

Written Testimony of Mahsaw Mansoor  
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"Iowa: A Leader in Veteran Healthcare Innovation"

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Subcommittee on Health  
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Chairwoman Miller-Meeks, Ranking Member Brownley, and distinguished members of the subcommittee: On behalf of the University of Iowa Healthcare and the Iowa City Veterans' Affairs Medical Center (VAMC), thank you for the opportunity to appear before you to discuss the status quo and, importantly, innovations in veteran healthcare in the state of Iowa.

I am Mahsaw Mansoor, a resident physician completing my training at the University of Iowa. I have proudly been training in the Veterans' Affairs (VA) Healthcare System for the past eight years, first as a medical student at the Southern Arizona VA Health Care System and now, as a physician, at the Iowa City VAMC. I am grateful for the opportunity to speak about our experiences in vision research and developing cutting edge artificial intelligence (AI) technology and studying AI safety, and the impact of this in creating widespread availability of healthcare resources. We have great interest in working collaboratively with governments to ensure the delivery and availability of safe and beneficial AI tools.

Before we discuss the exciting progress in Iowa, I would like to share why this topic is deeply personal to me. As a second generation Iranian American, I cherish the values of the American Heartland. We are a community rooted in unspoken truths of integrity, self-sufficiency, and hard work. This, of course, lends naturally to the American Dream and immigrant values that were instilled in me by my parents. Much of our beautiful state is composed of rural farms and small-town communities, and it is the heart of America that lives in these small towns. But, this means, more often than not, our patients travel far to access care. Appointments are often scheduled with a recognition for when the harvest will begin because the livelihood of our patients depends on it. The social determinants of access to care quickly become apparent: transportation, loss of a day's wages, inability to tend to the farm, and unpredictable weather are among many. This translates to missed appointments, delayed care, and economic impacts that are immeasurable.

This is why I stand here before you to share the impact of autonomous AI in deconstructing these barriers. No veteran, Iowan, or American should ever fall into the ranks of an invisible population that has limited access to care. Our story starts here, and I commend our Iowa City VAMC for leading the development of AI technologies that improve access to care in an ethical way.

### Background

Approximately 38 million Americans have diabetes mellitus (DM) and over 97 million people are estimated to have prediabetes in the United States.<sup>1</sup> DM prevalence continues to increase not just in the aging population, but even among children and adolescents.<sup>2</sup> Complications from DM are the leading cause of blindness in working age adults in our country.<sup>3,4</sup> Further, the presence of

diabetic retinopathy (DR) is significantly associated with all-cause mortality in elderly individuals in the United States.<sup>5</sup>

In Iowa, about 10% of the adult population has been diagnosed with DM.<sup>6</sup> It is estimated that the economic burden of this in Iowa alone is greater than \$2.5 billion each year.<sup>6</sup> Despite the obvious economic and health burdens, many are surprised to learn that DR can be prevented with screening and early detection. In most healthcare settings, this involves at a minimum an annual visit to an ophthalmologist. Yet, the aforementioned social determinants of care are a barrier to adequate screening both nationally and globally. Improving screening and prevention will save vision and improve lives.

This is where Iowa has led the way in developing autonomous AI that allows for enhanced and increased screening in a safe and ethical manner that improves access to care, even to the smallest rural communities of our state.

#### About Supported Vision Research at the Iowa City VAMC

Currently, there are multiple AI research projects at the Iowa City VA Center for the Prevention and Treatment of Blindness (CPTVL). We are extremely grateful to have support and funding from the VA Rehabilitation Research and Development Division. This team is led by Dr. Randy Kardon, who is an internationally recognized expert in neuro-ophthalmology and an extremely accomplished vision researcher. Grant funding was recently renewed for our fourth 5-year cycle starting in July of this year. This includes core funding from the Rehabilitation and Development Division of \$1.2 million per year. There is additional funding directly from the National Institutes

of Health and Department of Defense that increases our research funding to about \$7 million per year currently. We are grateful for this support as it has been able to catalyze AI research at the Iowa City VA.

The research team led by Dr. Kardon focuses on the application of AI and deep learning to quantify and visualize the spatial patterns of nerve loss in the retina in highly impactful blinding diseases affecting Veterans and citizens with glaucoma, age-related macular degeneration, DM, multiple sclerosis, ischemic optic neuropathy, radiation retinopathy, and eye movement disorders.

#### About Digital Diagnostics – An Iowa Founded AI Company

Digital Diagnostics is a healthcare technology company founded by Dr. Michael Abramoff in Coralville, Iowa. As a healthcare technology company, Digital Diagnostics designs and implements AI systems that can diagnose disease by analyzing high-quality images. Digital Diagnostics' mission is to benefit patients by developing technology to make healthcare easier to access, affordable, available to everyone, and of the highest quality. Built on a foundation of bioethical principles, Digital Diagnostics is creating impactful AI diagnostic systems that improve patient outcomes and address existing barriers to care. Using AI, we can create solutions that help increase access, reduce costs, and improve the quality of care for those that need it most.

#### About Digital Diagnostics Technology

Digital Diagnostics' flagship product, LumineticsCore™, is an AI system designed to diagnose diabetes related eye disease without needing a physician to look at the images. LumineticsCore can help increase patient access to care by bringing diagnostic results to where the patient already

is, referring only those patients that need follow-up care and eliminating the need for an additional appointment for most people. This enables providers to close the eye exam for diabetes care gap by offering a specialty level diagnostic exam at the point-of-care in primary care, and like settings. Specialty care providers can also benefit from point-of-care diagnosis with increased referrals from primary care, less time spent on routine exams, and more time to practice top of license and treat the people that need them most.

Digital Diagnostics has helped pave the path for the use of AI diagnosis in healthcare. The Iowa led team was pivotal in establishing many industry and governmental firsts including Food and Drug Administration (FDA) approval of an autonomous diagnostic system, creation of the first ever autonomous AI current procedural terminology (CPT) code for billing and payment, and inclusion of autonomous AI in the American Academy of Ophthalmology's diabetic retinopathy preferred practice pattern (PPP). Digital Diagnostics continues to work diligently with healthcare industry stakeholders, from regulators, to providers, to patient advocacy groups to establish AI diagnosis as the new standard of care. Digital Diagnostics is a healthcare AI leader that has shown that intelligent diagnostic platforms can be deployed safely and responsibly to improve patient outcomes and increase healthcare productivity.

### AI Safety Practices

AI systems in healthcare like LumineticsCore will make clinical decisions without human oversight. While such rigorously validated diagnostic systems hold great promise for improving access to care, the benefits require evaluation from a bioethics and accountability perspective. This foundational mission has been a key aspect of our mission in Iowa. From a diagnostic perspective,

multiple studies and validated protocols have demonstrated the reproducibility and repeatability metrics of autonomous AI.<sup>7-12</sup> Digital Diagnostics is committed to the rigorous ethical considerations necessary for successful deployment of AI technologies; further, Dr. Abramoff has been a leader in navigating this bioethical landscape and creating a conceptual map for the healthcare community to consider when navigating autonomous AI systems.

### AI Improves the Delivery of Healthcare

Encouragingly, emerging evidence from randomized controlled trials (RCTs) highlights the impact of autonomous AI for diabetic eye exams in primary care patients to improve health equity<sup>13</sup>, physician productivity<sup>14</sup>, and adherence to appropriate care<sup>15,16</sup> at scale. Autonomous AI has been validated at the point-of-care to increase healthcare productivity<sup>15,17,18</sup>, improve access to the diabetic eye exam,<sup>15,19,20</sup> reduce access disparities<sup>16,20-22</sup>, and improve clinician productivity and satisfaction.<sup>14</sup> We have shown at Iowa that autonomous AI is a scalable solution to a problem long considered intractable.

In our state and others, AI will bridge the gap. It will increase our reach and allow greater access to rural communities. LumineticsCore effectively allows specialty service care to be performed by a minimally trained camera operator to detect DR at the point-of-care such as in a primary care clinic, retail care setting, or commercial laboratory. This allows for only those who have a positive DR diagnosis to then be referred to a specialist to establish a care management plan to treat their DR, allowing for specialists to practice top of license and limiting appointments with people who may not otherwise have disease. The burden is reduced at the specialist's office due to the implementation and adoption of LumineticsCore as a scalable autonomous AI technology.

## Conclusion

Complications of DM and resulting vision loss should not be determined by lack of equitable access to early diagnosis and treatment. At the University of Iowa and the Iowa City VA we have a team dedicated to bridging the gap to deliver care to those that need it most. Our group has paved the way for autonomous AI in an ethical way with the development of LumineticsCore and Digital Diagnostics. Through continued vision research, we are committed to improving access to Iowans across the state.

Our group would like to thank Chairwoman Miller-Meeks, Ranking Member Brownley, and all members of the subcommittee for allowing an opportunity to testify before you today. We have no greater priority than ensuring our veterans have access to the highest quality care, and we are privileged to continue in a path of innovation that benefits all Iowans.

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