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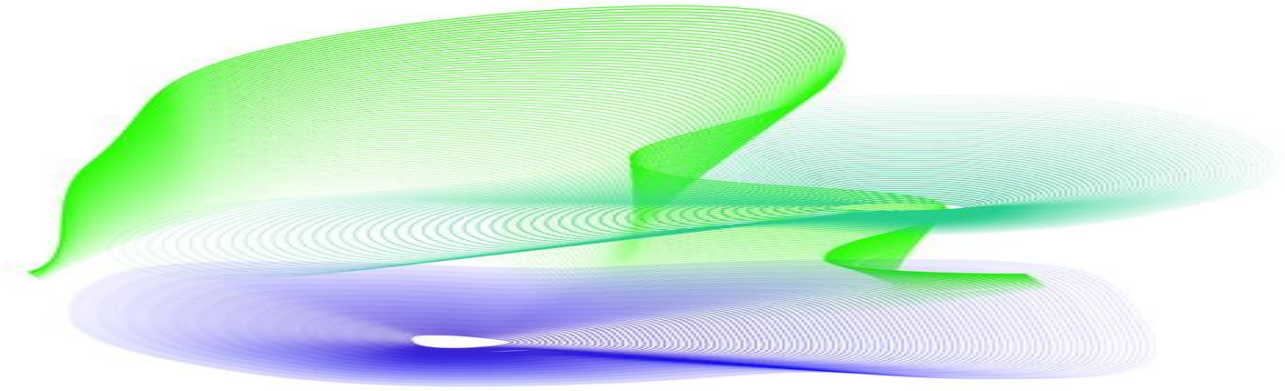

OLFACTION MOOT COURT SESSION

FRIDAY, OCTOBER 21, 2022
10:00 AM – 12:00 PM (EST)
THE MIT MEDIA LAB
In person and virtual
https://www.media.mit.edu/

PICKING UP THE SCENT: DETECTING THE MENTAL STATE OR THE INTENT OF PARTIES

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The Olfaction Moot Court Session[2] will consist of a panel of Justices and four law students that will present and argue the following facts and legal issues:

STATEMENT OF FACTS

In the year 2040, *PHELON TUSK* was a pioneer focused on space travel and the colonization of Mars. His entire business empire consisted of investments in companies building the various aspects of space travel. As he was expanding his "Colonization of Planets" project, *Tusk* purchased *SWITTER*, an online social media platform that was often used by high-profile politicians to advocate their agenda and rhetoric. He became close friends with *RONALD HUMP*, the new Mayor of *SINLESSHAB* on Mars, who constantly used *Switter* to advance his rhetoric of

[1] This is a moot court problem for the Olfaction Conference created and owned by Dimitrios Ioannidis, Esq. This is a work of fiction. Names, characters, places, and incidents either are products of the author's imagination or are used fictitiously. Any resemblance to actual events, locales, or persons, living or dead, is entirely coincidental.
[2] Moot court style competitions involve students that argue opposite positions before panels of judges.

banning illegal migrants and creating a 100% crime-free society. *Tusk* supported *Hump* during a bitterly fought campaign while *Switter* banned *Hump's* opponent, *VADIM SHUTIN* from posting anything on the social media platform. *Shutin's* agenda included heavy military investments and socialization of the private sector, which *Tusk* viewed as a threat to his growing empire.

Tusk also knew of a company in South Africa, *WEOWNYOU*, that had done a lot of research and developed a highly agile omnipresence network of cameras and other devices to combat the widespread increase in crime.[3] *Tusk* saw great opportunities in the data collection that the *Weownyou* technology advanced—including not only video and sound recording devices, but also olfactory sensory parameters which allowed enhanced versions of information to be collected, with unique identifying markings. Specifically, *Weownyou*, used these sensors on its equipment that were able to "fingerprint" the sweat of fear, the smell of trust, the traces of tears on the eyes, along with tracking the scent of the individuals that came within 100 meters of each device[4]. The information was then transferred to the datacenter, where powerful algorithms processed the information and stored it in the cloud service provider "*AGGLI*", also owned by *Tusk*. *Aggli* was an emerging leader in cloud services based on Mars.

Tusk spoke to *Mayor Hump* about the innovative technology used by *Weownyou* and offered to finance the installation and funding of operations on *Sinlesshab*. *Mayor Hump* signed an executive order immediately and *Weownyou* and *Sinlesshab* entered into a smart contract. Within a month, 1,000 stations were installed around the *Sinlesshab* perimeter, capturing all this data and using an application owned by "*Dabus*", an artificial intelligent platform that could evaluate the "stream of consciousness" content from the sensors incorporated into the installed devices.[5] The architecture and placement of the devices were a marvel of science as nothing could go undetected around the perimeter of *Sinlesshab*, except for the *Royal House* where *Hump* resided. This was due to a special filtering device installed at the *Royal House* that could scramble the data collection of all the devices within 50 feet of the *Royal House*, to which only *Hump* could access.

JONAH DREPP lived in *Sinlesshab* but had illegally traveled there as a stowaway passenger in one of *Tusk's* Tubeshuttles. He found his way through an unmanned entrance and managed to travel to *Sinlesshab* without permission. He had a record of criminal activities, mostly

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[3] https://www.technologyreview.com/2022/04/19/1049996/south-africa-ai-surveillance-digital-apartheid/

[4] See Prof. Noam Sobel's work at: https://www.weizmann.ac.il/brain-sciences/worg/; https://www.jneurosci.org/content/27/6/1261.short; https://www.science.org/doi/full/10.1126/science.1198331; https://www.science.org/doi/full/10.1126/sciadv.abg1530; https://www.biorxiv.org/content/10.1101/2021.06.14.448352v2.abstract; https://www.nature.com/articles/s41593-017-0024-x; https://www.nature.com/articles/s41586-020-2891-7; https://www.pnas.org/doi/abs/10.1073/pnas.1208110109; https://www.nature.com/articles/s41586-020-2245-5;

[5] Dabus was developed and is owned by Dr. Stephen Thaler. https://artificialinventor.com/dabus/ On July 30, 2021, an Australian court has ruled that artificial intelligence can be named as the inventor of a patent. See http://www6.austlii.edu.au/cgi-bin/viewdoc/au/cases/cth/FCA/2021/879.html - New Zealand and South Africa -See https://theconversation.com/in-a-world-first-south-africa-grants-patent-to-an-artificial-intelligence-system-165623 and https://www.msn.com/en-us/money/other/south-africa-grants-patent-to-an-ai-system-known-as-dabus/ar-AAN6aqo - are in the same group while the US Trade Office and the EU and UK Trade Offices rejected the application. See https://www.uspto.gov/sites/default/files/documents/16524350.pdf and https://www.epo.org/news-events/news/2019/20191220.html https://www.copyright.gov/rulings-filings/review-board/docs/a-recent-entrance-to-paradise.pdf (affirming the denial to register a two-dimensional artwork authored by the Creativity Machine).

involving stealing DLTs[6] from various exchanges. The DLTs were stolen in ways that the prosecutors could not locate the tokens transferred by *Drepp* in the exchanges and/or landing centers although they could identify *Drepp* as the perpetrator. Once released, *Drepp* followed the love of his life, *CAMPER HURT*, who left him after he was incarcerated for 3 years in a prison located on a space station about hundred fifty miles off the surface of the planet *MOONLESS*.

During his incarceration, *Drepp* was involved in an altercation with other inmates, who tackled him to the ground, and crushed his right dominant arm in several places. He lost a lot of blood and was transported to the *ROBOTIC BIONIC HOSPITAL* located next to the prison where the medical team could not save *Drepp's* arm due to the extensive crushing nature of the injury. The team of robot doctors attached a prosthetic arm to his right shoulder and directly connected it to his brain through his spinal cord. The new prosthetic arm had an electronic infrastructure that was using an Artificial Intelligent algorithm that had an accuracy rate of 99.9%, with no significant lag time. The AI coordinated and controlled the movements of *Drepp*'s arm through the same wireless network used by *Weownyou, Aggli*—owned by *Tusk*. The AI processed *Drepp's* brain signals and sent the corresponding commands to his prosthetic arm. This was the most advanced version as it could also use the wireless networks to scan *Drepp's* surroundings for information but, more importantly, assess *Drepp's* emotions through an emotional intelligence chip that was incorporated into the robotic infrastructure. Specifically, *Drepp* could direct a hammer to strike a nail using his prosthetic arm at various increments of force simply by the emotional strength he felt.

Drepp used a chatbot that impersonated the identity of *Hurt* in accessing her personal information kept by *Weownyou* and obtained all the data related to *Hurt* over a month. He read several news blocks about *Hurt* giving interviews to online social media platforms chronicling *Drepp's* activities in the scheme to defraud DLT exchanges. *Drepp* was angered by the statements and proceeded to meet *Hurt* on the street near her workplace. He stopped her and asked her to retract the nonsense as it was damaging *Drepp*'*s* chances of employment and a future career in the financial sector. She rejected his appeal and quickly moved away from him telling him that there is no harm in some publicity, especially if he was not willing to share the stolen tokens with her. She also informed *Drepp* that she was planning to post a comment on her TOKIKI profile with more explicit detail about Drepp's financial networks, the identities used by *Drepp* to hide the stolen DLTs and the magnitude of his holdings. As part of his probation, *Drepp* had to pay restitution to the DLT exchanges, but he travelled to *Sinlesshab* before he was to transfer the stolen tokens to the rightful owners.

Enraged, *Drepp* started plotting an attack on *Hurt*. He moved around *Sinlesshab* and mapped the points where he could attack her but also spent a lot of time in his apartment, looking at the 3d maps of the roads and alleys. *Weoenyou's* management team was eventually alerted of the activity and the information of the planned attack was transmitted to the reconnaissance team of the *Sinlesshab* police force that thereafter obtained a warrant for his arrest. The information processed included *Drepp's* mental state captured through the scent sensors of the *Weownyou* platform but also accessing *Drepp's* robotic arm and emotional intelligence chip.

[6] Distributed Ledger Technologies: https://www.ibm.com/blockchain?utm_content=SRCWW&p1=Search&p4=43700068512463972&p5=e&gclid=f5aab34b66dd14d77d3bd135f4168062&gclsrc=3p.ds.

Drepp, however, found *Hurt* before the police force could get to him and, upon meeting *Hurt*, asked her once again to stop any future postings and to retrack her story. She condescendingly smiled at him, which angered *Drepp* even more. He wanted to hit her hard but momentarily second-guessed his decision of physical violence. She told him to leave her alone and that she would publish whatever she wanted, including more stories about his underground connections, unless he turned over to her 50% of the stolen tokens. *Drepp* became even more upset and tried to turn to the left, but his emotions ran wild because he was the one who spent 3 years in jail while *Hurt* was living a life of glamour. The algorithm processed all the information, including the level of anger and thoughts of striking *Hurt*, and signaled his arm the command to strike *Hurt*, although *Drepp* had changed his mind about striking her. *Drepp's* bionic arm moved quickly striking *Hurt* in the head once, causing some injuries. She survived the attack but lost her memory, including knowing her identity.

During the criminal trial, the prosecutor used an *Enose* developed at MIT[7] to refresh *Hurt's* memory of her identity. The scent was picked up from *Hurt's* ear through technology developed at the Weizmann Institute in Israel[8]. To prove *Drepp's* intent, the prosecutor used the data of the scent captured by *Weownyou* during the planning stages of committing the crime, but also during the time that *Drepp* struck *Hurt*. While the AI algorithm had an almost perfect rate of accuracy, it appeared from the initial tests that the milliseconds of decision-making by *Drepp* were not enough for the process of striking *Hurt* to be stopped in time.

The prosecutor was then able to submit to *Hurt* the recreated scent of *Drepp* at the moment of contact to help her identify him. *Hurt* was able to identify *Drepp's* scent as the perpetrator of the crime although she did not recall his name, physical characteristics, or their past relationship. *Hurt's* injury was of such nature that she was no longer able to post any further stories about their relationship after the attack. Her number of followers on *Tokiki* dwindled quickly, while the gossip media outlets canceled their ads.

During the cross-examination, *Drepp*'s lawyer attempted to use manipulated olfactory data to challenge the credibility of *Hurt's* memory of *Drepp's* scent. The prosecutor objected to the introduction of such data as the scent data had been imperceptibly changed at the input phase by the expert retained by *Drepp's* defense team. The basis of the challenge was that the expert used an AI platform (owned by a competitor to *Dabus*) that was robust to manipulation.[9] The judge allowed the Prosecutor's motion to exclude all the manipulated olfactory data and subsequent opinions from *Drepp's* expert.

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[7] https://news.mit.edu/2021/disease-detection-device-dogs-0217#:~:text=Caption%3A-,Andreas%20Mershin%20visits%20with%20one%20of%20the%20trained%20disease%2Dsniffing,the%20organization%20Medical%20Detection%20Dogs.&text=Medical%20Diagnostic%20Dogs-,Caption%3A,Mershin%20and%20his%20co%2Dworkers.

[8] https://achems.org/2022/printable-program-abstracts.php; Stephanie Brener, MSc Student, "Identifying Humans From The Smell Of Their Ear", Weizmann Institute, Department of Computational Neuroscience. (Soon to be published article).

[9] "A current hot top in AI is the recognition that if a person has access to an AI, then it is almost always the case that imperceptible changes can be made to the input that will dramatically shift the result. This is sometimes referred as the robustness/accuracy paradox. You can either have an AI that will be robust to manipulation or an AI that can accurately distinguish diverse inputs, but you can't have both. This has been a major setback for the use of AI in situations whereby one party might try to manipulate the result." *Comments made by Jeremy Kepner of the MIT Lincoln Lab, to the author of the problem in an email on May 5, 2022.*

Drepp's attorney also argued that *Drepp* could not be held liable for a crime that was not completely within his control as the AI in the prosthetic arm acted before *Drepp* could process the stop function in his brain. The Court denied the request of the defense and excluded all evidence related to the AI algorithm holding instead that *Drepp's* bionic parts could not be separated from the person for purposes of determining culpability. The ultimate control, the judge ruled, rested with *Drepp.*

The Court found *Drepp* guilty and sentenced him to 15 years in prison. *Drepp* appealed his conviction to the Supreme Court of Kronos, which agreed to consider the following issues:

LEGAL ISSUES PRESENTED[10]

(1) Can the scent data captured by *Weownyou* during the time that *Drepp* was plotting the attack upon *Hurt* and the time of the commission of the crime be used to prove *Drepp's* intent?

(2) Can the scent data captured by *Weownyou* during the time that *Drepp* was plotting the attack upon *Hurt* within the privacy of his home, be used to prove *Drepp's* intent? No warrant to search or capture this data was obtained and the details of this technology were not made publicly available. It was also unclear from the data obtained, whether all the olfactory data was secured from *Drepp's* home or outside.

(3) Can the scent data reproduced by the prosecution be used to refresh the memory of *Hurt* in identifying *Drepp* as the perpetrator of the crime? Judge Learned Hand wrote in 1947: "Anything may in fact revive a memory: a song, a scent, a photograph, and allusion, even a past statement known to be false." *United States v. Rappy*, 157 F.2d 964, 967 (2d Cir. 1947).[11] Did the lower Court commit reversible error by excluding the manipulated data used by *Drepp's* expert to challenge the credibility of *Hurt* given that AI system used by the expert was robust to manipulation? Should the Court recognize data obtained only through an AI platform that can accurately distinguish diverse inputs?

(4) Can the AI platform (and the software manufacturer) incorporated into *Drepp's* prosthetic arm be responsible for the commission of the crime? Did *Drepp* have the intent to commit the crime given that he changed his mind a few seconds before he struck Hurt but could not control timely the prosthetic arm movements?

Subsidiary Issues (not to be addressed during the Moot)

(1) Who owns the olfactory data captured by *Weownyou* on *Sinlesshab*?

(2) Do parties have the right to delete or erase that olfactory data from the *Weownyou* servers?

[10] There is no need to discuss jurisdictional or data privacy issues.
[11] Also *see* Freud's "A Disturbance of Memory on the Acropolis". http://users.clas.ufl.edu/burt/I'mnotcrazy!/ADisturbanceofMemory.pdf