Katherine Paragas Pasalo

Video Game Generalist

South San Francisco, CA 94080

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Skills

Game Development	Unity, Unreal Engine 5, Max/MSP, FMOD, Cakewalk by Bandlab
Machine Learning	Deep Learning, Clustering, Classification, Regression, Regularization
Digital Signal Processing	Fourier Transformations, Sinusoidal/Residual Modeling, Harmonic Modeling
Programming	C++, C, C, Python, AWS, R, SQL, Git, Bash, Docker
Packages	Librosa, Essentia, mir_eval, statsmodels, Scikit-Learn, Pandas, Keras, TensorFlow, PyTorch
Tools	Microsoft Suite, Google Workspace, LaTeX, Jira, Miro, Notion
Musicianship	Ensemble performance, production, arranging, improvisation (e.g. Jazz), stage communication
Multi-Instrumentalist	Piano, guitar, percussion, ukulele, trombone, harmonica, flute
Soft Skills	Diligence, attention to detail, flexibility, self-management, communication, integrity

Experience

Pianist
San Francisco, CA

GRACE UNITED METHODIST CHURCH
June 2015 - Present

- Provide piano accompaniment for congregational and choir singing during worship services.
- Determine instrumentation and fill in (e.g. as guitarist, drummer) as needed.
- Direct choir and organize other events hosted by the church (e.g. baptisms, funerals, etc.)
- Select songs for music sets to achieve diversity in musical style and relevance to seasonality.
- Interpret and modify music genres to cater to traditional or contemporary audiences.
- Sight-read musical pieces during initial rehearsals and worship service.
- Impromptu harmonic and melodic composition given lyrics.
- During pandemic, compose and produce electronic renditions of Christian songs for use in virtual service.

New Product Introduction Engineer
Fremont, CA

AMERICAN PORTWELL TECHNOLOGY, INC.
September 2022 - February 2023

- Provide technical and engineering deliverables to meet customers' specification expectations.
- Implement machine learning benchmarks and define requirements for NVIDIA IGX products.
- Give hardware and software support for medical robotics systems, firmware, and linux-based applications.
- Produce procedural documentation and add testing practices for end-to-end product development cycle.

Catalog Quality Coordinator
Remote

SPOTIFY | RANDSTAD
October 2021 - December 2021

- Analyze and annotate large data sets and escalate any issues accordingly.
- Ensure high quality content (metadata, audio, images, etc) from partners.
- Perform quality assurance checks on delivered assets in relation to Metadata Style Guides.

Barista
South San Francisco, CA

DEAD EYE COFFEE BAR
October 2021 - December 2021

- Produce high quality hand crafted coffee, tea, and other beverages while adhering to recipes and presentations.
- Confidently retain specialty coffee knowledge on current roasters and accurately communicate product information.
- Warmly speak, interact, and provide customer service with both new and regular customers.
- Follow health and safety guidelines and maintain tidy workspace at all times.
- Assist customers with coffee bean purchase needs and inquiries.

Lead Data Scientist
Remote

PATTERN AI
September 2020 - April 2021

- Launched automated clustering infrastructure for customer segmentation machine.
- Produced metrics for evaluating business value and statistical validation in clustering models.
- Designed grid search algorithm for unsupervised machine learning models.
- Created and maintained documentation for AWS Step Function components and research studies.
- Delivered dynamic data cleaning script with unit tests for AWS Lambda Functions and EC2 instances.
- Amplified insights extracted from customer-specific studies to those with various backgrounds.
- Integrated Digital Signal Processing to extract spectral features for meeting / behavioral analytics application.

Presentations

Sacred Heart Cathedral's Women's Empowerment Catholic Community Cohort   *San Francisco, CA*

PANELIST FOR WOMEN IN STEM ALUMNI PANEL   *November 18, 2020*

- Introduced technology of data science and the AWS stack for web application development.
- Explained rigor of university education and competition in the industry as a woman.

Writing

Vocadito: A dataset of solo vocals with f0, note, and lyric annotations   *Technical Report*

CO-AUTHOR   *October 2021*

- Provide improved evaluation of vocal note estimation algorithms.
- Demonstrate the subjectivity of pitch perception with agreement metrics.
- Collect sung recordings and create f0 and note annotations using the Tony software.
- Acquire baseline results for different vocal note and pitch tracking algorithms on dataset.
- Present to Late Breaking Demo Session at International Society of Music Information Retrieval 2021 Conference.

Projects

cross

FIRST-PERSON HORROR GAME   *January 2024 - Present*

- Manage project tasks with scrum board in Notion.
- Program character movement mechanics for intuitive player use.

City Kitty

2D SIDE-SCROLLING PLATFORMER   *October 2023 - Present*

- Draft and refine game design document in Notion according to desired game specifications.
- Create hi-bit pixel art assets (e.g. sprites, tilesets, game objects) in Aseprite.
- Full-stack development of game mechanics (UX/UI, combat, enemy behavior) using Unity engine.
- Produce sound design and background music using Cakewalk and implement with FMOD.

K-Means Discography Clustering

UNSUPERVISED MACHINE LEARNING AND DATA STORYTELLING   *August 2020*

- Process audio from five albums of music from the same artist and extracted spectral features.
- Customize figure design with subplots for pleasant readability in Jupyter Notebook.
- Effectively communicate feature correlation with cluster visualization.

Song Mood Identification

CLASSIFICATION WITH KERNEL SUPPORT VECTOR MACHINE ALGORITHM   *August 2020*

- Train and test Kernel SVM machine learning model for mood predictive classification.
- Optimize prediction accuracy with dimensionality reduction and parameter tuning.
- Reach an accuracy increase of approximately 20% after feature and model selection.

Automated Harmonic Analysis

EXTRACTING CHORDS FROM A SONG   *August 2020*

- Utilize segmentation of audio by tempo and music theory to extract song structure.
- Perform harmonic percussive source separation on audio signal.
- Acquire chromagram and harmonic pitch class profile from audio.

Feature Selection Program

MACHINE LEARNING ANALYSIS   *October 2019 - December 2019*

- Implement forward selection, backward elimination, and original algorithm on dataset input.
- Obtain relevant feature sets for corresponding size-varied datasets.
- Analyze the performance of each algorithm comparatively.

Linux Exploitation

BASED ON CVE 2014-0038   *October 2019 - December 2019*

- Use unchecked variables in 32-bit recvmmsg system call to overwrite cred.
- Escalate user privilege to root.

Character Detection

NATURAL LANGUAGE PROCESSING   *May 2019*

- Observe the accuracy and precision of the Stanford Named Entity Recognition (NER) Tagger.
- Collect various classic novels into single directory, and use python script to import file contents.
- Used Stanford NER Tagger to detect and extract character names into a pandas data frame.
- Compared output with existing character datasets, and store results in text file.

Music Information Retrieval Instructional Notebooks

OPEN SOURCE PROJECT *August 2020*

- Create pull request to optimize Jupyter Notebooks for Python 3 environment compatibility.
- Update obsolete modules, ensuring smooth execution of notebooks.

Turnips

SPEED FARMING SIMULATOR *March 2019 - May 2019*

- Develop a farming game with Unity 3D and Oculus Rift.
- Compose game logic specs and delegate tasks to team members.

Magician's Mission

1-BIT SIDESCROLLER *June 2018 - July 2018*

- Connect appropriate breadboard components to ATMega1284-PU microcontroller.
- Write component drivers (i.e. LCD display, buttons, shift registers, etc.) and implement game logic in C.
- Use bit representation to define custom characters (i.e. player, enemies, heart points) for use on LCD.
- Utilize electrically erasable programmable read-only memory to maintain a consistent high score.

Education

University of California Riverside

Major GPA 3.62

B.S. IN COMPUTER SCIENCE AND ENGINEERING *September 2015 - December 2019*