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UNIVERSITY OF NORTH DAKOTA SCHOOL OF LAW
Intellectual Property
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ESSAY ISSUE SPOTTER

FINAL EXAMINATION – ESSAY

Open-book. Three hours.

Write your exam number here: _____

All exam materials (including this booklet and your response) must be turned in at the end of the period. You will not receive credit unless you return this booklet with your exam number written above. Do not turn the page until instructed to begin.

General Notes and Instructions

1. Your goal is to show your mastery of the material presented in this course and your skills in analyzing legal problems. It is upon these bases that you will be graded.
2. For the purpose of answering questions, unless otherwise directed, assume that today's date is the original, officially scheduled date of the administration of the exam (printed in the bottom-right of this page).
3. Unless expressly stated otherwise, assume that the facts recited herein occur within the United States, and references to rights, registration, applications, etc., are references to the same in the United States.
4. Unless directed otherwise, base your answer on the federal law, the general state of the common law, and typical state statutory law in the United States, including all rules, procedures, and cases as presented in class.
5. Unless otherwise explicitly stated, all references to patents and patent applications are of the utility kind (as opposed to plant or design) and are nonprovisional in nature.
6. You may write anywhere on the examination materials — e.g., for use as scratch paper. But only answers and material recorded in the proper places will be graded.
7. During the exam: You may not consult with anyone – necessary communications with the proctors being the exception. You may not view, attempt to view, or use information obtained from viewing materials other than your own.
8. You may not copy, transcribe, or distribute the material in this booklet or attempt to do the same.
9. After the exam: You may discuss the exam with anyone, except that you may not communicate regarding the exam with any enrolled member of the class who has not yet taken the exam, and you must take reasonable precautions to prevent disclosure of any information about the exam to the same.

Specific Notes and Instructions for PART TWO:

a. This Part Two is approximately 2/3 of your exam grade.
b. This Part Two of the exam is administered on an "open-book basis." You may use any notes and books you like. No electronic or interactive resources (such as a tablet computer, smart phone, etc.) may be used or referenced. You may, of course, use a laptop to write your exam, but you may not reference files stored thereon during the examination session. No materials may be shared during the exam.
c. This exam will be graded anonymously. You may not waive anonymity. Do not write your name on any part of the exam response or identify yourself in any way, other than to use your examination I.D. number appropriately. Self-identification on the exam or afterward will, at a minimum, result in a lower grade, and may result in disciplinary action.
d. Keep in mind the hypothetical setting for the exam facts, noted in general instructions above. In your written response, it is appropriate, if you wish, to note differences between minority and majority approaches in your answer, as well as statutory or other differences among jurisdictions.
e. Note all issues you see. More difficult issues will require more analysis. Spend your time accordingly.
f. Organization counts.
g. Read all exam question subparts before answering any of them — that way you can be sure to put all of your material in the right place.
h. Feel free to use abbreviations, if the meaning is clear.
i. **Bluebooks:** Make sure your handwriting is legible. I cannot grade what I cannot read. Skip lines and write on only on one side of the page. Please use a separate bluebook for each subpart.
j. **Computers:** Please clearly label each subpart of your answer.
k. All exam materials, including this booklet, must be turned in at the conclusion of the period for taking this portion of the exam.
l. Good luck!

1UP

IT CAME TO HENRY HUANG WHILE HE WAS ON THE ELLIPTICAL MACHINE. "Dancing With Myself" by Billy Idol was going through his earbuds. His gaze wandered out through the gym's floor-to-ceiling plate-glass windows. People were power walking along the river.

Staring out the window, Henry's eyes were always drawn to the walkers' arms pumping up and down. He watched a pair of bright yellow hand-weights oscillate through space. The weights had neoprene straps so they wouldn't fly off in a ballistic arc and bean someone. Henry wondered why he was noticing all this. Clearly, his mind was wandering – probably because he didn't have the resistance up high enough. He could almost make out the logo on neoprene strap. It was an oval with a word. Then, *WHAMMO*! That was the exact moment Henry had one of the biggest ideas of his life:

The experiential-gaze-prediction algorithm.[1]

Henry was a semi-retired video game developer. And lately, he had been thinking a lot lately about virtual reality (or "VR" as it's often called, or sometimes "virtuality"). This is the insight he had while staring out the window: *If you knew where people were going to look, then you could put more detail there*.

Immediately, Henry felt a sense of utter elation with this newfound wisdom. Henry stared at the red LED readout on the elliptical machine. There was a slight scratch in the plastic over the second digit. He marveled at it. What if virtual reality in a video game could be that detailed?

In the past few months, an incredible new array of virtual reality equipment had come on to the market – particularly the Oculus Rift and HTC Vive headsets. It was all anyone in the industry could talk about: Goggles that you slip on over your head containing one high-resolution monitor for each eye, accoutered with an array of motion and position sensors that could precisely determine the changing position of your head, allowing the device to instantaneously make corresponding changes to the images in front of your eyes. The result was a fully immersive virtual world. Swing your head around 180 degrees, for instance, and you were seeing what was behind you.

Virtual reality had long been a dream – but no longer. With the Oculus and HTC devices, the hardware was currently available for knock-your-socks-off VR. It was now up to developers to create a new generation of video games that would realize virtual reality's full potential.

Henry was considered one of the best video game designers ever. His name was often mentioned in conversation alongside the likes of Atari-founder Nolan Bushnell. But right now, Henry was idle. A developer without anything to develop. He had recently sold his last company for enough money to allow him to relax in luxury for the rest of his life. But what would be the point of that? Henry wanted another challenge. And there was no bigger challenge to be had than making the killer app for VR.[2]

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[1] According to Wikipedia: "In mathematics and computer science, an *algorithm* is a self-contained step-by-step set of operations to be performed. Algorithms exist that perform calculations, data processing, and automated reasoning." (Wikipedia's right, by the way.)

[2] Wikipedia says: "In marketing terminology, a *killer application* (commonly shortened to *killer app*) is any computer program that is so necessary or desirable that it proves the core value of some larger technology, such as computer hardware, a gaming console, software, a programming language, a software platform, or an operating system." (Again, Wikipedia's reliable here.)

But Henry couldn't help thinking there was a little something with VR – a little *problem* with it – that hadn't been taken care of. Henry had learned not to swat away niggling thoughts like that. That tickle of annoyance, he had found through the years, often meant there was something there that needed to be pulled free. Something new and valuable. Something important.

And so it was in that moment of watching the bobbing hand-weights out the window that Henry both figured out what the problem was and what the solution could be. The problem was: *How could you ever fill virtual reality with all the rich detail of real reality?* Real reality required too much data. A computer that could simulate the entire universe, after all, would have to be the size of the entire universe. The solution was *the experiential-gaze-prediction algorithm* (or "EGP," as Henry had already started calling it in his mind).

"Blue Monday" by New Order started coming through his iPod, and Henry picked up the pace. With EGP technology, a video game could provide a better virtual reality experience by keeping track of where the eyes went.

Learning from its users over time, the system could become better and better at predicting where a user would look next. And then, for those places where a player was likely to look, the game could self-generate richer detail.

And since where you were looking in one moment often signaled where you would travel in the next, the EGP system would be able to predict the player's likely next destination in the virtual environment, allowing those aspects of the virtual environment to be pre-loaded into the computer's memory so that virtuality would be available in sparkling detail even before the player got there.

Henry had, in other words, figured out how to hack the universe-sized-computer problem, how to make virtual reality as detailed as real reality without a universe-sized computer. EGP was a way of using an incomplete dataset to create the appearance of completeness.

As "Atomic" by Blondie came on his iPod, Henry thought about the importance of the data from eye movements. VR technology like Oculus Rift and HTC Vive detected head motion. But it didn't keep track of eye movements. Henry would need that to take EGP to its full potential.

Debbie Harry was singing the lyric "Your hair is beautiful tonight." Henry went with that as an example. Take a scene of characters dancing in a nightclub. The player's head might not swivel, yet the player's eyes might nonetheless be drawn to looking at one particular character's hair. And if that is what players tended to look at, then Henry's EGP could make sure the game provided the richest possible detail there.

Henry's elliptical machine timed out just as "View to a Kill" by Duran Duran came on. Henry knew he'd have something to do for the next few years. Semi-retirement was blessedly over.

FIG. 1: ***The Oculus Rift VR headset. The Oculus company is wholly owned by Facebook, which purchased the start-up for $2 billion.***

WHEN HENRY GOT BACK TO HIS HOUSE, he immediately started working to create what he called the "GazeMaster." He pulled apart some mobile phones, got the cameras out of them, and hooked those into an Oculus Rift VR headset. Instead of starting from scratch in writing the code needed to track eye movements, Henry took code from PupilPath, an existing technology developed for phones.

PupilPath uses the front-facing camera of a phone to track a user's eye movements. DigiMech Dynamics, the company that developed PupilPath, has licensed its technology to the leading cell phone manufacturers – for a hefty fee – and thus those manufacturers have been able to include it pre-loaded with their phones.

Henry was able to access the PupilPath source code because DigiMech Dynamics openly posted it online. This was part of DigiMech's business model. They wanted to allow app developers to see exactly how PupilPath works, because doing so allows app developers to make the best possible use of a phone's PupilPath capabilities. And that, in turn, makes PupilPath more valuable to phone manufacturers.

Henry simply cut-and-pasted huge blocks of PupilPath code into his own code to run the GazeMaster.

After a 72-hour coding and soldering binge, Henry had a working VR headset with the GazeMaster clipped-on. Fitted onto any existing Oculus Rift or HTC Vive headset, the GazeMaster would feed real-time eye-movement data into the computer, so that a video game could make use of it.

NOW IT WAS TIME FOR HENRY TO BUILD A NEW COMPANY. Obviously his first call was to Yami Yarber, his business partner from his last five ventures. Yami would be able to evaluate what Henry had come up with – how new and innovative it was, and, most importantly, how marketable.

She answered before the first full ring.

"Henry! I've been wondering when you would call. Have you figured out what our next company is going to be?"

"I think I've got something," Henry said. "Come over and look at it, and then you can tell me what I've got."

When Yami saw what Henry had done, she was very impressed.

"So your EGP is, I think," Yami said, "a pretty straightforward use of predictive algorithms, such as those used by Netflix to make recommendations to subscribers of what movies to watch. So, of course, the prediction part is not new. But it's never been used to help developers add richer detail in virtual environments. Although, up until very recently, there's been no reason to try to do this. And now everyone is talking about the need to go back into the well of algorithms that undergird key advances in web- and app-based technologies and use those algorithms to make VR better. So maybe people would have gotten around to it sooner or later."

"Okay, that's fair," Henry said.

"On the other hand," Yami looked up to the ceiling and screwed her face up in thought, "Facebook has billions of dollars. They've thrown a good chunk of it at VR, and they haven't come up with this. And half a dozen other high-profile companies have been working on this, too. They haven't come up with this either. So, you know, I think maybe you've solved a problem that people hadn't yet realized existed."

"Well, that sounds good," Henry said.

"Now the clip-on eye-following cameras. The GazeMaster. That's completely new. I honestly don't know why people haven't thought of that before. But maybe it's because they didn't see the point in it. And your EGP is the point. So, okay, Henry. I'm onboard. Let's do it. Let's build another company."

"Awesome!" Henry exclaimed. "I already sent you a copy of all the code and documentation for EGP and GazeMaster by e-mail."

"Ugh! Henry! Stop sending stuff like that by unencrypted e-mail! You know as well as I do that when e-mails go through third-party routers – as they all do – they are vulnerable to snoopers checking to see what a famous person like you might be up to."

"Duly noted," said Henry, chastised. "I won't do it again."

TWO WEEKS LATER Henry and Yami had formed a corporation, gotten office space, and brought on a dozen employees. The company was setting out to work on producing an MMORG (massively multiplayer online role-playing game) – that is, a video game that allows huge numbers of players from around the world to simultaneously log-on and play as characters interacting with one another in a single virtual world.

MMORG is a videogame category that takes in billions of dollars annually in subscription revenues. And that's before VR. Like many others in the industry, Henry and Yami saw MMORGs as a golden path to huge revenues in VR. And Henry and Yami thought they had a huge advantage in that market with EGP and the GazeMaster. Reciprocally, the MMORG would be the highest-visibility platform for showing off the capability of EGP and the GazeMaster, which would, in turn, help them license the technology to other companies for other uses.

FIG. 2: ***The train carrying Ernie Evenson arrives at the Menlo View station.***

Now they needed a theme for the game. Henry and Yami decided on setting the game in deep space using an artistic motif inspired by futuristic visions of starships popular in the late 1960s through the late 1970s. But they need more than a theme and motif. They would need a writer to breathe life into their new world and create an engrossing story that would grab players and get them hooked. So they flew in famed science-fiction author Ernie Evenson for an interview. Ernie had the kind of reputation and renown that would lend instant credibility to their project.

Henry and Yami met Ernie at the Menlo View train station and walked with him the four short blocks to their offices. Ernie immediately asked about their game theme and the enabling technology, and then with a "Here's what I would do," Ernie started talking. And talking. By the time they got to the door of their office building, Ernie had already started outlining a grand struggle between good and evil, explaining not only the general story arc, but fleshing out subplots in which player factions were fighting skirmishes to dominate key outposts in space and crucial modes of technology to advance their chosen sides in the overall conflict. He also made the ability to discern rich detail in this virtual world a key to the story line and its essential mysteries that players would be driven to solve.

As they moved the meeting into their second-floor conference room, Ernie continued talking unceasingly, and Yami started gesturing urgently for all their new-hires to join them and listen. Within a few minutes it was standing-room-only around the big table as Ernie accelerated with the most fantastic burst of creative frenzy anyone there had ever seen. Ernie was soon specifying the finest details of this new world, together with its characters, environments, and magical properties. And as he spoke, he

linked disparate parts, explaining how they all related to one another in an intricate web of connections and hidden symmetries.

All of this Ernie spun into the air – not writing anything down. And as he talked, no one else wrote anything down either. They were too engrossed.

After seven solid hours, Ernie said he was feeling a bit jet-lagged, and that he would like to head to his hotel. Once he was gone, every employee at the company started furiously typing away at their keyboards, struggling to record everything Ernie had said that day.

When Henry and Yami met Ernie for breakfast the next morning, they both said in unison: "You're hired!"

Ernie was happy to be onboard. But he would have to insist on certain freedoms. He was working on three different novels and a screenplay at the moment, he explained. And he didn't want to slow down on any of them. But he could guarantee Henry and Yami 15 hours of his creative output a week. In return, Henry and Yami would give Ernie $50,000 a week plus some stock options. Meanwhile, Ernie would not need to come into their office, he would be allowed to schedule the work on his own time, and he would have complete creative freedom. Henry wrote this up in a very short contract – adding nothing to it.

It was now time for serious work. To motivate the employees and get them all thinking along the same artistic wavelength, Henry made them each a special mixtape of the songs that had been playing on his iPod during his insanely creative elliptical-machine workout.[3] The mixtape had "Dancing With Myself," "Blue Monday," "Atomic," "View to a Kill," and 11 other songs – in a special order that Henry considered to be artistically perfect. He dubbed off 13 copies on CD – one for each employee, including Yami. Not knowing what to call the mix, he wrote "1UP" in Sharpie marker on each. A term going back to the early days of video games in the 1970s and 80s, "1UP" on the screen meant that a player had been granted an extra life. He gave a 1UP mixtape to each of his employees along with a pair of trendy, high-end headphones.

Soon enough, everyone was wired in – slightly bobbing their heads to the music in their ears as they smashed away at their keyboards. Before long, everyone in the office was calling the yet-to-be-named game "1UP."

Meanwhile, Henry and Yami's new venture needed to do some branding work – starting with a brand name for their technology. Yami came up with a few possibilities, listed them out, and for each she identified what she considered to be "potential issues."

This was her list:

[3] According to Wikipedia: "A *mixtape* is a home-made compilation of music (typically copyrighted songs taken from other sources) recorded in a specific order, traditionally onto an audio cassette, though CD or MP3 playlist formats are now more common. The songs can be sequential, or by beatmatching the songs and creating overlaps and fades between the end of one song and the beginning of another the tape may become a seamless whole. Compilations may include a selection of favorite songs, or music linked by theme or mood, perhaps tailored to the tape's intended recipient. Essayist Geoffrey O'Brien has called the personal mix tape 'the most widely practised American art form.'"

- **Ocutonic** – "Ocu" comes from *oculus* which is Latin for "eye." And "tonic" means "a liquid with invigorating effect." Potential issues are: (1) Facebook's VR brand is "Oculus" (as in "Oculus Rift"). (2) There is a reggae band called "Acutonic." (3) There is a brand of tuning forks called "Acutonic."[4]
- **Powerpaint** – This name refers to the ability of the technology to "paint" detail in the game in a particularly powerful way. Potential issues are: (1) Currently there's a "PowerPaint" for illustration software – that is, software that allows the user to make digital artwork. (2) Microsoft Corporation uses the name "PowerPoint" for its slideshow software, which is by far the most popular slideshow software on the market.
- **Xenter** – This is a made up word generated by the Fake Word Creator at fakewordcreator.com. Fiona Froushaw, proprietor of Fake Word Creator, explains, "These 'words' are created by a computer program that randomly pushes together various syllables in patterns that mimic those found in frequent usage in the English language. You are free to browse the words created by the Fake Word Creator. But if you want to use any of the words in connection with a business, you must purchase a license from me." Potential issues are: (1) We haven't purchased a license from Fiona Froushaw, and we don't want to. (2) There is a fan-fiction author writing under the name "Xenter," and she or he has written a number of Star Wars space-themed fan-fiction stories.

WITH MUCH OF THE STORY WRITTEN, AND WITH A BRAND NAME PENDING, Henry and Yami decided it was time to begin a publicity campaign. They bought banner ads on the highest-profile blogs for MMORG aficionados. The ads included starship-style art created by company employees along with a picture of the very recognizable face of Ernie Evenson. It was a photo Henry had taken when Ernie visited – and its use in the ad clearly implied his involvement in a new VR MMORG. The ads immediately caused a frenzy among serious gamers around the world.

Then Yami leaked word of her and Henry's involvement. Because of Henry and Yami's track-record of Silicon Valley successes, the press quickly took to talking about the as-yet unnamed venture as the coming juggernaut in VR gaming.

Then Henry posted to his blog the list of songs he had put on his 1UP mixtape. It was just a text list, mind you. There were no audio tracks. But he soon thereafter got a letter from the record company that had released eight of the 15 songs on the list. The letter demanded that he pay a license fee for, as the letter put it, "posting the mixtape online."

Then the next day, Henry was rankled when he saw that Apple's iTunes online music store was selling "1UP" as an "album" on iTunes. That meant that an iTunes customer could download all 15 songs at once, arranged in Henry's own order.

So those were hassles. But all things considered, Henry and Yami felt satisfied that they had started their new company off right. Then they received a letter from Ernie's lawyer. It demanded that the company immediately cease and desist from using Ernie's name or likeness in any and all marketing for the venture. If they did not, the letter

[4] Here's Wikipedia again: "A *tuning fork* is an acoustic resonator in the form of a two-pronged fork with the prongs formed from a U-shaped bar of metal. It resonates at a specific constant pitch and is frequently used as a standard of pitch to tune musical instruments."

threatened, Ernie would seek to prohibit Henry and Yami's company from using the story material that Ernie had generated. That seemed like a very serious problem.

Then Henry and Yami got another unwelcome missive: a cease-and-desist letter from the maker of *Starships of Solhelios*, an MMORG which, the letter claimed, had a protectable trademark and copyright interest in the use of the late-1960s-to-late-1970s style of futuristic starships in an MMORG.

Henry exhaled deeply and stared up the ceiling. "You know who we didn't bring in on our management team."

"Yeah," Yami said. "A lawyer."

BY THAT AFTERNOON, Henry and Yami were sitting in a corner office at Wilsini & Westwick, the famous tech-industry law firm, talking to one of the firm's top partners and a new associate. They explained everything that had transpired.

After they left, the partner turned to the new associate.

That's you.

"Write up the intellectual property aspects of this for me," the partner directed. "I want to know what IP rights the company has or can get on what they have created. And I want to know what the liability picture is as well. In terms of protectable technologies, I see the EGP technology and the GazeMaster as separate pieces, so analyze them as separate pieces. With regard to Yami's possible choices for brand names, be sure to address her 'potential issues' for each. But don't analyze 'GazeMaster,' 'EGP,' or '1UP' as potential trademarks – those terms are just used internally at the company. Okay now, in addition to everything else there is to discuss, make sure you cover this mixtape thing. Does Henry have liability with that? And can we go after Apple for selling his mixtape in their iTunes store – even though they clearly have the rights to sell the songs individually?"

FIG. 3: ***The Menlo View office of Wilsini & Westwick on Sand Mill Road. For 12 years running, tech companies have named Wilsini & Westwick the most respected law firm for advising tech start-ups and for doing venture-capital financing deals.***

QUESTION

Analyze the parties' legal positions and explain how you would advise Henry and Yami. Follow the partner's directions. Among the aspects of the situation that you analyze, make sure to cover those bases that your supervising partner delineated.

Organize your response as follows, clearly labeling the subparts:

Subpart A: Discuss any issues concerning copyright and, if applicable, moral rights.

Subpart B: Discuss any issues concerning patents and trade secrets, and, if applicable, any sui generis rights or other forms of IP protection for inventions, industrial designs, or the like.

Subpart C: Discuss any issues concerning trademark (including trade dress, unfair competition, and related doctrines).

Subpart D: If there is anything else you wish to discuss, which does not belong in any of subparts A through C, please put it under this Subpart D.

A few things to keep in mind: The subparts will not all be given equal weight. The subpart structure is provided for organizational purposes only. Pace yourself appropriately, and plan ahead to put information where it belongs. Also, avoid needless repetition. Do not repeat the exact same analysis with substituted parties. Computer users should generally avoid the cut-and-paste function. You may incorporate analysis by reference to another portion of your exam answer to the extent appropriate.

Some suggested abbreviations for your answer:

DigiMech Dynamics	DD
Ernie Evenson	EE
experiential-gaze-prediction	EGP
Fiona Froushaw	FF
GazeMaster	GM
Henry Huang	HH
HTC Vive	HV
Oculus Rift	OR
PupilPath	PP
Starships of Solhelios	SS
virtual reality	VR
Yami Yarber	YY

CREDITS AND NOTES

The material in this box is not part of the hypothetical facts for the exam.

Fig. 1, photo from Oculus VR. Figs. 2 & 3 by Eric E. Johnson.

The hypothetical facts borrow ideas and pay homage to various science-fiction/cyberpunk works—particularly those of Ernest Cline and Neal Stephenson.