

Kuene: A Web Platform for Facilitating Hawaiian Word Neologism

2025
ComputEL-8

Sunny Walker, Winston Wu, Bruce Torres Fischer and Larry Kimura
University of Hawai'i at Hilo

Hawaiian Neologism Process

1. **Kōmike Hua'ōlelo**
The Hawaiian Lexicon Committee develops new and updates existing words and definitions through numerous meetings and discussions.
2. **Kuene - Input**
Kuene users, committee members and designated supporters, input the Committee's drafts into the platform.
3. **Kuene - Editing**
Users build on the work with enhancements such as example sentences, cross-references, and more.
4. **Kuene - Publish**
Select privileged users publish finalized entries to widely used online dictionaries.



Approval Stages

As a headword and its definition(s) are edited, they must be approved through each stage to progress to publication.

Examples:

0X - introduced

1X - discussed once

2X - discussed twice

Draft - building full entry

Final draft - Last review before publishing

Published - Viewable by public

Rejected - Not approved for publication

All Approval States

Approval State	Icon	Symbol	Sort Or...	Is done	Is notifi...	Is acce...	Is rejec...
<u>0X</u>	fa-comment-o	0X	0	✗	✓	✗	✗
<u>1X</u>	fa-commenting-o	1X	20	✗	✗	✗	✗
<u>2X</u>	fa-star-o	2X	40	✗	✓	✗	✗
<u>Ho'opiha</u>	fa-pencil	🖋	60	✗	✓	✗	✗
<u>Loihape</u>	fa-pencil	🖋	80	✗	✓	✗	✗
<u>Puka</u>	fa-book	?	100	✓	✗	✓	✗
<u>Ho'opane'e</u>	fa-circle-o-notch	◦	199	✗	✗	✓	✗
<u>Kāpae 'ia (loa'a mua)</u>	fa-circle-o	◯	200	✓	✗	✗	✓
<u>Kāpae 'ia (pono 'ole)</u>	fa-ban	⊘	210	✓	✗	✗	✓

First Prev 1 Next Last

Create a Approval State

Approval State: Icon: Symbol: Sort Order:

Is done Is accepted Is rejected Is notifiable

Headwords

- Add a headword in any language
- Optionally redirect to other headwords (“menus” -> “menu”)
- Duplicate checking
- Pronunciation/syllables
- Optional alternative display, such as for italics (“writ of *habeas corpus*”)
- Support for Hawaiian alphabetic sorting: aeiouhklmnpw⁶
- Support for searching with and without diacritics (‘okina, kahakō)

Headwords

All Headwords

Filter by letter: - A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Headword	Langu...	Approval State	Pronunciation	Redirect to headword	Notes
Kānana kolamu...	Kānana k	Kānana kolamu...	Kānana kolamu...	Kānana kolamu...	Kānana kolamu...
1202			277	8	3
maī'a Honomanū <small>[haw]</small>	haw	Puka	maī'a Hono•manū		
maī'a 'ōpehupehu <small>[haw]</small>	haw	Puka	maī'a 'Ō•pehu•pehu		
maī'ao <small>[haw]</small>	haw	Puka	maī•'ao		
maidenhair fern <small>[en]</small>	en	Puka			
maika <small>[haw]</small>	haw	Puka	maika		
maikenī <small>[haw]</small>	haw	Puka	maī•kenī		
māiki <small>[haw]</small>	haw	Puka	māiki		
māikikalame <small>[haw]</small>	haw	Puka	māiki•kalame		
maikolona <small>[haw]</small>	haw	Puka	maiko•lona		
Maikonesia <small>[haw]</small>	haw	Puka	Mai•kone•sia		
mail <small>[en]</small>	en	Puka			
mail merge <small>[en]</small>	en	Puka			
maile ho'ōili <small>[haw]</small>	haw	Puka	maile ho'ō•ili		
maile pana <small>[haw]</small>	haw	Puka	maile pana		
mailing list <small>[en]</small>	en	Puka			
main clause <small>[en]</small>	en	Puka			
main dictionary <small>[en]</small>	en	Puka			
main idea <small>[en]</small>	en	Puka			
main menu <small>[en]</small>	en	Puka			
māina <small>[haw]</small>	haw	Puka	māina		

Mua loa Ma mua 4 5 6 7 8 Ma hope Hope loa

Create a Headword

Headword:

Language of this Headword: Syllables: Approval State: Redirect to headword:

Public Notes:

[+ Add](#)

Definitions

- Ordinal for sorting and direct reference
- Part of Speech
- Approval Stage
- Link to external resources such as original sources
- Tagging
- Hyperlinking

pā

Update «pā» Search Results for "pā" ↗

Headword: [no ` , ' , " , etc. ; 'okina & kahakō are ok] Headword display: [_Italics_ , **Bold**]

pā → Copy headword

Language of this Headword: 'Ōlelo Hawai'i Syllables: (dot) Approval State: Puka Redirect to headword:

Public Notes:

✓ Save ↶ Cancel ✖ Delete...

4

Definitions Headword Comments Change log

#1 (Puka) | en Update

pā

#1: [kikino] Disk.

Usages:

- Preceded by ke.

Sources:

- Dic., ext. mng.

Related words:

- Pā ho'omaka (startup disk).
- Pā kamepiua (computer disk).
- Pā ma'ema'e (blank disk).
- Pā malu'e (floppy disk).
- Pā ma'elaha waha (removable hard disk).

#2 (Puka) | en Update

pā

#2: [kikino] Disk, the first note on the musical scale.

Sources:

- Dic.

References:

- See pāko'i.

Tags: music

#3 (Puka) | en Update

pā

#3:

Related words:

- Huiña pā X (X-intercept).
- Huiña pā (intercept, in math).

Tags: math

#4 (Puka) | en Update

pā

#4:

Related words:

- Kona mikini holoj pā (dishwasher soap).
- Mikini holoj pā (dishwasher).

+ Create a Definition

Headword: pā

Definition: [Hyperlink] _Italics_ _Bold_ <code>Code </code> <mark>Mark</mark> [W]

MMK 2003

Ordinal: 5 Language of this Definition: 'Ōlelo Hawai'i Part of Speech: —none— Approval State: Puka Index/Link: External Id:

Tags: Select a tag to add... none

✓ Add

Attributes

Additional details for definitions, such as:

- related terms
- alternate spellings
- internal notes
- example sentences
- context
- and more...

ana

Update [ana](#)

Puka

| Ōlelo Hawaiʻi

Search Results for "ana" ↗

Definition:

Labels [Hyperlink] *Italics* **Bold** `<code>Code </code>` `<mark>Mark</mark>` [A] [W]

MMK 2003

[Measurement]; [dimension].

Ordinal: Language of this Definition: Part of Speech: Approval State: Index/Link: External Id:

Tags:

Select a tag to add...

Preview

Attributes ⁸

Definition Comments

Attachments

Change log

Connections

- Context: In math. [Update](#)
- Also [nui]. [Update](#)
- He laʻana _ʻEhia ke ana o kēia lumi?_ What are the dimensions of this room? [Update](#)
- Kūmole Dic., ext. mng. [Update](#)
- Related term: [Ana ākea], [ana laulā] (width). [Update](#)
- Related term: [Ana hohonu], [ana kiʻekiʻe] (height). [Update](#)
- Related term: [Ana loa], [ana lōʻihi] (length). [Update](#)
- See entries for [ana *]. [Update](#)

Attribute Type:

Index/Link:

Attribute:

[Hyperlink] *Italics* **Bold** `<code>Code </code>` `<mark>Mark</mark>`

Dic Dic ext mng New mng Ext mng Sp var Mān Niʻihau Eng pre-ke

see below Cf? See? Lit? Abb.? Context? [A] [W]

MMK 2003

Attribute Sources

Sources allow entry inventory aggregation and linking to online source resources such as scanned copies.

Preview
Attributes 4
Definition Comments
Attachments
Cha

- Example [1] If any parent, adopter or guardian fail, **without cause** satisfactory to the s constantly to school, between the age of four and eight years, the parent, adopter o exemption from taxes.... 1846 Statute Laws E p. 199 [Update](#)
- Example [1] Ina he keiki iwaena o na makahiki eha, a me ka walu, a hoouna ole kona manawa a pau, a manao ke kahu kuia o ia wahi, **aohe kumu** o keia hoouna ole ana, a kahu keiki, i ka auhau.... 1846 Kanawai p. 155 [Update](#)
- End Note [10] All loud halloing and other noise by night are taboo. If one call loudly **without good reason** for thus calling, or make a noise **without a reason** for it, or sour fault, and shall be fined.... 1842 Cons & Laws E p. 135 [Update](#)
- End Note [10] Ua kapu ka walaau nui ana i ka po, a me ke kani o na mea e ae. Ina i ka **kumu** no ke kahea ana a walaau paha, **aohe kumu** o ka walaau ana a hookani i na m e hooukuia oia.... 1840 Kumu Kanawai p. 99 [Update](#)

Attribute Type:

Example
▼

Attribute:

Source Book:

—none—
∅

Index/Link:

Sort Order:

Language of this Attribute:

—none—
∅

+ Create

✍ [Hyperlink]

Italics

Bold

«Endnote Context»

✍ Sip attribute

Attribute Sources Aggregation

1846 Kānāwai i Kau 'ia e Ka Mō'ī, E Kamehameha III, Ke Ali'i o ko Hawai'i Pae 'Āina

About 1846 Kānāwai i Kau 'ia e Ka Mō'ī, E Kamehameha III, Ke Ali'i o ko Hawai'i Pae 'Āina: Kanawai I Kauia E Ka Moi, E Kamehameha III., Ke Alii O Ko Hawaii Pae Aina: Ua Hooholoia E Na 'Lii Ahaolelo A Me Ka Poeikohoia, I Ka Makahiki Iwakaluakumamakahi O Kona Noho Aupuni Ana, A I Ke Kolu A Me Ka Ha O Kona Noho Kuokoa Ana, A.D. 1845 A Me 1848. Ua Huipuia Mai Na Olelo Ae I Ke Kuokoka Ana, A Me Na Kuikahi Me Ko Na Aina E. Honolulu, Oahu: Mea Pai Palapala A Na Misionari Amerika. 1846.

Words from this source: [afidevita](#), [alodio](#), [hō'ole](#), [inoa i mahalo 'ia](#), [laibela](#), [lawe malū](#), [lōio](#), [palapala ho'omoe ma ke 'ano moraki](#), [palapala pāpā](#), [pā'ewa'ewa 'ole](#), ['Aha Kī'eki'e](#), ['aha ho'ohaunaele](#), ['aha ho'okolokolo](#), ['aha ho'okolokolo ka'apuni](#), ['aha ho'okolokolo koa](#), ['aha ho'okolokolo no nā haole](#), ['aha kipikipi](#), ['ai'ē maoli](#), ['a'ohe kumu](#), ['āpana](#)

1846 Statute Laws of His Majesty Kamehameha III, King of the Hawaiian Islands

About 1846 Statute Laws of His Majesty Kamehameha III, King of the Hawaiian Islands: Statute Laws Of His Majesty Kamehameha Iii, King Of The Hawaiian Islands; Passed By The Houses Of Nobles And Representatives, During The Twenty-First Year Of His Reign, And The Third And Fourth Years Of His Public Recognition, A.D. 1845 And 1846: To Which Are Appended The Acts Of Public Recognition, And The Treaties With Other Nations. Vol. I. Honolulu, Oahu: Charles E. Hitchcock, Printer, Government Press. 1846.

Words from this source: [afidevita](#), [alodio](#), [hō'ole](#), [inoa i mahalo 'ia](#), [laibela](#), [lawe malū](#), [lōio](#), [palapala ho'omoe ma ke 'ano moraki](#), [palapala pāpā](#), [pā'ewa'ewa 'ole](#), ['aha ho'ohaunaele](#), ['aha ho'okolokolo](#), ['aha ho'okolokolo ka'apuni](#), ['aha ho'okolokolo koa](#), ['aha ho'okolokolo no nā haole](#), ['aha kipikipi](#), ['ai'ē maoli](#), ['a'ohe kumu](#), ['āpana](#)

Customizable Attributes

- Groupings for simplified display
- Prefix and suffix options for online and print display
- Internal use only option
- Geocodes

Manage Attribute Types

All Attribute Types

Attribute Type	Sort Or...	Grouping	Attribute Fl...	Display...	Display...	Display...	Print Pr...	Print S...	Print W...
Context:	-10	preface							
<u>Also</u>	2	related		_Also:_			Also	
<u>Abbreviated as</u>	5	related		_Abbreviate...			Abb.	
<u>Correction</u>	10	source							
<u>Dictionary spelling correction</u>	50	source	Display title						
<u>He la'ana</u>	200	example							
<u>Combined</u>	300	source		Combined:			Comb.	
<u>Shortened</u>	300	source		_Shortened:_			Sh.	
<u>Literally</u>	350	note		_Literally_			_Lit_	
<u>Usually</u>	360	usage		_Usually_			Usu.	
<u>Kümole</u>	400	source						
<u>Memo</u>	450	note		_Memo:_			_Memo:_	
<u>Rare</u>	450	note	Display title						
<u>Traditional literary sources</u>	450	source		{Traditional...			{Trad.}		
<u>Date published</u>	460	source	Private, Online ...	Introduced:					
<u>Usages</u>	500	usage							
<u>Usage example</u>	550	usage							
<u>Related term</u>	900	related							
<u>(For print only)</u>	910	reference	Print only						
<u>See</u>	910	reference		_See_			See	

First Prev 1 2 Next Last

Create a Attribute Type

Attribute Type:

Grouping:

Sort Order:

note, usage, example, source, related, reference *The main definition is shown at sort order 0.*

Display Prefix:
 Display Suffix:
 Display Wrap: (e.g., ...)
 Print Prefix:
 Print Suffix:
 Print Wrap: (e.g., ...)

Display title
 Private
 Online only
 Print only
 Geocode

*Show the attribute type title?
 Attribute is only for Kuene use
 Hide in print
 Hide online
 Lat, Lon*

+ Add Cancel

Media Attachments

Supports:


- Images
- Audio
- Video

Attribution and display:

- Credit
- License
- Caption


👁 Nāmua
🖋 Nā Hulu 3
💬 Kūkākūkā Wehewehena
📎 Nā Pāku'ina 3
📁 Mō'aukala
🔧 Debug

↻ Refresh Attachments



He koholā me kāna koholā keiki.

✎ Edit...
🗑 Delete...



He koholā e lele ana.

✎ Edit...
🗑 Delete...

▶ 0:00 / 0:08
🔊
⋮

Ke kani 'ana o ke koholā ma ka moana.

✎ Edit...
🗑 Delete...

Attachment:

No file chosen

URL:

Credit:

License:

Name/title/caption:

Upload

Tagging

- Search by tag
- Support for paired tagging
– adding a tag can automatically add other related tags

All Tags

Tag	Description	Also add tags
<input type="text"/>	<input type="text"/>	<input type="text"/>
abbreviation	Abbreviated terms	
agricultural studies	Agriculture, fishing, natural resource management, etc.	
astronomy	Astronomy, astrophysics, cosmology, planetary science...	earth & space sciences,natural sciences,science
baseball		sports
basketball		sports
biology	Biology, botany, zoology, genetics, ecology, etc.	life sciences,natural sciences,science
business	Commerce, business activities, etc.	business studies
business studies	Business, economics, accounting, etc.	
chemistry	Elements, chemicals, chemical reactions, etc.	natural sciences,science
clothing	Articles and manufacturing of clothing	
computer	Computing devices, networks, etc.	information & communications
earth & space sciences	Geology, meteorology, oceanography, astronomy, etc.	natural sciences,science
economics	Currencies, financial activities, etc.	business studies
education	Education, pedagogy, school organizations, etc.	social sciences,science
entertainment	Games, media, etc.	
fauna	In the animal kingdom	
flora	In the plant kingdom	
food	Foods, ingredients, cooking, utensils, etc.	
football	American football	sports
geography	Human geography, societies, cultures, etc.	social sciences

In-Context Comments

With multiple users contributing to the project, comments allow asynchronous discussion.

- Headword comments
- Definition comments
- List of recent comments
- Comments can link to other entries

Preview Attributes 5 Definition Comments 2 Attachments Change log Connections 1

Comment:

Use "[...]" to link to other headwords.

+ Post Comment

Refresh Comments

Anonymized User - October 2024
ua ho'okomo 'ia 'o "kā'ei kopikala" no "tropics"

Anonymized User - March 2023
'a'ohe tropics no "see ..., tropics."

Change Log

- History of changes by whom and when
- Provides accountability
- Can compare new vs. old content

Preview
Attributes ⁵
Definition Comments ²
Attachments
Change log
Connections ¹

↻ Load

Anonymized User @ 2023-03-13 14:29:39

- ✎ *part_of_speech_id:* ~~<null>~~ → [kikino](#)
- ✎ *definition:* ~~zone Kā'ei. See entry below and intertropical convergent zone, tropics. Rift ... Kā'ei māwae. Time ... as Pacific or Rocky Mountain. Kā'ei hola. Warp ... as in Nintendo games. Kā'ei ka'akepa. → [\[Kā'ei\]](#).~~
- ✎ *lang:* English → ['Ōlelo Hawai'i](#)

Anonymized User @ 2023-03-13 14:29:19

- + Attributes Kā'ei ka'akepa (warp zone, as in Nintendo games).

Anonymized User @ 2023-03-13 14:28:46

- + Attributes Kā'ei māwae (rift zone).

Anonymized User @ 2023-03-13 14:28:46

- + Attributes Kā'ei hola (time zone, as Pacific or Rocky Mountain).

Anonymized User @ 2023-03-13 14:27:13

- ✎ *attribute:* ~~[intertropical convergent zone], tropics.~~ → [\[intertropical convergent zone\]](#), [\[tropics\]](#).

Anonymized User @ 2023-03-13 14:27:01

- + Attributes [\[intertropical convergent zone\]](#), [tropics](#).

Anonymized User @ 2023-03-13 14:26:22

- + Attributes See entry below.

User Roles

Manage User Levels

All User Levels








User Level ▲	Name ▲	Description ▲
<input type="text"/>	<input type="text"/>	<input type="text"/>
0	Cannot login	
20	Read only	Can log in but cannot make any changes
30	Assistant	Can only make comments
50	User	Assistant + can add headwords and definitions and make comments
60	Editor	User + manage tags and sources
70	Editor in chief	Editor + can promote states to Published
100	Full admin	Full access to all features

First Prev **1** Next Last

Reports


Deep dive into the definitions and attributes from a variety of reports.

Reports

-  [Approval States Report](#) - Entries for a selected approval state
-  [Attachments Report](#) - All attachments
-  [Attributes Report](#) - Attributes by type
-  [Duplicate Headwords Report](#) - Headwords with duplicates in the same language
-  [Missing Definitions Report](#) - Headwords without definitions
-  [Recent Changes Report](#) - Who made what changes and when
-  [Tags Report](#) - Entries by tag

User Interface Localization

- Support for any number of localizations
- Admin user-editable
- Placeholders
- AI-assisted translations for first draft

Language:  English Log out Search Kuene'ike (beta)

Manage User Interface Translations

All User Interface Translations

English	Translation	Language
"[1]" already exists.	«[1]» existe déjà.	fr
"[1]" already exists.	「[1]」は既に存在しています。	jpn
"[1]" already exists.	Aia nō 'o «[1]».	haw
"[1]" already exists.	«[1]» पहिल्यै अवस्थित छ।	nep
{1} in the past {2} days	{1} पछिल्ला {2} दिनहरूमा	nep
{1} in the past {2} days	{1} 過去 {2} 日間で	jpn
{1} in the past {2} days	{1} au cours des {2} derniers jours	fr
{1} in the past {2} days	{1} i nā lā he {2} i hala	haw
A knowledge management platform	Plateforme de gestion du savoir	fr
A knowledge management platform	ज्ञान प्रबंधन प्लेटफॉर्म	nep
A knowledge management platform	知識管理プラットフォーム	jpn
A knowledge management platform	He waihona 'ike	haw
Abbr. for print	印刷の略語	jpn
Abbr. for print	मुद्रणको लागि संक्षिप्त रूप	nep
Abbr. for print	Hua hō'ailona pa'i	haw
Abbr. for print	Abrév. pour impression	fr
abbreviation	abréviation	fr

LLM-Assisted Localization

Admin users may use a local Ollama service to assist with localizing *Kuene's* user interface.

The screenshot shows a user interface for LLM-assisted localization. It features four numbered callouts: 1. A text input field labeled 'English:' containing the placeholder text 'English phrase to translate goes here'. 2. A dropdown menu labeled 'Language:' with 'haw — 'Ōlelo Hawai'i' selected. 3. A button labeled 'AI Translation' with a pencil icon. 4. A large, empty text area labeled 'Translation:' with a light pink background. Red arrows point from callout 3 to the 'AI Translation' button and from callout 4 to the 'Translation:' area.

English:

English phrase to translate goes here

1

Translation:

4

AI Translation

3




Language:

haw — 'Ōlelo Hawai'i

2

Leveraging an LLM to modernize 1800's orthography

- Old orthography can be difficult to parse for language learners
- Use a local LLM to process
- Cache result for improved speed and reduced cost
- Allow user feedback for improving future models

   'Ōlelo Hawai'i

#1: veto (English), to refuse to approve a bill passed by a legislative body; the authority of a president or governor to so refuse.

Notes:

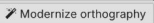

- *Corpus Frequency:* veto 24 (1895-1897: 2), vito 24 (1867-1900: 5), wiko 2 (1846: 1), weko 0, weto 0, wito 0

Usages:


- *Also spelled:* vito, wiko

Examples:

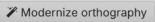


Ina aole i kakauiinoa aole nohoi i **vito** ke Kiaaina i kekahi Bila Kanawai iloko o umi la mahope o ka haawiia ana iaia, e lilo no ia i Kainawai me kona kakauiinoa ole, ina aole i hoopanee ka Ahaolelo me ka hoomaopopo ole i ka la, mamua o ka pau ana o ia mau la he umi.



  He Kānāwai E Ho'onoHo Ana I Aupuni no ka Panalā'au O Hawai'i (1900) @ pauku 51

That if the governor neither signs nor **vetoes** a bill within ten days after it is delivered to him it shall become a law without his signature, unless the legislature adjourns *sine die* prior to the expiration of such ten days.

 An Act to Provide a Government for the Territory of Hawai'i (1900). @ p. 16




End Notes:

Veto o ka Peresidena . . . Ua hiki iaia ke **veto** i kekahi itamu a mau itamu paha iloko o kekahi bila kanawai e hookaawale ana i ke dala no kekahi mau hana; aka, ina e **veto** oia i na bila e ae e hanaia ma ke ano holookoa wale no.   Kumukānāwai o ka Repubalika o Hawai'i (1895) @ p. 105 

Veto of President . . . He may **veto** any specific item or items in any bill which appropriates money for specific purposes; but shall **veto** other bills, if at all, only as a whole.  Constitution of The Republic of Hawai'i (1895). @ p. 100 

Sources:

- *Loan word:* veto (English)

Tags:  -add  -eng loan  -include

LLM Orthography Modernization Feedback

- Use with a local LLM to process
- Cache result for improved speed and reduced cost
- **Allow user feedback for improving future models**

Feedback

If you feel the modernization is incorrect or incomplete, please submit your suggested corrections.

Initial text:

Ina aole i kakauinoa aole nohoi i vito ke Kiaaaina i kekahi Bila Kanawai iloko o umi la mahope o ka haawiiia ana iaia, e lilo no ia i Kainawai me kona kakauinoa ole, ina aole i hoopanee ka Ahaolelo me ka hoomaopopo ole i ka la, mamua o ka pau ana o ia mau la he umi.

Suggested correction:

Inā 'a'ole i kākauinoa 'a'ole ho'i i vito ke Kia'āina i kekahi Bila Kānāwai i loko o 'umi lā ma hope o ka hā'awi 'ia 'ana iā ia, e lilo nō ia i Kānāwai me kona kākauinoa 'ole, inā 'a'ole i ho'opane'e ka 'Aha'ōlelo me ka ho'omaopopo 'ole i ka lā, ma mua o ka pau 'ana o ia mau lā he 'umi.

Product Details and Availability

- *Kuene* is supporting three projects:
 - **Māmaka Kaiao** (neologisms)
 - **Wehi ‘Ōlelo** (Hawaiian-to-Hawaiian dictionary), wehiolelo.org
 - **‘Ōlelo Kānāwai** (Hawaiian-English Legal Dictionary)
- Currently being decoupled from unshareable dependencies and APIs
- Tech: PHP 8, MySQL
- Connect with Sunny Walker, swalker@hawaii.edu



Mahalo

Sunny Walker
swalker@hawaii.edu

Winston Wu
wswu@hawaii.edu

Bruce Torres Fischer
bruce42@hawaii.edu

Larry Kimura
larrykim@hawaii.edu