

3. Through this case, Plaintiffs seek to protect their significant investment in medical imaging technology, which facilitates their commitment to the advancement of disease diagnosis and treatment.

4. In doing so, Plaintiffs aim to redeem the basic principle that Defendant MIM cannot infringe Plaintiffs' patents simply because MIM would prefer not to pay for a license to Plaintiffs' coveted, patented technology.

5. Defendant MIM sells imaging tools for radiation oncology, radiology, and nuclear medicine, including software products like Contour ProtégéAI® and MIM SurePlan™ MRT (the "Infringing Products"), as well as other products like LesionID®, that display scan results to physicians. In 2020, MIM and Plaintiffs began discussing potentially integrating the inventions claimed in the Asserted Patents (amongst other technological advances) into MIM's nuclear imaging software platform. Pursuant to a Confidential Disclosure Agreement signed in 2021, Plaintiffs agreed to explore a possible integration with MIM. In other words, MIM was considering licensing Plaintiffs' patented technology so that the two companies could partner. As part of that effort, Plaintiffs shared their patented inventions with MIM and helped MIM consider how those inventions could improve MIM's software. One of the inventors of the '486 patent (Karl Sjöstrand) even agreed to work with MIM on that project.

6. In October 2022, about two years after the partnership discussions began, Plaintiffs sent MIM a draft Collaboration Agreement. The agreement included a list of Plaintiffs' relevant patents—including the Asserted Patents.

7. Months went by, and Plaintiffs heard nothing back from MIM about the draft Agreement, even though MIM continued to emphasize its interest in incorporating Plaintiffs' patented technology into MIM's software.

8. Clouds gathered around June 2023 when Plaintiffs discovered that MIM had begun publishing articles and website materials about apparently new features included in two MIM products—Contour ProtégéAI® and MIM SurePlan™ MRT (the “Infringing Products”). MIM’s publications were and are troubling to Plaintiffs. They plainly show that MIM took the inventions claimed in the Asserted Patents and, instead of licensing the technology from Plaintiffs, simply integrated the inventions into the Infringing Products without Plaintiffs’ permission.

9. Making matters worse, MIM relied on Plaintiffs’ patented innovations to induce GE HealthCare to acquire MIM in January of this year. Apparently, MIM had been pursuing acquisition by GE HealthCare for months while simultaneously incorporating Plaintiffs’ patented inventions into MIM’s software.

10. Upon information and belief, MIM disregarded the Asserted Patents after deciding that it was simply more convenient than paying for a license to use them. MIM infringed the Asserted Patents to both improve its software and market itself to its eventual acquirer, GE HealthCare.

11. Plaintiffs thus bring this suit to put a stop to MIM’s illegal conduct and obtain compensation for MIM’s intentional wrongdoing.

THE PARTIES

12. Plaintiff Progenics is a corporation organized and existing under the laws of the State of Delaware, having its principal place of business at 201 Burlington Road, South Building, Bedford, Massachusetts, 01730. Progenics is an oncology company focused on the development and commercialization of innovative targeted medicines and artificial intelligence to find, fight, and follow cancer.

13. Plaintiff EXINI is a corporation organized and existing under the laws of Sweden, having its principal place of business at Scheelevägen 27, Ideon Science Park, Gateway, 223 70

Lund, Sweden. EXINI develops advanced software for medical image analysis. EXINI's products are developed using unique image analysis derived from expert knowledge in nuclear medicine, image analysis, handling of large databases, and machine learning.

14. Defendant MIM is a corporation organized and existing under the laws of the State of Ohio, having its principal place of business at 25800 Science Park Drive, Suite 180, Cleveland, Ohio, 44122. MIM sells imaging tools for radiation oncology, radiology, nuclear medicine, urology, neuroimaging, and cardiac imaging.

JURISDICTION AND VENUE

15. This action arises under the patent laws of the United States, 35 U.S.C. § 100 *et seq.*, and this Court has jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a).

16. This Court has personal jurisdiction over MIM because, upon information and belief, MIM, directly or through its affiliates, develops, manufactures, imports, markets, offers to sell, sells, and/or distributes its software products throughout the United States, including in Massachusetts (including to various renowned Massachusetts-based hospitals and cancer centers, including, upon information and belief, Dana Farber, Massachusetts General Hospital, and Harvard Medical School). MIM, therefore, does business in Massachusetts, derives revenue from conducting business in Massachusetts, and maintains continuous and systematic contacts with Massachusetts. The Court also has personal jurisdiction over MIM because MIM has committed, induced, or contributed to acts of patent infringement in Massachusetts by selling its infringing software products throughout the United States, including in this judicial district.

17. Venue is proper in this district under 28 U.S.C. §§ 1391 and 1400.

FACTUAL BACKGROUND

A. Medical Imaging for Cancer and Other Serious Diseases.

18. One major challenge in treating and managing cancer (and other serious diseases) has long been the difficulty of accurately and consistently interpreting the diagnostic images produced by medical imaging tools.

19. Both anatomical scans (like X-rays or CT) and functional scans (like PET or single-photon emission computed tomography (SPECT)) are valuable tools. But before the inventions claimed in the Asserted Patents, physicians faced major obstacles in using those scans to form a complete and trustworthy picture of a patient's disease.

20. One difficulty was that each type of scan could only capture part of the relevant picture for any given patient. Anatomical scans capture images of the anatomy or structure of organs and tissues within the body (but not the function); functional scans capture the activity and function of those organs or tissues (but not the anatomy/structure). As applied to cancer, an anatomical scan thus cannot reliably detect the activity of a tumor, whereas a functional scan can struggle to differentiate between the organs and tissue surrounding a tumor. Physicians were left to parse two different types of scans to try to piece together the full picture, and this often led to inaccurate or inconsistent diagnoses or treatments.

21. More broadly, the traditional process for interpreting medical imaging—which involved a physician receiving one or more different scan images prepared by a computer—left room for human error. Without any automated integration, mapping, and assessment of those scan results, a physician might misinterpret a PET scan (or a combination of a CT scan and a PET scan) and miss a critical diagnostic insight that could save a patient's life.

22. Plaintiffs' claimed inventions were therefore major advances in overcoming the limitations of medical imaging interpretation, including in the field of (but not limited to) cancer diagnosis and treatment.

B. Plaintiffs' Asserted Patents Claim Major Advances in the Interpretation of Medical Imaging for Cancer and Other Diseases.

23. Plaintiffs spent at least five years and millions of dollars to develop solutions that unlock medical imaging's full potential. Plaintiffs' efforts culminated in the inventions claimed in the Asserted Patents (as well as other patents).

24. Plaintiffs' patented innovations improved the reliability and accuracy of medical imaging interpretation by (amongst other things): (a) using AI algorithms to reliably segment the organs (and lesions) captured in scans; (b) using a two-step segmentation technique to identify and flag organs, lesions, and/or other points of interest on the scan; and (c) creating graphical interfaces that report scan results in a way that benefits from segmentation and two-step segmentation to provide reliable risk insights to help ensure accurate diagnosis and treatment by physicians.

25. U.S. Patent No. 10,665,346 ("the '346 patent"), entitled "Network for Medical Image Analysis, Decision Support System, and Related Graphical User Interface (GUI) Applications," was duly and legally issued by the Patent Office on May 26, 2020, and has not expired. The '346 patent is assigned to Progenics. This patent claims, *inter alia*, a platform and supported graphical user interface (GUI) decision-making tools for use by medical practitioners (and/or their patients) to aid in the process of making decisions about a course of cancer treatment (and/or to track treatment and/or the progress of the disease). A true and correct copy of this patent is attached as Exhibit 1.

26. U.S. Patent No. 10,973,486 ("the '486 patent"), entitled "Systems and Methods for Rapid Neural Network-based Image Segmentation and Radiopharmaceutical Uptake

Determination,” was duly and legally issued by the Patent Office on April 13, 2021, and has not expired. The ‘486 patent is assigned to Progenics and EXINI. This patent claims, *inter alia*, systems and methods that provide for automated analysis of 3D medical images of a patient in order to automatically identify specific 3D volumes within the 3D images that correspond to specific organs and/or tissue. This kind of accurate identification of 3D volumes allows one to determine quantitative metrics that measure uptake of tracers in particular organs/tissues, which can in turn be used to assess disease state in a patient (including, but not limited to, prostate cancer). A true and correct copy of this patent is attached as Exhibit 2.

27. The Asserted Patents generally describe inventions for improving the reliability, usability, and accuracy of medical imaging, including by: (a) using AI algorithms to help segment the 3D image into different organs (or tissues), thus allowing for clearer differentiation of organs, tissues, and lesions, (b) using a two-step segmentation technique, whereby volumes of interest (say, the pelvic region) are first localized within a large and complex 3D image, and are then analyzed by fine-grained segmentation modules, allowing those segmentation modules to efficiently and accurately identify critical organs and tissue regions, such as prostate, in medical images, and/or (c) analyzing scan results to prepare a risk map that analyzes areas of importance of concern for physician and patient review.

28. The inventions claimed in the Asserted Patents improve upon prior art by increasing the reliability, accuracy, and usability of medical imaging for cancer diagnoses and treatment.

29. For example, representative claim 1 of the ’346 patent recites:

A network-based system for generating a disease risk map for use as a decision-making support for evaluating risk of cancer or risk of recurrence of cancer, the system comprising:

a processor; and

a memory having instructions stored thereon, wherein the instructions, when executed by the processor, cause the processor to:

(i) access one or more medical images associated with a particular patient from a database;

(ii) perform an analysis of the one or more medical images associated with the particular patient using a machine learning algorithm, to generate the risk map, wherein the risk map comprises a visual representation of tissue overlaid with graphical denotations marking one or more regions of risk of cancer or risk of recurrence of cancer; and

(iii) cause display of risk map via a graphical user interface (GUI) for presentation or review of the risk map by a user,

wherein the analysis of the one or more medical images comprises creation of a 3D image of the one or more regions of risk of cancer or risk of recurrence of cancer overlaid on the one or more medical images, and wherein the 3D image comprises geographic identification of one or more specific tissue region(s) overlaid on the one or more medical images.

30. Representative claim 42 of the '486 patent recites:

A method for automatically processing 3D images to identify 3D volumes within the 3D images that correspond to a prostate of a subject and determining one or more uptake metrics indicative of radiopharmaceutical uptake therein, the method comprising:

(a) receiving, by a processor of a computing device, a 3D anatomical image of the subject obtained using an anatomical imaging modality, wherein the 3D anatomical image comprises a graphical representation of tissue within a subject, at least a portion of which corresponds to a pelvic region of the subject;

(b) receiving, by the processor, a 3D functional image of the subject obtained using a functional imaging modality, wherein the 3D functional image comprises a plurality of voxels, each representing a particular physical volume within the subject and having an intensity value that represents detected radiation emitted from the particular physical volume, wherein at least a portion of the plurality of voxels of the 3D functional image represent physical volumes within the pelvic region of the subject;

(c) determining, by the processor, using a first module, an initial volume of interest (VOI) within the 3D anatomical image, the initial VOI corresponding to tissue within the pelvic region of the subject and excluding tissue outside the pelvic region of the subject;

(d) identifying, by the processor, using a second module, a prostate volume within the initial VOI corresponding to the prostate of the subject;

(e) determining, by the processor, the one or more uptake metrics using the 3D functional image and the prostate volume identified within the initial VOI of the 3D anatomical image;

(f) causing, by the processor, display of an interactive graphical user interface (GUI) for presentation to the user of a visual representation of the 3D anatomical image and/or the 3D functional image; and

(g) causing, by the processor, graphical rendering of, within the GUI, the 3D anatomical image and/or the 3D functional image as selectable and superimposable layers, such that either can be selected for display and rendered separately, or both selected for display and rendered together by overlaying the 3D anatomical image with the 3D functional image.

31. The inventions of the Asserted Patents address technological limitations of medical imaging interpretation that were not routine or conventional at the time of the invention. A person of ordinary skill in the art reading the Asserted Patents and their claims would understand that (a) the Asserted Patents' disclosures and claims solve specific problems, and (b) the claimed inventions represent significant advances in the technical field.

C. 2020-2022: Plaintiffs and MIM Explore Possible Collaboration Involving the Inventions Claimed in Plaintiffs' Asserted Patents.

32. Upon information and belief, MIM infringed (and is infringing) the Plaintiffs' Asserted Patents because MIM decided—after years of negotiations with Plaintiffs about a possible collaboration—that it wanted to use Plaintiffs' patented inventions without paying for them.

33. Around June 2020, MIM and EXINI (and Plaintiffs' parent company, Lantheus Holdings, Inc.) began discussions about a potential collaboration involving (amongst other things) the inventions claimed by the Asserted Patents. More specifically, MIM was interested in integrating the claimed inventions into MIM's nuclear imaging software.

34. The following year, MIM worked with Karl Sjöstrand at EXINI—who is an inventor on the '486 patent—to explore powering MIM's systems with Plaintiffs' patented algorithms (including the inventions in the Asserted Patents).

35. Reflecting the substantiveness and seriousness of these discussions, the parties entered into a Confidential Disclosure Agreement in October 2021.

36. These discussions continued into 2022, and included giving MIM access to Plaintiffs' systems to review the capabilities and function of Plaintiffs' patented inventions.

37. Around October 2022, Plaintiffs sent MIM a draft Collaboration Agreement.

38. The draft Collaboration Agreement included a list of Plaintiffs' patents that claimed the inventions that the parties had discussed sharing.

39. Both Asserted Patents were on that list, indicating that MIM was considering implementing and using Plaintiffs' patented technology. Plaintiffs, too, were considering a collaboration – *but only* if it agreed to partnership terms.

40. Plaintiffs followed up with MIM a few times in late 2022 and 2023, as Plaintiffs waited to hear back from MIM about the draft Collaboration Agreement.

41. Plaintiffs never heard back.

D. MIM Markets and Sells Infringing Products and Pursues Acquisition by GE HealthCare.

42. Instead, Plaintiffs discovered around June 2023 that MIM was publishing articles, brochures, and website information about the two Infringing Products (Contour ProtégéAI® and MIM SurePlan™ MRT). These materials plainly indicate that the Infringing Products practice the inventions claimed in the Asserted Patents as discussed below.

43. MIM is making, using, offering to sell, and selling products that infringe the Asserted Patents.

44. Not only did MIM develop through imitation, market, and sell the Infringing Products, MIM also benefited from the Infringing Products because (upon information and belief) those products—and Plaintiffs' patented inventions embodied in those Infringing Products—enticed GE HealthCare to acquire MIM. *See* “GE HealthCare Announces Agreement to Acquire MIM Software” (Jan. 8, 2024), *available at*

<https://www.gehealthcare.com/about/newsroom/press-releases/ge-healthcare-announces-agreement-to-acquire-mim-software>.

45. GE HealthCare announced in a recent press release its plan to acquire MIM. In that press release, GE HealthCare emphasized how the inventions claimed by the Asserted Patents—which MIM integrated into the Infringing Products—were a main reason GE HealthCare decided to acquire MIM.

46. The press release states, in relevant part:

MIM Software’s portfolio of innovative imaging solutions provides a variety of beneficial features, including: **the integration of diagnostic images from multiple modalities into treatment plans**; automation to help reduce repetitive tasks and manual interventions; **quantitation and advanced processing in diagnostic imaging** and nuclear medicine to help determine therapy response . . . GE HealthCare expects to integrate MIM Software solutions into its advanced visualizations to facilitate **AI-based segmentation and contouring** as well as dosimetry analysis for patients across their treatment journeys and in the growing fields of radiology, molecular imaging, and radiation oncology.

Id. (emphasis added).

47. The release is replete with references to Plaintiffs’ claimed inventions. For example, the reference to “integration of diagnostic images from multiple modalities” is captured, *inter alia*, by claim 42 of the ‘486 patent, which describes integrating anatomical and functional diagnostic images into the creation of treatment plans. The reference to “quantitation and advanced processing in diagnostic imaging” refers to, *inter alia*, claim 1 of the ‘346 patent and the use of AI to create tailored risk maps of cancer/disease risk based on analysis of medical images. And the reference to “AI-based segmentation and contouring” refers to the AI-assisted organ segmentation described across multiple claims of the Asserted Patents. All of these GE HealthCare statements indicate that MIM’s use of the patented inventions in its software was a key driver of GE HealthCare’s decision to acquire MIM.

48. The GE HealthCare press release, however, is not the only public source that reveals MIM's unlawful use of the Asserted Patents in the Infringing Products.

49. MIM publishes information about the Infringing Products on its website, including via product brochures. MIM's website explains that the brochures "[t]ake a closer look at MIM's solutions and products in downloadable PDFs." See MIM Brochures, *available at* <https://www.mimsoftware.com/literature/brochures> (accessed on Jan. 30, 2024).

50. These publications reflect several ways that the Infringing Products practice the inventions claimed by the Asserted Patents.

51. For example, MIM's publications show that the Infringing Products possess each element of representative claim 1 of the '346 patent.

52. The preamble to claim 1 describes "[a] network-based system for generating a disease risk map for use as a decision-making support for evaluating risk of cancer or risk of recurrence of cancer . . ." See '346 patent, at col. 35:46-49 (claim 1 preamble). MIM's brochure entitled "Molecular Radiotherapy Dosimetry" describes how the Infringing Products "Deliver AI on Premise or in the Cloud"—in other words, on a "network-based system." See "Molecular Radiotherapy Dosimetry" brochure, *available at* https://go.mimsoftware.com/hubfs/00_Website/02_Literature_Case_Studies/Brochures/TD1000-MIM_Nuclear_Medicine_MRT_Brochure-20230608.pdf (accessed on Jan. 30, 2024), at 6. The brochure also describes how the Infringing Products provide a decision-support tool that "allow[s] for effective communication with patients and referring physicians," and for "track[ing] dose across therapy cycles and quickly review tumor progression." *Id.* at 10. A different MIM brochure entitled "Nuclear Imaging and Nuclear Medicine Diagnostic Solutions" describes how the Infringing Products "Empower Clinical Decisions" by "mak[ing]

capturing dosimetry information clinically feasible,” and “offer[ing] deep-learning algorithms that expedite the segmentation process.” *See* “Nuclear Imaging and Nuclear Medicine Diagnostic Solutions”, *available at* https://go.mimsoftware.com/hubfs/_Market/MIM%20General/Brochures/Radiology%20and%20Nuclear%20Medicine/MIM%20Nuclear%20Medicine%20Diagnostic%20Solutions%20Brochure.pdf (accessed Jan. 30, 2024) at 10. These disclosures illustrate that the Infringing Products possess the preamble of claim 1.

53. The Infringing Products also possess the first limitation of claim 1 of the ‘346 patent¹ because the Infringing Products access scan images for particular patients from an electronic database, and then present those images to clinicians and patients. A MIM brochure, for example, notes how “Contour ProtégéAI for MIM SurePlan MRT has flexible deployment models that allow for easier adoption across any institution.” *See* “Molecular Radiotherapy Dosimetry” brochure, *available at* https://go.mimsoftware.com/hubfs/00_Website/02_Literature_Case_Studies/Brochures/TD1000-MIM_Nuclear_Medicine_MRT_Brochure-20230608.pdf (accessed on Jan. 30, 2024) at 6. The brochure also shows an image of a patient scan presented on a screen. *Id.* MIM’s website also refers to how MIMcloud can “push and pull images, and easily share studies . . .” *See* MIMCloud, *available at* <https://www.mimsoftware.com/remote-access/mimcloud> (accessed Jan. 30, 2024).

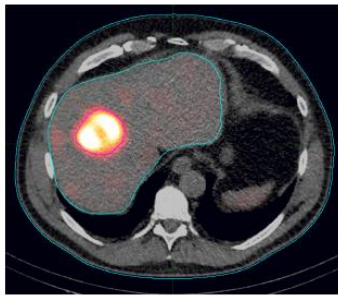
54. The Infringing Products also possess the second limitation of claim 1 of the ‘346 patent² because MIM SurePlan™ MRT uses Contour ProtégéAI® which, according to a MIM

¹ *See* claim 1(a) (“access[es] one or more medical images associated with a particular patient from a database.”).

² *See* claim 1(b) (“perform[ing] an analysis of the one or more medical images associated with the particular patient using a machine learning algorithm, to generate a risk map, wherein the risk map comprises a visual representation of tissue overlaid with graphical denotations marking one or more regions of risk of cancer ...”).

brochure, “segment[s] normal structures with artificial intelligence.” See “Molecular Radiotherapy Dosimetry” brochure, *available at* https://go.mimsoftware.com/hubfs/00_Website/02_Literature_Case_Studies/Brochures/TD1000-MIM_Nuclear_Medicine_MRT_Brochure-20230608.pdf (accessed on Jan. 30, 2024), at 6; *see also id.* (“Triggered automatically upon image arrival, Contour ProtégéAI and MIM SurePlan MRT uses a neural network for segmenting normal structures on CT images. Results are more accurate than atlas-based approaches so users spend less time editing.”). The same brochure also discusses how MIM SurePlan™ MRT uses PET Edge to create a contour of tumor regions that is overlaid on a SPECT/CT image. *Id.*

55. The Infringing Products also possess the third limitation of claim 1 of the ‘346 patent³ because, as reflected in the image below from a MIM brochure, MIM SurePlan™ MRT displays the risk map (i.e., tumor segmentation) via a graphical user interface (GUI):



Id. at 7. The same image also reveals that the Infringing Products display normal organ contours and tumor contours overlaid on medical images. *See id.* (blue color outlining an organ, and red

³ See claim 1(c) (“caus[ing] display of the risk map via a graphical user interface (GUI) for presentation or review of the risk map by a user, wherein the analysis of one or more medical images comprises creation of a 3D image of the one or more regions of risk of cancer or risk of recurrence of cancer overlaid on the one or more medical images, and wherein the 3D image comprises geographic identification of one or more specific tissue region(s) overlaid on the one or more medical images”).

color outlining a tumor). Another image in the same brochure also shows images of a SPECT/CT with organs and tumors outlined:



Id. at 10.

56. Turning next to the ‘486 patent, the Infringing Products also possess all the elements of exemplary claim 42.

57. The preamble to claim 42 describes “[a] method for automatically processing 3D images to identify 3D volumes within the 3D images that correspond to a prostate of a subject and determining one or more uptake metrics indicative of radiopharmaceutical uptake therein . . .” *See* ‘486 patent, claim 42, preamble. The Infringing Products possess this limitation because: (a) MIM SurePlan™ MRT uses Contour ProtégéAI® to perform organ segmentation (*see* “Molecular Radiotherapy Dosimetry” brochure, *available* at https://go.mimsoftware.com/hubfs/00_Website/02_Literature_Case_Studies/Brochures/TD1000-MIM_Nuclear_Medicine_MRT_Brochure-20230608.pdf (accessed on Jan. 30, 2024), at 6); (b) MIM SurePlan™ MRT provides dose accumulation statistics. *Id.* at 10 (“Dose accumulation runs in the background through MIM Assistant®. Cumulative doses and volume changes across cycles can be reviewed.”); and (c) Contour ProtégéAI® segments a variety of organs, including the prostate, listing “Prostate” as one of the “Available Structures for Organ Contouring” (*see* “Contour ProtégéAI+™: Zero-Click AI Auto-Contouring”, *available* at [- 15 -](https://www.mimsoftware.com/radiation-</p>
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oncology/contour-protegeai-plus (accessed on Jan. 30, 2024)). The brochure also refers to how “MIM SurePlan™ MRT has been helping institutions drastically reduce the clinical requirements for dosimetry by including AI-based auto-segmentation and support for quantitative SPECT reconstruction with existing SPECT/CT cameras,” with CT providing 3D anatomical images. *See* “Molecular Radiotherapy Dosimetry” brochure, *available* at https://go.mimsoftware.com/hubfs/00_Website/02_Literature_Case_Studies/Brochures/TD1000-MIM_Nuclear_Medicine_MRT_Brochure-20230608.pdf (accessed on Jan. 30, 2024), at 2.

58. The Infringing Products also possess the first limitation of claim 42 of the ‘486 patent⁴ because, as MIM’s brochures proclaim, “MIM SurePlan™ MRT has been helping institutions drastically reduce the clinical requirements for dosimetry by including AI-based auto-segmentation and support for quantitative SPECT reconstruction with existing SPECT/CT **cameras.**” *Id.* at 2 (emphasis added). CT cameras provide anatomical images. And, as discussed above, MIM directs that physicians and patients can use the Infringing Products on images relating to the patient’s pelvic region. *Supra* at ¶ 57. The Contour ProtégéAI® website lists several applications in the pelvic region, including (but not limited to) the prostate:

⁴ *See* claim 42(a) (“receiving, by a processor of a computing device, a 3D anatomical image of the subject obtained using an anatomical imaging modality, wherein the 3D anatomical image comprises a graphical representation of tissue within a subject, at least a portion of which corresponds to a pelvic region of the subject.”).



See “Contour ProtégéAI+™: Zero-Click AI Auto-Contouring”, available at <https://www.mimsoftware.com/radiation-oncology/contour-protegeai-plus> (accessed on Jan. 30, 2024) (yellow box added).

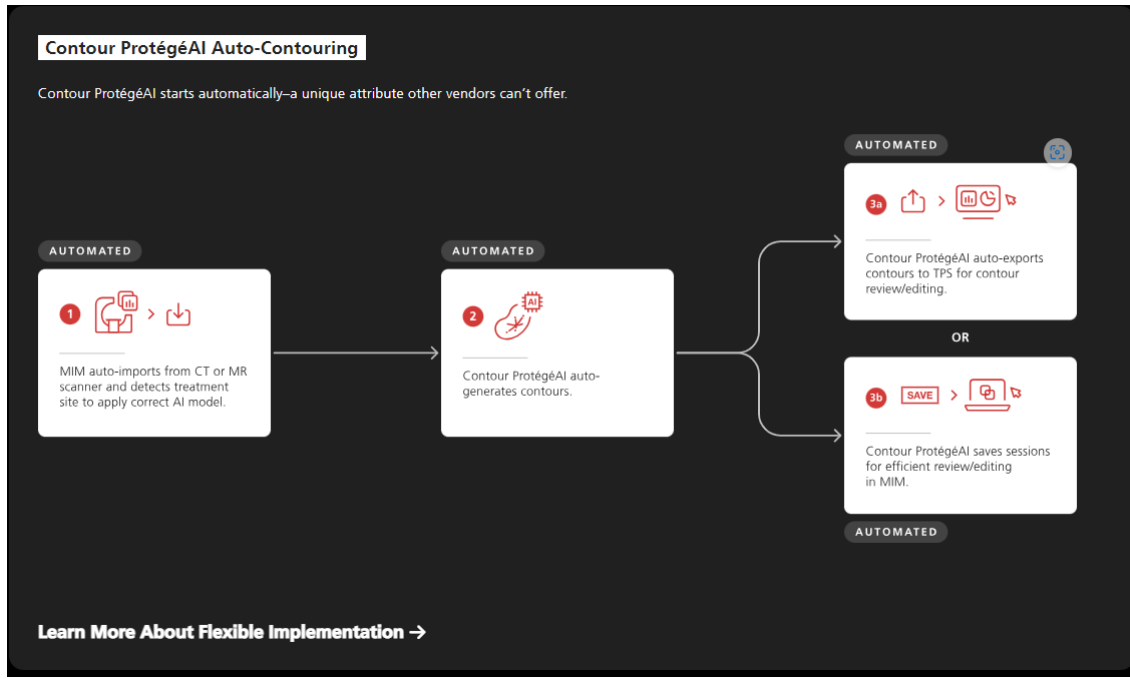
59. The Infringing Products also possess the second limitation of claim 42 of the ‘486 patent⁵ for the reasons already discussed above. The MIM brochure refers to how “MIM SurePlan™ MRT has been helping institutions drastically reduce the clinical requirements for dosimetry by including AI-based auto-segmentation and support for quantitative SPECT reconstruction with existing SPECT/CT cameras,” with CT cameras providing 3D anatomical

⁵ See claim 42(b) (“receiving, by the processor, a 3D functional image of the subject obtained using a functional imaging modality, wherein the 3D functional image comprises a plurality of voxels, each representing a particular physical volume within the subject and having an intensity value that represents detected radiation emitted from the particular physical volume, wherein at least a portion of the plurality of voxels of the 3D functional image represent physical volumes within the pelvic region of the subject”);

images. See “Molecular Radiotherapy Dosimetry” brochure, *available* at https://go.mimsoftware.com/hubfs/00_Website/02_Literature_Case_Studies/Brochures/TD1000-MIM_Nuclear_Medicine_MRT_Brochure-20230608.pdf (accessed on Jan. 30, 2024) at 2. SPECT imaging is a 3D functional image. And, as discussed above, the Infringing Products are targeted at multiple applications within the pelvic region. *Supra* at ¶ 57.

60. The Infringing Products also possess the third limitation of claim 42 of the ‘486 patent⁶ because MIM SurePlan™ MRT uses Contour ProtégéAI® to segment normal structures in a CT image. In other words, when Contour ProtégéAI® “detects [the] treatment site to apply correct AI model” as described in the image below, it is determining, using a first module, an initial volume of interest (VOI):

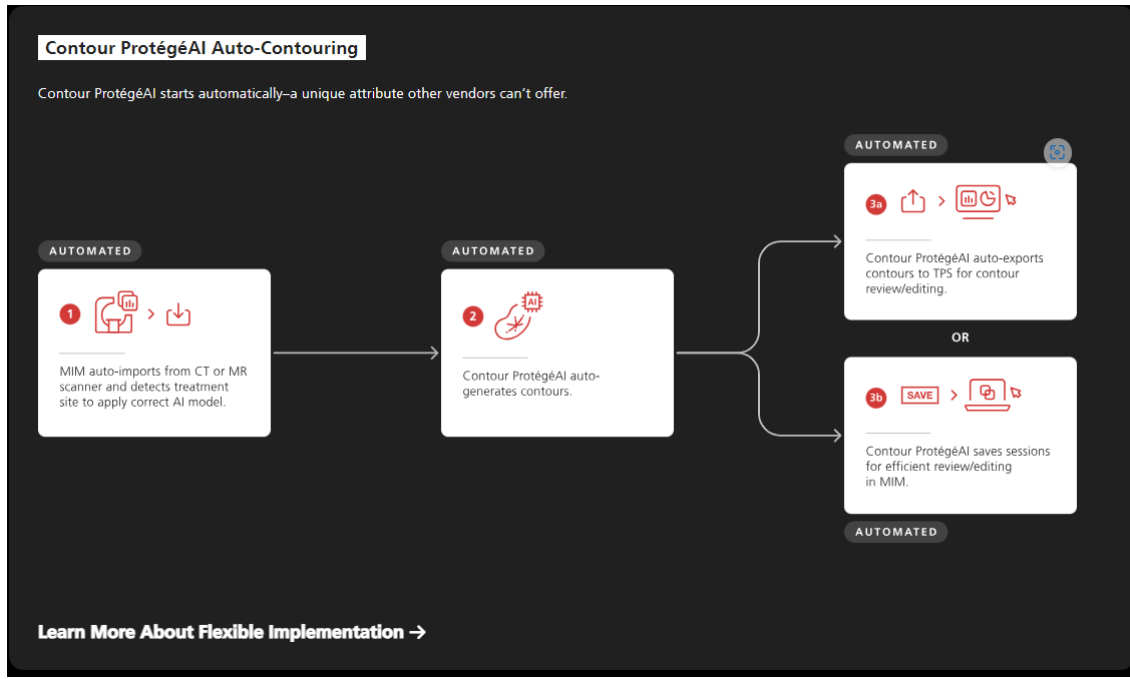
⁶ See claim 42(c) (“determining, by the processor, using a first module, an initial volume of interest (VOI) within the 3D anatomical image, the initial VOI corresponding to tissue within the pelvic region of the subject and excluding tissue outside the pelvic region of the subject;”).



See “Contour ProtégéAI+™: Zero-Click AI Auto-Contouring”, available at <https://www.mimsoftware.com/radiation-oncology/contour-protegeai-plus> (accessed on Jan. 30, 2024). As discussed above, Contour ProtégéAI® includes a “Pelvis CT” model for segmenting organs within the pelvic region, i.e., where the initial VOI corresponds to a pelvic region. *Id.*

61. The Infringing Products also possess the fourth limitation of claim 42 of the ‘486 patent⁷ because, when Contour ProtégéAI® uses the “Pelvis CT” model to segment the prostate, *supra* at ¶ 57, it uses a second module to identify a prostate volume within the initial VOI:

⁷ See claim 42(d) (“identifying, by the processor, using a second module, a prostate volume within the initial VOI corresponding to the prostate of the subject.”).



See id. In other words, the left-most box in the image above shows the initial segmentation step (as discussed in the preceding paragraph), and then the reference in the center box to “auto-generat[ing] contours” refers to the Infringing Products’ use of the Pelvic CT model to segment the prostate.

62. The Infringing Products also possess the fifth limitation of claim 42 of the ‘486 patent⁸ because, as discussed above, the MIM brochure shows uptake measurements (in bone, kidneys, liver, and tumors):

⁸ *See* claim 42(e) (“determining, by the processor, the one or more uptake metrics using the 3D functional image and the prostate volume identified within the initial VOI of the 3D anatomical image,”).



See “Molecular Radiotherapy Dosimetry” brochure, available at https://go.mimsoftware.com/hubfs/00_Website/02_Literature_Case_Studies/Brochures/TD1000-MIM_Nuclear_Medicine_MRT_Brochure-20230608.pdf (accessed on Jan. 30, 2024), at 10. As discussed above, Contour ProtégéAI® also includes a specific model that segments these organs, as well as the prostate. *Id.* Therefore, the Infringing Products calculate dose within a prostate volume segmented by the Pelvic CT model of Contour ProtégéAI®.

63. The Infringing Products also possess the sixth limitation of claim 42 of the ‘486 patent⁹ as reflected in the image immediately above, which displays SPECT/CT image overlays, which are, respectively, 3D functional and anatomical images. *See id.*

64. The Infringing Products also possess the seventh limitation of claim 42 of the ‘486 patent¹⁰ as reflected by the same image above, which shows that SurePlan™ MRT displays SPECT/CT image overlays. *Id.*

⁹ See claim 42(f) (“causing, by the processor, display of an interactive graphical user interface (GUI) for presentation to the user of a visual representation of the 3D anatomical image and/or the 3D functional image.”).

¹⁰ See claim 42(g) (“causing, by the processor, graphical rendering of, within the GUI, the 3D anatomical image and/or the 3D functional image as selectable and superimposable layers, such that either can be selected for display and rendered separately, or both selected for display and rendered together by overlaying the 3D anatomical image with the 3D functional image.”).

65. MIM has known of the existence of the Asserted Patents. MIM's infringement has been and is willful and in disregard for the Asserted Patents. MIM has no reasonable basis for believing that it has a right to engage in the infringing conduct. As discussed above, MIM and Plaintiffs negotiated for years about a potential collaboration involving MIM purchasing the right to integrate Plaintiffs' patented inventions into MIM's software. During those negotiations, Plaintiffs even sent MIM, upon agreement to do so, a draft Collaboration Agreement that expressly listed the Asserted Patents. Yet, MIM willfully developed, marketed, and sold (and continues to market and sell) the Infringing Products containing Plaintiffs' patented inventions.

66. Plaintiffs have suffered substantial damage (and MIM has unlawfully benefitted) from MIM's infringement of the Asserted Patents. As discussed above, GE HealthCare chose to acquire MIM (rather than enter into a profitable commercial relationship of some kind with Plaintiffs) in large part because of MIM's infringing conduct. *Supra* at ¶¶ 45-46. Plaintiffs have also lost substantial advantage in the market as the only companies permitted to use the claimed inventions, which (as discussed above) represent major breakthroughs in the performance, reliability, and usability of nuclear medicine imaging for cancer and other serious ailments. As a result, Plaintiffs have begun to lose both existing and prospective business to MIM. MIM and Plaintiffs continue to compete for specific customers, and Plaintiffs expect future losses of their existing and prospective business unless MIM ceases its unlawful infringement. Plaintiffs have also lost a licensing and partnership opportunity in view of MIM's actions. Plaintiffs are thus entitled to the full measure of their damages from MIM's infringement, including (without limitation) lost profits, a reasonable royalty, and damages for MIM's willful infringement.

COUNT I: INFRINGEMENT OF U.S. PATENT NO. 10,665,346

67. Plaintiffs repeat and re-allege each of the foregoing paragraphs as if fully set forth herein.

68. MIM has been and is directly and/or indirectly infringing the '346 patent by making, using, selling, or offering for sale in the United States, including within this judicial district, the Infringing Products, in violation of 35 U.S.C. § 271(a).

69. MIM has been and is inducing infringement of the '346 patent by actively and knowingly inducing its customers to use the Infringing Products that embody or use the inventions claimed in the '346 patent, in violation of 35 U.S.C. § 271(b).

70. MIM's infringement has been, and continues to be knowing, intentional, and willful.

71. MIM's infringement of the '346 patent has caused, and will continue to cause, Plaintiffs damages for which Plaintiffs are entitled to compensation pursuant to 35 U.S.C. § 284.

72. MIM's infringement of the '346 patent has caused, and will continue to cause, Plaintiffs immediate and irreparable harm unless such infringing activities are enjoined by this Court pursuant to 35 U.S.C. § 283. Plaintiffs have no adequate remedy at law.

73. This case is exceptional and Plaintiffs are entitled to an award of attorney fees pursuant to 35 U.S.C. § 285.

COUNT II: INFRINGEMENT OF U.S. PATENT NO. 10,973,486

74. Plaintiffs repeat and re-allege each of the foregoing paragraphs as if fully set forth herein.

75. MIM has been and is directly and/or indirectly infringing the '486 patent by making, using, selling, or offering for sale in the United States, including within this judicial district, the Infringing Products, in violation of 35 U.S.C. § 271(a).

76. MIM has been and is inducing infringement of the '486 patent by actively and knowingly inducing its customers to use the Infringing Products that embody or use the inventions claimed in the '346 patent, in violation of 35 U.S.C. § 271(b).

77. MIM's infringement has been, and continues to be knowing, intentional, and willful.

78. MIM's infringement of the '486 patent has caused, and will continue to cause, Plaintiffs damages for which Plaintiffs are entitled to compensation pursuant to 35 U.S.C. § 284.

79. MIM's infringement of the '486 patent has caused, and will continue to cause, Plaintiffs immediate and irreparable harm unless such infringing activities are enjoined by this Court pursuant to 35 U.S.C. § 283. Plaintiffs have no adequate remedy at law.

80. This case is exceptional and Plaintiffs are entitled to an award of attorney fees pursuant to 35 U.S.C. § 285.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs respectfully request the following relief:

- (A) A judgment that MIM has infringed the Asserted Patents;
- (B) A judgment that MIM's infringement of the Asserted Patents has been willful;
- (C) An award against MIM of damages sufficient to compensate Plaintiffs for MIM's infringement of the Asserted Patents;
- (D) An award against MIM of all other damages permitted by 35 U.S.C. § 284, including increased damages up to three times the amount of compensatory damages found;

(E) A declaration that this is an exceptional case and an award against MIM and to Plaintiffs of their reasonable attorneys' fees incurred in this action as provided by 35 U.S.C. § 285;

(F) An order preliminarily and permanently enjoining MIM, and its officers, directors, agents, employees, affiliates, and all others acting in privity or in concert with it, and its parents, subsidiaries, divisions, successors, and assigns from further acts of infringement of the Asserted Patents; and

(G) All such other relief that this Court deems just and proper.

JURY DEMAND

Pursuant to Fed. R. Civ. P. 38(b), Plaintiffs hereby demand a jury trial on all issues triable of right by a jury.

Dated: February 23, 2024

Respectfully submitted,

/s/ Michael H. Bunis

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