

The Harmonic Triad – Vocal Harmonizer
(Technical Report)

Undefined Risks: Developing
Artificial General Intelligence Carefully
(STS Research Paper)

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by

Nathan G. Hunter

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Preface

How can digital automation be optimally implemented? From music to machine cognition, automation presents new and challenging problems.

Due to social distancing, group singing is often impossible in a pandemic. A vocal harmonizer can be a viable substitute. A singer can use such a device to harmonize his or her voice to chords played on a keyboard. As existing harmonizers are either expensive or poor in sound quality, we developed a novel device to optimize both cost and quality. A printed circuit board with a codec serves as an analog-to-digital converter, and a myRIO FPGA embedded device processes digital signals. FFTs interpret pitches, and SPI and I2S protocols communicate signals. The device successfully harmonized the voice to keyboard chords in real time. While timbre and temporal resolution were limited, pitch resolution and chord complexity were satisfactory.

How have social groups been responding to the possibilities of artificial general intelligence (AGI)? Some contend that AGI may lead machine intelligence to outstrip human intelligence by orders of magnitude. Among those who agree, some warn that this development could threaten the well-being and even the existence of humanity. Others believe that doomsday predictions cause unnecessary concern. Until people imagine more possible AGI scenarios and debate them more constructively, common understanding between these groups is unlikely.

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