

Thomas John Hastings Programming Resume

Introduction:

I am a highly motivated self-starter with a passion for problem solving. As the owner of a thriving entertainment agency, Big Top Entertainment, I used coding as a way to automate and improve our business processes. I also designed, built and programmed my own unique performance equipment.

Since the pandemic and recurring lockdowns have put live entertainment on hold, I have repurposed my passion for programming into a full time focus. I am looking for a challenge, to be involved in building something, learning new technology and sharing the knowledge I have gained from my own projects.

Programming – languages and frameworks:

Python:

For the past year I have been working almost exclusively with Flask, designing web interfaces for complex scientific workflows, and creating visualisations of large datasets. I started with Python after becoming interested in Machine Learning a few years ago, and Python is the language to use for this. At the beginning of 2020 I created "Monkey Detector" - an app using Pytorch to detect the intrusion of vervet monkeys into the house. I also use Python for Kodi plug-ins on my home network.

JavaScript

Anyone developing for the web needs to know JavaScript. I am familiar with the Flask back end with Jinja, Bootstrap, JQuery, as well as the excellent Tabulator library for tables. Currently (2020/21) my free time is spent on a couple of entertainment related side projects using this stack.

Linux

I have been using Ubuntu as my main computing system for over 10 years, both in the cloud (DigitalOcean) and on my Laptop. As a touch typist I am extremely comfortable on the command line. Deploying web apps and services to an Ubuntu based server is second nature to me, using Apache or more recently, Nginx.

Android (Java)

I have seven Android apps published to the Google Play Store, five of which are written in Java. I have developed many more for personal use, including the most recent, CoronaVirusSA, an open source app which graphs reliable stats on the COVID-19 outbreak in South Africa.

Processing

I have extensive knowledge of this Java-based creative programming language. The great thing about Processing is the way you can deploy to Desktop, Mobile, and Cloud with only a few modifications to the same code base.

Bash

Over the years I have built up a library of useful scripts to solve problems such as bulk editing pictures or video, watching a directory for changes, auto backups, compiling, and much more – on the desktop or Ubuntu based virtual server.

Git

Version control is a game changer for programming. I maintain a public repo at Github, a private one with BitBucket, and every software project I start has it's own commit history by version two.

Arduino

SmartPoi is an open source side project I worked on for over 6 years - cutting edge WiFi enabled LED performance equipment which is controlled by an Android app in real time. The process taught me a lot about networking and embedded programming. The equipment I designed, programmed and built is used professionally in performance at Big Top Entertainment.

Kotlin

Anyone making apps for Android knows about Kotlin. While I only picked this up recently, I published a Kotlin based app (using Machine Learning) to the Google Play Store and more recently published another based on the same code. My knowledge improves every time I add a feature to these apps.

Others:

Systems administration - I have been using Ubuntu Server since 2014, most recently hosted on Digital Ocean. LAMP stack, LetsEncrypt, ssh.

C - after using Arduino for so long, I have started using c for some tasks - particularly looking at networking, since it is so much faster.

MySQL - I am familiar with MySQL databases, and have used the JDBC Java database API for some basic storage operations, as well as connecting up Sqlite, MySQL and Postgres to Python apps.

Mosquitto - I host my own MQTT service with Python code to manage users

Docker - I have built and deployed a few Docker containers for various web services.

Google Cloud platform - This is a large resource I have looked at and tested various parts of for personal and work projects: the mapping, image recognition, push notifications and speech to text in particular.

AutoHotkey - back when I was using Windows I used this scripting language to automate many GUI processes

Microsoft VBScript - I made a front end for our business Excel spreadsheets (to easily search for customers, add orders, automate mail merges and so on). We are still using it 10 years later.

Digital skills:

- WordPress

I have built and host several websites

- Google AdWords and Analytics

I am very familiar with this tool for tracking customer engagement online, and reaching new audiences.

- Excel

I am familiar with Spreadsheets, a useful tool. A few years ago I developed a front end for our spreadsheet based booking system (using VBScript), which my wife is still using today.

- Kdenlive

Video editing promotional video's is something I have been doing for years. This tool is based on the easily scriptable melt back-end, which I used during 2020 to help automate our "Personalized, Downloadable, Interactive Magic and Circus Shows" on the site bigtopentertainment.co.za.

- Krita

Image editing is something I have to do often, whether for a new app icon, or promotional photo. When it comes to bulk editing, nothing can beat scripting with command line tools like ImageMagick.

- Others:

FreeCad 3D software, Fritzing circuit design, Scribus desktop publishing,

- Music production

A few years ago I was a part time working musician and part of my job was sound. I did a lot of editing with software such as Sonar Music Creator, Reason and Ableton Live. I am very familiar with music production as a result - more recently I implemented FFT sound reactivity for my SmartPoi Android app.

Personal Skills:

- 1. Team Player.** As a remote developer, communication is key, I don't hesitate to ask questions and try to always communicate clearly with other developers. At my entertainment business, Big Top Entertainment, every day is a new challenge. From 5* Hotels to Cruise Ships and Shopping Malls, we have to be ready to perform. In my nearly twenty years in the entertainment industry I have learned to manage customer expectations, sell myself and my company's products; how to manage a team, and be managed as part of a team. Most of all I can say that I am a team player.
- 2. Self Management.** As an entrepreneur who works from home I have learned valuable time management skills over the years. I use Trello, a kanban style to-do list tool to keep on top of my progress in projects. Every spare moment is an opportunity to complete a task.
- 3. Persistence.** If you don't succeed, and Stack Overflow doesn't have the answers, come back to it later. I love tackling problems from multiple angles at once, and recognizing when I may have a knowledge gap which may need to be filled before proceeding.
- 4. Reliability.** My reputation stands for itself. Reliability means not only being on time, but being early. This is not just something I believe, it's something I live by.
- 5. Friendliness and courtesy.** I meet new people every week as part of my entertainment job. I am fascinated by different cultures and enjoy interacting with fellow team members, and working together towards a common goal.

Showcase:

For over a year now (2020/21/22) I have been involved in a couple of challenging projects, **Onto-spread-ed** - making it easier to input and visualise ontology data using an online table - and **Onto-text-tag**, visualising tagged text (sourced from articles on the biomedical literature site, PubMed) using the spacy python library. Both of these projects utilize JavaScript, JQuery, Jinja and Bootstrap on the front end, with a Flask back-end hosted on Google Cloud. The contract is for University College London, and ends in April 2022.

Another recent project (2021/2022), similar to the above, involved building a web interface to access the PascalX gene scoring program - with a long running service (up to 24 hours) and sending results via email after processing the data. I used RQ scheduler and Redis to queue the incoming jobs. I also had to pay strict attention to GDPR requirements as it was for the Computation Biology Group at the University of Lausanne (Switzerland).

Some other side projects are listed, with links at: <https://circusscientist.com/cv>

Freelance programming business site: <https://devsoft.co.za>

Digital showcase of websites and apps: <https://portfolio.devsoft.co.za>

Tutorial and blog site: <https://circusscientist.com>

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