

# Goce Dimitrov

Software Engineer

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## Experience

### Freelance

#### January 2020 - Present

- Designed and developed my personal portfolio website
- Improved and added new functionality to my BVI-SVQA software
- Built a full stack website for a Open University for lifelong learning, that allows online assessment of candidates and storing and managing a candidate database

### Video Quality Research Intern @ Bristol Vision Institute

#### July 2019 - September 2019 // Bristol, UK

- Upgrade and manage the BVI-SVQA software that I developed during my final year
- Compression rate, speed and quality testing and evaluation of different codecs in order to decide the most appropriate one use for encoding videos for the subjective video quality experiments
- Schedule and perform subjective video quality assessment experiments using BVI-SVQA with people from different backgrounds, professionals and non-professionals in video compression, quality and its assessment
- Subjective and objective data processing and analysis using various statistical methods coded in Python and Matlab

## Projects

### Online Assessment Website

A full-stack website that allows anyone in need of a vocational degree to apply, upload the necessary documents and if their application is approved to proceed with online payment and complete a written and oral (video call) examination. It also has full administration capabilities for users management. (Please contact me for more information)

### BVI-SVQA

Desktop application developed using ElectronJS, HTML, CSS, Python, VMAF, FFmpeg and MPV that allows users to prepare and conduct subjective experiments for assessing the quality of videos. Also, it allows for calculation of the objective quality metrics for each video, post-processing of the subjectively gathered data and plotting both the subjective and objective results.

### Qloud App

A cloud quiz application built using Python, Flask, Javascript, HTML, CSS, Docker and deployed using Kubernetes, that lets users log in with their email and play a quiz game with an AI or an actual person. This was a collaborative project in which I worked on development of the Front-end, linking it to the database and publishing it on Google Cloud.

### Autonomous Car Control System

A system developed using VHDL and C++. The main goal of this system is to be programmed on an FPGA and utilise its amazing parallelisation capabilities in order for a user or AI to control a Multi-Motor Electric Vehicle (EV) equipped with additional sensors (Optocoupler, Ultrasonic) in real-time.

### Disparity Algorithm Optimisation for TI C6678 DSP

A collaborative university project in which the main goal was optimisation of the Sum of Absolute Differences (SAD) algorithm used for disparity map computations. The algorithm was written in c and its performance was tested on a DSP. The same optimized code was also written in linear assembly for performance comparison.

### OpenMP Optimisation of the Jacobi Algorithm

Optimisation of the Jacobi Iterative Method by using OpenMP and SIMD while ensuring that no race conditions are present and awareness of the first touch policy and the non-uniform memory access (NUMA) while coding the solution.

## Education

### MEng Computer Science and Electronics @ University of Bristol

2014 - 2019 // United Kingdom

## Papers

Zhang, F., Katsenou, A. V., Afonso, M., Dimitrov, G., Bull, D. (March, 2020). Comparing VVC, HEVC and AV1 using Objective and Subjective Assessments. [Preprint]

Katsenou, A. V., Dimitrov, G., Ma, D., Bull, D. (February, 2020). BVI-SynTex: A Synthetic Video Texture Dataset for Video Compression and Quality Assessment. IEEE Transactions on Multimedia. [Published]

## Skills

### Programming Languages

Javascript, HTML, CSS, MySQL, MongoDB, Python, Matlab, C, C++, Java, VHDL

### Libraries & Frameworks

jQuery, React, Bootstrap, Material UI, Electron, Node.js, Express, Flask, OpenCV

### Tools & Platforms

Windows, Linux, Google Cloud, Git, Latex, Webpack, Docker, Kubernetes, Netlify, FFmpeg, VMAF

### Design

Figma

## Spoken languages

English (perfect)

German (learning in progress)

Macedonian (native)

Serbian (perfect)

Bulgarian (good)

## Interests

Travelling, fitness, swimming, football, basketball, gaming, reading