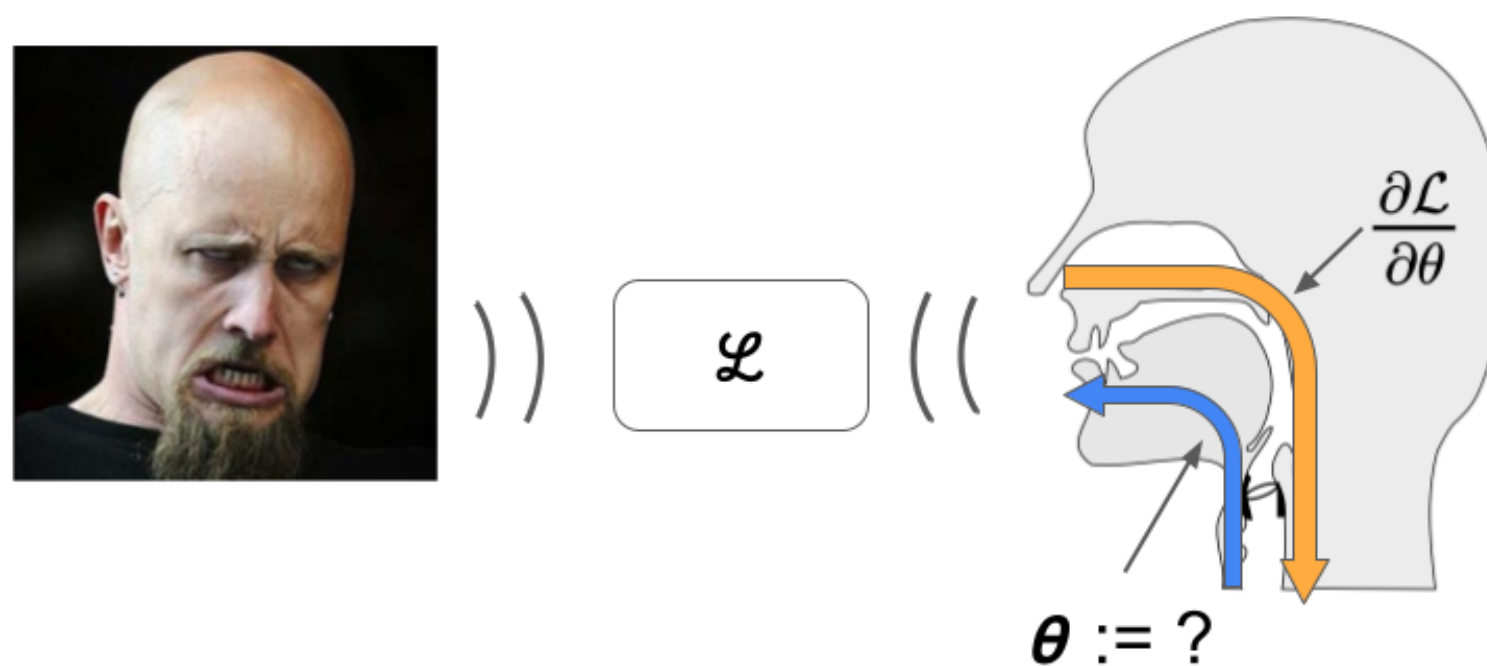


# Analysing and controlling extreme vocal expression using differentiable DSP and neural networks

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## Finding

Putting more prior knowledge of vocal production into the design of differentiable operators reduces computational loads and training resources. Moreover, fixing the source oscillator to the shape of glottal pulses makes modelling phase responses possible.

## Question

What's the efficient way to parameterise the non-harmonic components (e.g., roughness) of voice? Are the resulting parameters (or representation) closely related to how humans perceive and describe screaming vocal?