonant therapy principles and practice.
- 2001 Maya API conference.
- 2000 ISO 9000/9001 certification training, NASA Ames Research Center.
- 2000 Alias/Wavefront Global Users Association (AWGUA) conference.
- 2000 Multigen, Inc. Realtime 3D modeling.
- 1998 Silicon Graphics. IRIX system administration.
- 1997 Silicon Graphics. Realtime 3D graphics programming with OpenGL Performer.

**Publications:**

*A Technical Look at Swing Rhythm in Music.* Journal of the Acoustical Society of America, November 2006.

*The Science of Ray Charles' Swing.* Discover Magazine, April 2007 (news feature. author: Dave Mosher).

*More Than a Feeling: Technical Analysis of Swing Music.* Acoustics Today, July 2007.

*Pulse and Swing: Quantitative Analysis of Hierarchical Structure in Swing Rhythm.* Journal of the Acoustical Society of America, November 2007.

**Software:**

- \* 3D graphics: OpenGL, JOGL (Java OpenGL).
- \* Programming languages: c, c++, MATLAB, Java.
- \* Operating systems: Macintosh OS X, unix, linux, IRIX.
- \* 3D modeling/animation: Maya, Multigen, Softimage.