‘NEURODIVERSION’: INCORPORATING FRONTAL LOBE REHABILITATION TREATMENT FOR IMPULSE-CONTROL MANAGEMENT IN THE REHABILITATION OF CRIMINAL OFFENDERS IN AUSTRALIA

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ABSTRACT

This thesis examines the legal theoretical and practical implications of the incorporation of frontal lobe rehabilitation treatment (hereinafter ‘FLRT’) for impulse-control management in the rehabilitation of criminal offenders, with a view to achieving an overall reduction in crime (both in prison population and recidivism).

An initiative born of ‘neurolaw’ — an emergent area combining neuroscience (the empirical study of the brain and nervous system) with law — FLRT involves the non-invasive detection of brain structure and function. Based on the prevalence of poor impulse-control among criminal offenders, the treatment allows users to strengthen the influence of their prefrontal cortex, which specializes in long-term decision-making and impulse-control. FLRT utilizes real-time brain imaging to monitor a person’s brain activity when resisting a particular stimulus. Neural activity is visually displayed in a scanner and shown directly to an individual so that person can attempt to modify it. By strengthening the neural pathways concerned with long-term consideration and control over impulsivity, FLRT enables offenders to receive neurofeedback to retrain their brains towards pro-social behaviour.

Consonant with the theory of therapeutic jurisprudence — ‘the study of the role of the law as a therapeutic agent’ — FLRT emerges from the union of neuroscience and diversion from punishment into treatment: ‘NeuroDiversion’. It is argued that responsible incorporation of this rehabilitative mechanism advances the therapeutic jurisprudence agenda and its attendant concepts. Promoting a rehabilitative rather than a punitive response to criminal behaviour, therapeutic jurisprudence scholarship is concerned with therapeutic outcome-maximization through collaborative treatment and individual rehabilitation to further the well-being of the offender.

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The central analysis of the thesis examines existing court-mandated opportunities for offender-rehabilitation through mental health diversionary mechanisms and the regular criminal justice system in Australia. FLRT-utilization for categorized impulse-control management within this existing framework is then explicated. The emphasis on mental health diversion courts specifically is in recognition of the prevalence of mental illness among offenders and the implication of impulsivity as a specific diagnostic criterion in many mental disorders.

This thesis argues for diversifying FLRT by widening its jurisdictional ambit beyond the existing framework. Suggestions to fill the gap for treating someone suffering from poor impulse-control in the absence of a mental illness are proffered. Amendments to sentencing protocols for inclusion of FLRT as part of court-mandated rehabilitative treatment, not as full diversion, for major indictable offences in higher courts are advocated. The use of FLRT in tribunals and other diversionary schemes, including police diversion, drug diversion and indigenous-specific diversionary programs is promoted. Youth offenders may also benefit from FLRT — in a diversionary capacity, as well as in detention and post-release. The value of FLRT in adult custodial programs and post-release programs is also acknowledged.

Diverting offenders from the criminal justice system into treatment for impulse-control management directly targets the significance of impulsivity in the aetiology of offending. NeuroDiversion is proffered as a means to enhance the rehabilitative ideal of therapeutic jurisprudence by bolstering the rehabilitative efforts of court systems, providing people with an opportunity to receive more informed sentencing, counselling, and rehabilitation, and ultimately increasing the likelihood of staying out of the prison system in support of productive societal reintegration.
DECLARATION

This thesis is submitted to Bond University in fulfilment of the requirements of the degree of Doctor of Philosophy. This thesis represents my own original work towards this research degree and contains no material that has been previously submitted for a degree or diploma at this University or any other institution, except where due acknowledgement is made.

Signed ____________________

Emma V Cooter

Date ____________________
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### Glossary

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<tr>
<td>ACC</td>
<td>Anterior Cingulate Cortex</td>
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<tr>
<td>BOLD</td>
<td>Blood Oxygenation Level Dependent</td>
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<td>C1</td>
<td>Category One (Facet of Personality — poor impulse-control in the absence of a defined mental disorder)</td>
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<td>DSM-5</td>
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<td>FLRT</td>
<td>Frontal Lobe Rehabilitation Treatment</td>
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<td>fMRI</td>
<td>Functional Magnetic Resonance Imaging</td>
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<td>GLM</td>
<td>Good Lives Model of Offender-Rehabilitation</td>
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<td>GLM-FM</td>
<td>Good Lives Model of Forensic Mental Health</td>
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<td>GNG</td>
<td>Go/No-Go Impulse-Control Task</td>
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<td>MHDCts</td>
<td>Mental Health Diversion Courts</td>
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<tr>
<td>MRI</td>
<td>Magnetic Resonance Imaging</td>
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<tr>
<td>NeuroDiversion</td>
<td>The union of neuroscience to diversion from punishment into treatment</td>
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<tr>
<td>Neurolaw</td>
<td>The intersection of neuroscience and law</td>
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<td>Neuroplasticity</td>
<td>Changes in neural pathways and synapses</td>
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<td>PFC</td>
<td>Prefrontal Cortex</td>
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<td>RNR Model</td>
<td>Risk-Need-Responsivity Model of Offender-Rehabilitation</td>
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<td>rt-fMRI</td>
<td>Real-Time Functional Magnetic Resonance Imaging</td>
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<td>vmPFC</td>
<td>Ventromedial Prefrontal Cortex</td>
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‘Educate your children to self-control, to the habit of holding passion and prejudice and evil tendencies subject to an upright and reasoning will, and you have done much to abolish misery from their future and crimes from society.’

— Benjamin Franklin

‘Self-control might be as passionate and as active as the surrender to passion ...’

— W Somerset Maugham, *Of Human Bondage*

‘The enemy is within the gates; it is with our own luxury, our own folly, our own criminality that we have to contend.’

— Marcus Tullius Cicero