Makoto Sadahiro

San Francisco Bay Area | +1 (628) 243-2729

sadahiro@gmail.com | https://sadahiro.github.io

SKILLS

Expertise:

Software Development, ETL, Scientific/Engineering Data Processing and Visualization, Immersive Environment Systems

Environment:

Language:

Assembly, BASIC, C/C++, Fortran, Go, Haskell, HTML, Java, Lisp, Pascal, Pig, Python, Shell Scripts, Tcl/Tk, Lisp, VRML, etc.

Library/Module:

Boost, CAVElib, CUDA, FFmpeg, Flask, GD, Kivy, Motif, OpenGL, STL, SQLAlchemy, VRPN, etc.

Infrastructure:

AWS, Docker, Flume, Git, Hadoop, Jenkins, Kafka, NGINX, Pipenv, Redis, SQL/NoSQL, Terraform, uWSGI, etc.

Spoken Languages:

English (fluent), Japanese (native)

EXPERIENCE

Software Engineer in Backend Engineering, **Grabango**   11/2022 - 06/2023, Berkeley, CA

Grabango is 100+ person start-up company which offers checkout-free technology for grocery/convenience store chains

- Developed for cashier-free checkout transaction flow infrastructure to serve API endpoints   (Python, Shell Script; SQL, Docker)
- Developed for POS/pricing infrastructure to serve API endpoints, to extend the feature for complex sets of discounts and tax reporting

    (Python, Shell Script; SQL, Docker)

- Developed test utilities for pricing/tax/promotion calculations against ingested data model and historical/external data for extended unit-testings and accuracy improvement measures by code changes   (Python, Shell Script; SQL, Docker)

Software Engineer in Backend Data Platform Engineering, **HouseCanary**   01/2020 - 09/2022, San Francisco, CA

HouseCanary is 150+ person start-up company, which serves various housing market data and valuations

- Developed for micro-service data platform infrastructure to serve API endpoints   (Python, Go, Shell Script, SQL; AWS, Docker, Terraform, NGINX)
- Developed for the query quality monitoring infrastructure with tracing/logging across all data platform services

    (Python,, Shell Script, Go, AWS, Docker, Terraform, NGINX)

- Developed/Maintained for scaling/monitoring/alarm infrastructure across all data platform services

    (Python,, Shell Script, Go, AWS, Docker, Terraform, NGINX)

Software Development Engineer in Backend and Data Engineering**, Perfect Price**   08/2015 - 08/2019, San Francisco/Oakland, CA

Perfect Price is 10+ person start-up, which serves optimal pricing data for e-commerce

- Developed internal tools , such as continuous integration, alerting, database migration   (Python, Java, Shell Script; AWS, Hadoop; mySQL)
- Developed production tools for ETL, data pipelining/management   (Python, Java, Pig, Shell Script; AWS, Kafka, Flume, Hadoop; mySQL)
- Managed AWS resources as the company's AWS admin, created company system/network security
- Deployed/Implemented/documented all engineering-side requirements for SOC 2 certificate

Software Developer in R&D Seismic Data Processing, **Halliburton|Landmark Graphics Corp.**   06/2014 - 05/2015, Denver, CO

Landmark Graphics is a branch of Halliburton (60K+ employees), which develops software suites for oil and gas exploration

- Developed geophysical data processing software modules for the software suite   (Java, C, Fortran, Shell Script, Lisp)
- Developed module/extension-management GUI tool, enabling secure and trusted software management   (Java)

Software Developer Summer Intern in R&D Graphics, **Halliburton|Landmark Graphics Corp**   05/2013 – 08/2013, Houston, TX

- Developed a gesture-based user-interface for multi-touch display, enabling complex but intuitive navigation in 3-D space (C/C++, Java)

Graduate Research Assistant in Geophysics, EDGER FORUM,

The University of Texas at Austin, Jackson School of Geosciences / Institute for Geophysics 09/2012 - 05/2014, Austin, TX

EDGER FORUM is a geophysics research group under Jackson School of Geosciences and Institute for Geophysics at The University of Texas at Austin

- Developed GPU-based code for the performance optimization and analysis of acoustic wave propagation model (C/C++, Fortran, CUDA)

Research Engineer/Scientist Associate in Scientific Visualization and Data Analysis,

The University of Texas at Austin, Texas Advanced Computing Center 07/2003 – 08/2012, Austin, TX

Texas Advanced Computing Center is one of the largest high-performance computing center, which serves academic research nationwide

- Developed software tools/workflow for processing large-scale scientific/engineering data of various kinds, such as 3-D geometry, multi/high-dimensional volume, finite element, and etc, for visualization (C/C++, Shell Script, ParaView, Amira, VTK, etc)
- Developed software tools/workflow to accelerate existing data processing workflow as much as 100+ times (C/C++, Shell Script, Unix Tools)
- Deployed immersive environment (CAVE) system; 360-degree 3-D stereo display system with 10+ projector and head tracking system, which involves with both hardware/software integration and development, enabling one of very few operational immersive systems in the nation to display scientific data (C/C++, CAVElib, VRPN, Unix Tools)
- Developed software/API/hardware for in-house-built systems, such as virtual keyboard and wireless connectivity with auxiliary keys/switches, and haptic feedback for the immersive environment, and multi-touch table screen (C/C++, Python, OpenGL, CAVElib, OOPic)
- Developed video processing engine for THE OPEN VIDEO PROJECT, which is the first free academic video server, creating various media types and meta-media via functions, such as scene change detection, animated GIF, fast play clip, etc (C/C++, FFmpeg, Shell Script)
- Developed paint program for in-house multi-touch screen system, demonstrated at IEEE Supercomputing (Python, Kivy, Shell Script)
- Deployed custom-made webcasting/recording infrastructure for remote trainings (Shell Script, various software/hardware)
- Maintained visualization lab functionalities and proctors as the lab manager for internal projects/tasks
- Supported researches as a data visualization/analysis consultant nation-wide via academic e-science computing network (TeraGrid)

Software Developer in MRI Systems, **Hitachi Medical Corporation** 01/2003 - 06/2003, Kashiwa-city, Chiba Japan

Hitachi Medical Corporation is the manufacture of Hitachi's medical scanners

- Developed imaging software components of Hitachi MRI medical scanners (C/C++, Motif, etc)
- Developed test for Inter-vendors DICOM connectivity/compatibility (C/C++)

Research Engineer / Undergraduate Research Assistant, The Center for Computational Visualization,

The University of Texas at Austin, Oden Institute for Computational Engineering and Science 06/1998 - 01/2001, Austin, TX

The Center for Computational Visualization is a research group, which specializes in the visualization of scientific/engineering data

- Developed data processing and validation tools for multidimensional scientific/engineering data (C/C++, Tcl/Tk, Shell Script, VRML)
- Built on-demand data processing flow for the visualization of scientific/engineering data repository (C/C++, Tcl/Tk, Shell Script, VRML)

Lead Artist, Game Development, **HouseWorks Software** 08/1995 - 03/1996, Austin, TX

HouseWorks Software is 4 person start-up company, which creates first person perspective 3-D shooting game

- Created game GUI, level/stage, enemy characters, and environment textures library for 3-D first-person perspective shooter game

(Strata Studio Pro, Adobe Photoshop, etc)

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

Makoto Sadahiro June 2023