



NIME 2024

What's up, Chuck?

development update 2024

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TL;DR Since its inception in early 2000s, the Chuck music programming language has undergone much evolution and expansion. In the early years, there was a flurry of contributions that are still in use today. During the 2010s, there was a notable decrease in Chuck development (despite a few dedicated individuals who kept the language on life support). Recently, however, Chuck development has experienced something of a resurrection, with the introduction of new core language features, ChuGL (graphics), ChAI (interactive AI), Chunity (Chuck in Unity), Chunreal (Chuck in Unreal Engine), WebChuck & WebChuck IDE (Chuck in browsers), and further extensions to the language through Chugins (Chuck plugins). Meanwhile, supportive and fun-valuing developer and user communities have re-emerged.



The “**Chuck Kitchen Cabinet** (CKC) is a group of Chuck developers at CCRMA (and remotely) that form the core of Chuck development. The group consists of a dozen members who meet regularly, plan the development roadmap, work on various aspects of language development, and organize sprints and development “hackathons.” It is unclear exactly how the group came to be, but by the fall of 2022, a few stragglers organically found themselves in the same small room in CCRMA, working on Chuck. Over time, more joined and the sense of community and commitment towards a common goal solidified the working group. “OG” Chuck developers such as Perry Cook and Spencer Salazar contribute to the CKC as remote members.

Each CKC member bring their respective skills and interests to bear on various aspects of the language. In this setting, there is both structure and freedom for all the members, providing a balance of function and fun. This is perhaps the closest Chuck development has come to a formal and centralized development process and is certainly the largest by group size.

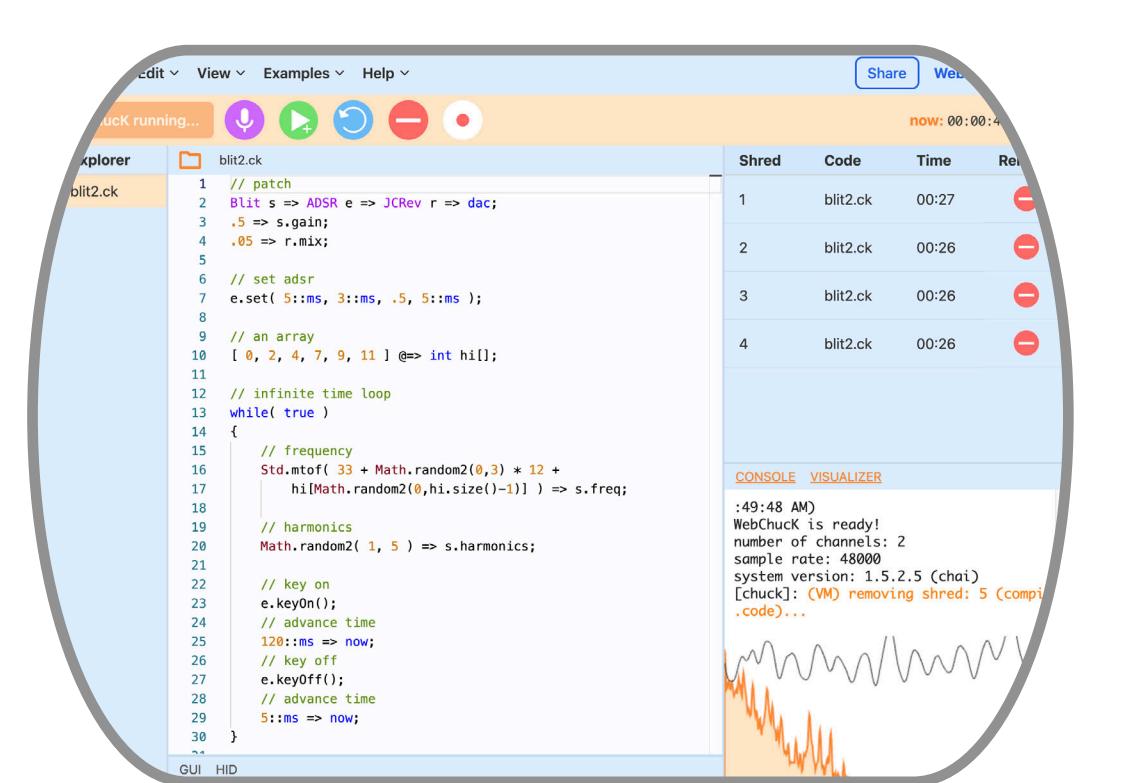
2005 Princeton Laptop Orchestra; Chuck used as instrument building and teaching tool



2008 Made with Chuck, **Ocarina** is released and downloaded 10 million times



2008 Stanford Laptop Orchestra is founded; Chuck used in more than 300 works to date



2018 Jack Atherton creates **Chunity** as an audiovisual framework that combines Chuck and Unity. Inception of the Stanford VR Design Lab @ CCRMA



2011-2016 Spencer Salazar valiantly sustains Chuck development in a time of relative stagnation; **chugins** are introduced



2008 Rebecca Fiebrink prototypes **Wekinator** using Chuck



2004 Chuck is released by Ge Wang and Perry Cook



GitHub commits chuck (core) repo

2004

2006

2008

2010

2012

2014

2016

2018

2020

2022

2024

expansion

stagnation

resurrection

2018 Through the efforts of Jack Atherton, Chris Chafe, Mike Mulshine, Celeste Betancur, Terry Feng, and the community, **WebChuck** makes it possible to embed real-time audio synthesis into any website using Chuck • **2022** Terry Feng creates **WebChuck IDE**



2022 Yikai Li and Ge fashion **ChAI** as interactive AI tools in Chuck, abstaining from generative AI in favor of promoting physical interaction design, craft, and humanism. ChAI offers real-time tools for supervised/unsupervised learning, neural networks, including MLP, KNN, SVM, HMM, PCA, Wekinator. Ge teaches *Music & AI: A Critical Making Course* at Stanford using ChAI

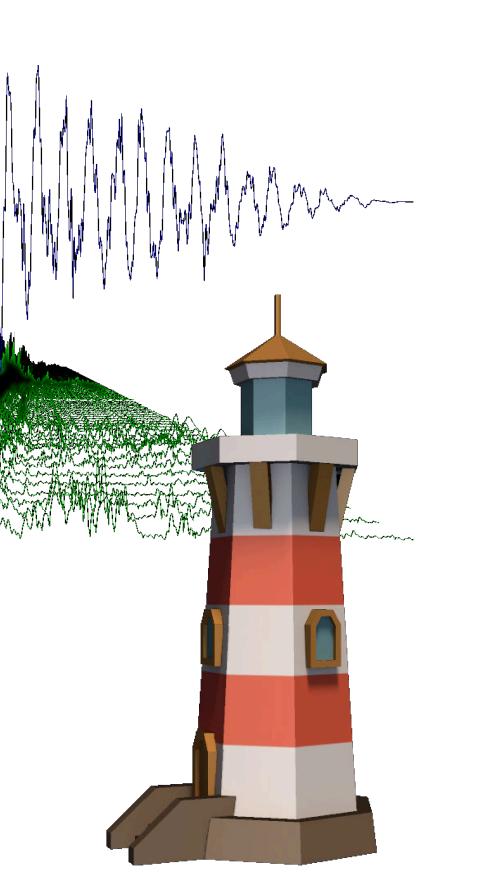
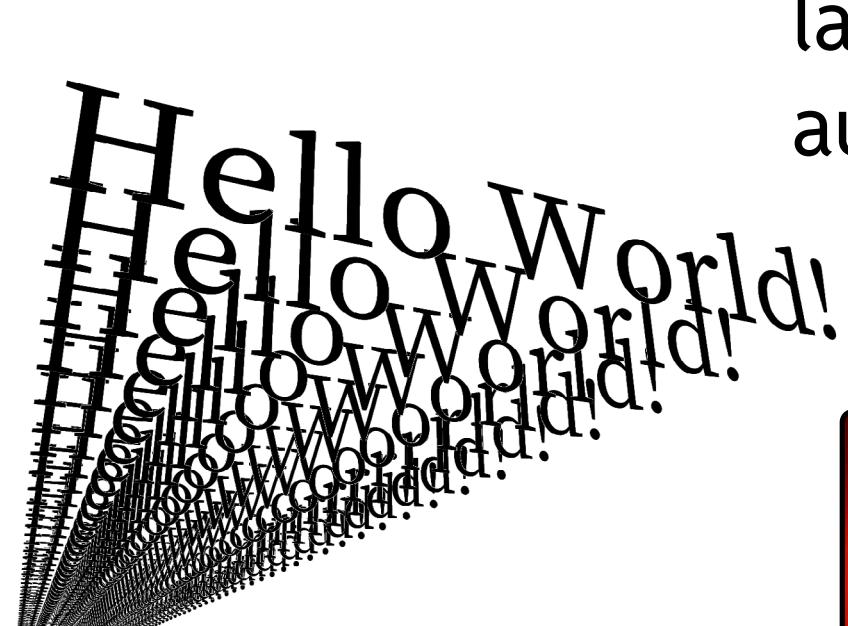


hand2voice
— a hand-based vocal synthesizer!

a wondrously useless invention,
auto_rizz.ck uses face-tracking and Wekinator to detect “sizzle” and play seductive music

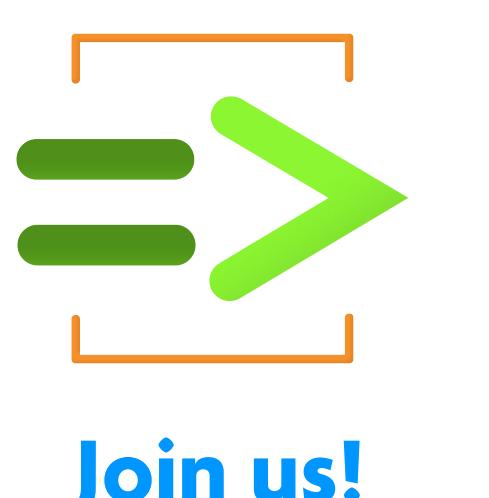


2023 Andrew Zhu Aday and Ge create **ChuGL**, unifying real-time **audio** synthesis and high-performance 3D **graphics** programming into a single strongly-timed language; adopted as teaching tool in audiovisual design courses at CCRMA



2024-future the Chuck language and ecosystem continue to expand rapidly with new tools and paradigms (and improved documentation), including Chunreal (Chuck in Unreal Engine), ChuMP (Chuck package manager), Chuck integration with Pure Data, Max/MSP, FAUST, TouchDesigner, DAWs, Pandora, and RayTone — much more is underway

Many thanks to the Chuck community



Join us!