Neuroforensics

Looking into the human brain for judicial purposes
New capabilities

Structure
- MRI
- DTI-MRI

Biochemistry
- PET
- SPECT

Neural activity
- fMRI
- EEG/ERP
- MEG

Genome sequence
- SNPs
- Whole exome
- Whole genome ($1000)

Datasets
- GWAS studies
- Human connectome project
New potential uses

- Assess veracity of testimony
- Predict dangerousness (Bail? Monitor?)
- Assess competence to stand trial
- Assess volition
- Reveal mitigating factors in sentencing
- Optimize referrals to, e.g., counseling, addiction, anger management programs
- Predict the chance of recidivism
- Distinguish chronic pain from malingering
- Recover lost memories
- Verify intent

Classical lie detectors monitor the peripheral nervous system

Enhanced capabilities from monitoring the central nervous system
Committee on Science, Technology, and Law (CSTL)

Explores areas where science can help the legal system. Can commission consensus reports.

Members divided between science and law (academics, judges, lawyers in practice or in regulatory agencies).

Can sponsor workshops and consensus reports.
A consensus report:

Reviewed factors that limit the validity of eyewitness identifications and recommended best practices for law enforcement agencies and courts.

Report led to Department of Justice recommendations for conducting photo lineups

Committee on Science, Technology, and Law (CSTL)
Why now?
Increasingly cited in court cases

Farahany, J Law Biosciences, 2016
A rare chance to get ahead of the curve

Proposal: a consensus report to provide policy makers, judges, prosecutors, and agencies with guidance on:

- The current status of neuroforensic methods
- Likely developments over the next decade
- Recommendations on standards to be met before neuroforensic evidence can be used in the judicial system