

Solve a Complex Civil Dispute

Hon. Michael F. Pietruszka (Ret.)

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**AI Workshop in Neurotechnology, Brain Function and Cognition
Data Science and Artificial Intelligence Strategic Initiative**

**National Courts and Sciences Institute
State Justice Institute**

Mary Stevenson, a digital game designer at DigiFun, Inc. alleges that an accident at her workplace, caused by faulty hardware produced by LifeTech, Ltd. to increase productivity, resulted in a traumatic brain injury (TBI). Mary was working in close proximity to a high-performance server rack system that had recently been installed by LifeTech, Ltd. to enhance data processing speed and efficiency in the game development studio. The server rack, designed to be highly efficient, malfunctioned due to a defect in its cooling system. The malfunction caused an overheating issue, leading to an unexpected explosion of one of the server units.

The explosion caused heavy metal components and debris to be ejected forcefully. A significant piece of metal struck Mary on the head, resulting in immediate unconsciousness. Colleagues quickly called emergency services, and Mary was transported to the hospital. Initial assessments suggested severe head trauma with potential brain injury.

Upon arrival at the hospital, Mary underwent a series of diagnostic tests, including CT scans and MRIs, to assess the extent of her injuries. The findings included Cerebral Contusions, Diffuse Axonal Injury (DAI) and Subdural Hematoma.

Mary claims that the injury has led to cognitive impairments, including memory loss, reduced concentration, and emotional instability, severely impacting her ability to work and her quality of life.

Mary engaged counsel. To support her case, Mary's legal team presents evidence from a series of AI-enhanced fMRI scans. These scans, analyzed by a state-of-the-art AI system called BrainAtlas, map brain activity and identify regions affected by the injury. BrainAtlas uses machine learning algorithms to compare Mary's brain activity with a vast database of healthy and injured brains, highlighting abnormalities consistent with TBI.

In an attempt to address her cognitive impairments, Mary contacts MindTech, Inc., whose flagship product, BrainBoost, is an AI-powered neural interface which can seamlessly integrate with the human brain to monitor and stimulate neural activity in real-time using Transcranial Magnetic Stimulation (TMS). It is designed to improve cognitive functions such as memory, focus, and learning ability. TMS uses magnetic fields to stimulate nerve cells in the brain non-invasively. The treatment involves placing an electromagnetic coil against the scalp to deliver magnetic pulses that modulate neural activity. Cognitive and behavioral assessments are conducted to measure the effectiveness of TMS in improving cognitive functions. Neuroimaging techniques such as fMRI can be used to observe changes in brain activity and connectivity.

BrainBoost uses AI in data analysis and customization, including real-time monitoring (continuous monitoring of the patient's brain activity, analyzing data from the TMS sessions), adaptive stimulation (use of machine learning algorithms to interpret the data and adjust stimulation parameters in real-time, ensuring personalized treatment and optimizing neural pathways based on the patient's unique brain activity patterns) and outcome optimization (assisting in predicting the most effective stimulation settings, reducing trial-and-error in treatment adjustments and enhancing overall therapeutic outcomes).

The TMS therapy was administered in a clinical setting at Tonawanda Community Hospital by Dr. Johan Schmidt, a neurologist trained in TMS therapy. However, she alleges that the therapy, due to a software malfunction, overstimulated certain brain regions, leading to seizures, impulsivity, insomnia, and heightened anxiety and stress responses.

Mary also claims that the TMS device collected and transmitted sensitive neural data without her explicit consent, violating her privacy. Mary's legal team expanded the scope of their representation.

Who should be the defendants in Mary's lawsuit?

ChatGPT-4:

LifeTech, Ltd.

MindTech, Inc.

Tonawanda Community Hospital

Dr. Johan Schmidt

DigiFun, Inc. (potentially, depending on employer liability and workplace safety regulations)

Perplexity:

DigiFun, Inc. - Mary's employer, where the faulty server rack system that caused her traumatic brain injury (TBI) was installed.

LifeTech, Ltd. - The company that manufactured the defective server rack system that malfunctioned and exploded, causing Mary's head injury.

MindTech, Inc. - The company that produced the BrainBoost neural interface device that allegedly overstimulated Mary's brain during TMS therapy, leading to seizures and other adverse effects. They could also be liable for the unauthorized collection and transmission of Mary's sensitive neural data.

Tonawanda Community Hospital - The medical facility where the TMS therapy was administered. They could potentially be sued for medical malpractice if the standard of care was not followed.

Dr. Johan Schmidt - The neurologist who administered the TMS therapy to Mary. He could be named as a defendant for medical malpractice if he deviated from the standard of care.

What allegations should be made in the Complaint against each defendant?

ChatGPT-4:

Against LifeTech, Ltd:

Negligence: Failure to ensure the safety and proper functioning of the high-performance server rack system, leading to the explosion.

Product Liability: The server rack was defectively designed or manufactured, making it inherently dangerous.

Failure to Warn: Inadequate warnings or instructions regarding the potential risks associated with the server rack's operation.

Against MindTech, Inc.:

Negligence: Failure to ensure the safety and proper functioning of the BrainBoost TMS device.

Product Liability: The TMS device was defectively designed, manufactured, or had insufficient safety features, leading to overstimulation and subsequent health issues.

Invasion of Privacy: Unauthorized collection and transmission of Mary's neural data without explicit consent.

Breach of Implied Warranty: The TMS device was not fit for its intended purpose and caused harm instead of enhancing cognitive function.

Against Tonawanda Community Hospital:

Negligence: Failure to properly supervise and ensure the safe administration of TMS therapy, leading to overstimulation and health complications.

Failure to Obtain Informed Consent: Allowing the use of a device that collected sensitive neural data without obtaining explicit consent from Mary.

Against Dr. Johan Schmidt:

Medical Malpractice: Failure to properly monitor and adjust the TMS therapy, leading to harmful overstimulation.

Against DigiFun, Inc.:

Negligence: Potentially, for not ensuring a safe workplace environment by using and maintaining faulty equipment (depending on employer liability and workplace safety regulations).

Perplexity:

DigiFun, Inc. (Mary's employer):

Negligence for failing to maintain a safe workplace by installing the defective server rack system that caused Mary's traumatic brain injury (TBI).

LifeTech, Ltd. (Manufacturer of the server rack):

Product liability for manufacturing a defective server rack system with a faulty cooling system that malfunctioned, overheated and exploded, causing Mary's head injury.

MindTech, Inc. (Maker of BrainBoost device):

Product liability for a defective medical device (BrainBoost) that allegedly overstimulated Mary's brain during TMS therapy, leading to seizures, insomnia, impulsivity and other adverse effects.

Breach of privacy for unauthorized collection and transmission of Mary's sensitive neural data without consent.

Tonawanda Community Hospital:

Potential medical malpractice if the hospital deviated from the standard of care in allowing or administering the TMS therapy that allegedly caused Mary further injuries.

Dr. Johan Schmidt (Neurologist who administered TMS therapy):

Potential medical malpractice if he deviated from the standard of care by improperly administering the TMS therapy, leading to Mary's alleged injuries.

What theories of recovery underlie each allegation?

ChatGPT-4:

Negligence:

Duty of Care: All defendants had a duty to ensure the safety and effectiveness of their products and services.

Breach of Duty: Each defendant breached this duty by producing faulty products, improperly administering therapy, or failing to obtain informed consent.

Causation: The breaches directly caused Mary's injuries and subsequent health issues.

Damages: Mary suffered cognitive impairments, emotional distress, and financial losses.

Product Liability:

Defective Design/Manufacture: The products (server rack and TMS device) were inherently unsafe due to design or manufacturing flaws.

Lack of Warnings: Failure to provide adequate warnings about potential risks.

Invasion of Privacy:

Unauthorized Data Collection: MindTech, Inc. collected Mary's neural data without proper consent, violating her privacy rights.

Breach of Implied Warranty:

Fitness for Purpose: The TMS device did not meet the reasonable expectations of safety and effectiveness for its intended use.

Medical Malpractice:

Standard of Care: Dr. Johan Schmidt failed to meet the standard of care expected in administering TMS therapy, leading to harmful overstimulation.

Perplexity:

DigiFun, Inc. (Mary's employer):

The theory of recovery is negligence for failing to maintain a safe workplace by installing the defective server rack system.

LifeTech, Ltd. (Manufacturer of the server rack):

The theory of recovery is strict product liability for manufacturing a defective and unreasonably dangerous product that caused injury.

MindTech, Inc. (Maker of BrainBoost device):

The theories of recovery are strict product liability for a defective medical device that caused injury, and breach of privacy/misrepresentation for unauthorized collection and transmission of sensitive data.

Tonawanda Community Hospital:

The theory of recovery is medical malpractice if the standard of care was breached in administering the TMS therapy.

Dr. Johan Schmidt (Neurologist):

The theory of recovery is medical malpractice if he deviated from the standard of care in providing the TMS treatment.

Would you order the hearing?

ChatGPT-4:

Yes, I would order a hearing to determine the validity of Mary's claims and the extent of liability for all defendants.

Perplexity:

I would order an evidentiary hearing to assess the merits of Mary's claims.

What evidence would you require?

ChatGPT-4:

Medical Records:

Documentation of Mary's TBI diagnosis and subsequent cognitive impairments.

Records of symptoms and treatments related to the TMS therapy.

AI-enhanced fMRI Scans:

Results from the BrainAtlas system showing brain abnormalities consistent with TBI.

Device and Hardware Records:

Technical reports and maintenance records for the server rack and TMS device.

Data logs from the TMS device showing overstimulation patterns.

User Manuals and Warnings:

Instructions and warnings provided with the server rack and TMS device.

User agreements and consent forms signed by Mary.

Expert Reports:

Assessments from medical, neurological, and AI experts on the cause and impact of Mary's injuries.

What type of experts would you want to testify at the hearing?

ChatGPT-4:

Neurologists:

To testify about the nature and extent of Mary's TBI and the cognitive impairments.

Neuroscientists:

To explain the implications of the AI-enhanced fMRI scans and the impact of TMS therapy.

AI and Machine Learning Experts:

To discuss the reliability and accuracy of the BrainAtlas and BrainBoost systems.

To address potential software malfunctions and data privacy concerns.

Product Safety and Engineering Experts:

To evaluate the design and safety of the server rack and TMS device.

To discuss standard industry practices and potential defects.

Medical Malpractice Experts:

To assess Dr. Johan Schmidt's administration of TMS therapy and adherence to the standard of care.

Perplexity:

A neurologist or neuropsychologist to explain the nature and extent of Mary's TBI, cognitive impairments, and the potential impact of the TMS therapy.

A biomedical engineer or product safety expert to analyze the defects in the server rack system and BrainBoost device.

A data privacy expert to evaluate the unauthorized collection and transmission of Mary's neural data.

A medical expert to assess whether the hospital and Dr. Schmidt met the standard of care in administering TMS therapy.

An economist to calculate Mary's lost earnings, future medical expenses, and other economic damages.

How would you rule on the motion?

ChatGPT-4:

Based on the presented evidence and expert testimony, I would likely rule in favor of allowing the case to proceed to trial, given the plausible claims of negligence, product liability, invasion of privacy, and medical malpractice.

What would be the basis of your ruling?

ChatGPT-4:

Preliminary Evidence: The initial evidence suggests credible claims of injury and malfunction related to the defendants' products and services.

Expert Testimony: The experts' insights provide a strong basis for the allegations, indicating that further examination in a full trial is warranted.

Legal Standards: The allegations align with established legal principles, justifying a thorough judicial review.

If her lawsuit is successful, what is the measure of Mary's damages?

ChatGPT-4:

Economic Damages:

Medical Expenses:

Past Medical Bills: Costs incurred for initial treatment of the TBI, including emergency room visits, hospital stays, diagnostic tests, and medications.

Future Medical Expenses: Ongoing treatment and rehabilitation costs, including therapy sessions, follow-up medical appointments, and necessary medical procedures.

Lost Wages:

Past Lost Wages: Income lost due to the inability to work during the recovery period.

Future Lost Earning Capacity: Reduction in future earnings due to her diminished cognitive abilities, affecting her performance and career advancement as a digital game designer.

Cost of Assistive Devices and Modifications:

Expenses for devices or modifications needed to accommodate her impairments, such as specialized software, home modifications, or other assistive technologies.

Other Out-of-Pocket Expenses:

Costs related to travel for medical treatments, hiring help for household chores, and other expenses directly resulting from her injury.

Non-Economic Damages:

Pain and Suffering:

Compensation for physical pain and emotional distress caused by the injury and its aftermath, including seizures, insomnia, and heightened anxiety.

Loss of Enjoyment of Life:

Damages for the reduction in her ability to enjoy life's activities, hobbies, and personal relationships due to cognitive impairments and emotional instability.

Emotional Distress:

Compensation for the psychological impact of the injury, such as anxiety, depression, and stress resulting from her reduced cognitive function and quality of life.

Loss of Consortium:

Damages for the impact of her injuries on her relationships with family members, including loss of companionship and support.

Punitive Damages (if applicable)

Punitive Damages: While typically reserved for cases involving gross negligence or intentional misconduct, if it is found that any of the defendants acted with reckless disregard for safety, the court might award punitive damages to punish the defendants and deter similar future conduct.

Perplexity:

If successful, Mary could recover compensatory damages for her past and future medical expenses, lost wages, loss of earning capacity, pain and suffering, emotional distress, and any permanent disabilities. Punitive damages may also be awarded against LifeTech and MindTech if their conduct is found to be particularly egregious or reckless.

From Nautilus:

There was a worker who delivered MRI units to a large hospital. During a delivery of a new fMRI, a doctor familiar with imaging equipment stopped by and asked if the new machine was a “functional” MRI. “It should work,” the worker said to the doctor. “It’s brand new!” – *Jeff I.*