

Neurolaw & Critical Forensic Science Scholarship:

A Call for Focused Integration

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Overview

Neuroethics and law will increasingly confront forensic uses of brain data. State actors may soon attempt to **predict recidivism**¹ or **detect memory**² via multi-voxel pattern analysis (MVPA), an algorithmic neuroimaging data processing method. Legal scholarship on the problems of more familiar forensic science methods (e.g., fingerprinting) has documented **lack of validation** studies,³ **undue structural advantages** in litigation,⁴ and **intersections with systemic disadvantages** faced by racialized or otherwise marginalized litigants.⁵ The neurolaw and critical evidence-based forensics literatures are well-positioned for active mutual support. Currently, however, neither stream of scholarship regularly cites or engages with the other. **Neuro-forensic miscarriages of justice are preventable**; towards this end, we should jointly urge a rigorous approach, encompassing dedicated regulatory bodies and asymmetric evidentiary rules.

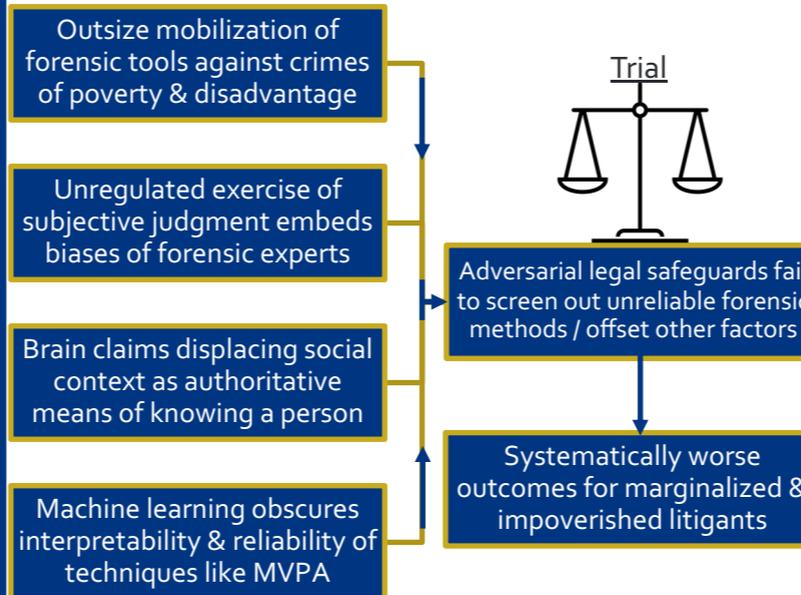
Why a rigorous approach for inculpatory forensic evidence?

These scales *should* tilt in defendants' favour ...



... but superior State access to expertise, via its repeat-player relationship, can effectively *dilute* its rightfully heavy burden of criminal proof.⁶

How might (neuro-)forensic methods help reproduce structural inequality?



What might rigour look like? Don't evidence rules already demand it?

Even as unreliable forensics remain a key factor in wrongful convictions, US & Commonwealth law *purport* to require reliable expert methods ...



... but courts are *institutionally* ill-positioned to be sole arbiters of validity, & foundational validity is often inferred from prior use rather than proven.⁷

The Expert Persuasion Expectancy (ExPEX)⁸ Framework could better guide courts & regulators

Foundation	Does training, study or experience in the field <i>F</i> support assertions like <i>A</i> ?
Field	Does witness <i>W</i> have training, study or experience in the field <i>F</i> ?
Specialty	Does <i>W</i> have training, study or experience specific to assertions like <i>A</i> ?
Ability	Does <i>W</i> provide assertions like <i>A</i> accurately and reliably?
Opinion	Does <i>W</i> convey <i>A</i> clearly, and with necessary qualifications?
Support	Does <i>W</i> rely on evidence in making <i>A</i> ?
Consistency	Is <i>A</i> consistent with what other experts assert?
Trustworthy	Is <i>W</i> personally reliable as a source?

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Citations: 1. Tortora et al., "Neuroprediction and AI in Forensic Psychiatry [...]" (2020) 11:220 *Frontiers Psych.* 2. Murphy & Rissman, "Evidence of Memory from Brain Data" (2020) 7:1 *JL Biosci* Isaa078; 3. Ward et al, "Forensic Science, Reliability and Scientific Validity [...]" (2017) 5 *Crim L Rev* 357; 4. Edmond & San Roque, "The Cool Crucible [...]" (2012) 24:1 *Curr Iss Crim Just* 51; 5. Cunliffe, "Charter Rights, State Expertise [...]" (2020) 94 *SCLR 2d* 367. 6. Edmond & Roach, "A Contextual Approach to [...]" (2011) 61 *U Tor LJ* 343; 7. Cunliffe & Edmond, "Justice without Science? [...]" (2021) 99 *Can B Rev* 65; 8. Martire et al, "Exploring Juror Evaluations of Expert [...]" (2020) 25:2 *Leg & Crim Psych* 90.

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Disclosures: none.