

# Makoto Sadahiro

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## EDUCATION

**M.S. Geosciences/Geophysics:** The University of Texas at Austin, Jackson School of Geosciences

Thesis: Analysis of GPU-based convolution for acoustic wave propagation modeling with finite differences  
(<https://repositories.lib.utexas.edu/handle/2152/25746>)

**B.A, B.S. Computer Sciences:** The University of Texas at Austin, Department of Computer Science

**B.F.A. Photo/Electronic Imaging:** University of Massachusetts Dartmouth, College of Visual and Performing Arts

## SKILLS

**Expertise/experience in:** Scientific/Engineering Data Processing and Visualization, Immersive Environment Systems, ETL/Digitalization, Systems/Development Operations, Kafka, Flume, Hadoop, AWS

**Software development in/with:** Python, Java, C/C++, CUDA, Fortran, shell script, PIG, HTML, 68k Assembly, Pascal, BASIC, Tcl/Tk, LISP; CAVELib, FFmpeg, VRPN, Kivy, STL, Boost, OpenGL, Open Inventor, VRML, GD, Motif

**Spoken language:** Japanese (native), English (fluent)

## EXPERIENCE

### Perfect Price

August 2015 -

### Software Development Engineer

San Francisco CA

Software development for ETL and Data pipeline, system/development operations, and security for “market pricing” machine-learning systems

- Systems/Development operations and security for AWS-hosted and on-premise systems
- Software development for ETL and data pipelining/processing, internal systems, and development tools
- AWS administration
- Compliance (SOC2)

### Landmark Graphics Corp

June 2014 - May 2015

R&D Seismic Data Processing

Denver CO

### Scientific Software Developer

Software development for geophysical seismic/signal processing software suite (SeisSpace/ProMAX)

- Improvement for existing geophysical data processing software modules
- Secure on-line installation management GUI tool for modules

### Landmark Graphics Corp

May 2013 – August 2013

R&D Graphics

Houston TX

### Graphics Software Developer, Summer Intern

Software development for geoscience visualization software suite (Decision Space)

- Development of a prototype gesture-based navigation user-interface for multi-touch display

### The University of Texas at Austin, Jackson School of Geosciences

September 2012 - May 2014

Institute for Geophysics / EDGER FORUM

Austin TX

### Graduate Research Assistant

Software development for seismic data processing and performance analysis on GPU

- Development and analysis of GPU optimization methods for wave propagation modeling/simulation

**The University of Texas at Austin, Texas Advanced Computing Center**

Scientific Visualization and Data Analysis

July 2003 – August 2012

Austin TX

**Research Engineer/Scientist Associate**

Deployment of large-scale multi-pipe immersive graphics systems and OpenGL-accelerated remote visualization systems

- Hardware/software integration of CAVE system; Multiple large scale graphics systems, 360 degree surround-display system, 3-D stereo display, and head tracking system
- User-interface hardware and API development to support usabilities in immersive environment; virtual keyboard, wireless connectivity with auxiliary keys/switches, and haptic feedback

Software development for consulting, collaboration research projects, and internal tools

- Parallel rasterization and composition of very large spatially/temporally segmented finite element simulation data
- Development of seismic wave propagation modeling (post-stack 2-D reverse time) code
- Server-side video processing engine to create meta-data, fast-play clip, scene change detection, etc
- Information visualization and data analysis for children's learning process, allowing education researchers to analyze the data and develop better methodology of their study
- Paint program for custom-built multi-touch-screen system (demo at IEEE Supercomputing 2011)

Collaboration and consultation for academic researchers in nationwide for data analysis and visualization projects

- Consultant for TeraGrid/XSEDE in various fields of disciplines; collaborations to produce visualization results for nation-wide researchers'/scientists' research projects
- Development/deployment of low-cost webcasting infrastructure for real-time/archived remote trainings
- Consultant for the on-campus academic units for specification, configuration, and troubleshooting on their 3-D stereo display systems and immersive/visualization systems
- Creating user guide for large-scale production graphics systems and immersive environment
- Coordinating scientific visualization trainings and training contents

Visualization research lab facility management

- Maintaining visualization lab functionality, managing lab proctors for their duties and internal projects, negotiations for facility constructions/maintenances, coordination with system administrators for system maintenance issues, managing facility schedules and performed facility/system demonstrations in events/conferences (IEEE Visualization/Supercomputing)

**Hitachi Medical Corporation**

MRI Systems

January 2003 - June 2003

Kashiwa-city Chiba Japan

**Software Developer**

Various tasks about the imaging software for Hitachi's medical MRI scanner systems

- Specification and development management for a new medical imaging system
- Development of new features and maintenance of imaging/navigation software components
- Building test environment for DICOM data communication conformance/integrity
- Testing DICOM data communication conformance/integrity with the other medical equipment manufacturers
- Research in imports/exports regulations for technology, such as encryption
- Demonstration of Hitachi MRI products in medical trade shows

**The University of Texas at Austin, Oden Institute for Computational Engineering and Science**

June 1998 - January 2001

The Center for Computational Visualization

Austin TX

**Research Engineer Intern / Undergraduate Research Assistant**

Creation and administration of data repository

- Building automated on-demand demo system for the scientific/engineering data repository
- Software development for data processing and validation tools for multidimensional scientific/engineering data
- Designing in-house multipurpose file format specifications
- Documenting user manuals for in-house custom software and data repository

**HouseWorks Software**

August 1995 - March 1996

**Lead Artist**

Austin TX

Creation of all visual and environmental aspects for 3-D first-person perspective shooter game

- Creation of game user interface, level/stage design, character design, and environment textures library