

PATENT ASSIGNMENT

Electronic Version v1.1

Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
Siemens Molecular Imaging Limited	12/01/2006
RECEIVING PARTY DATA	
Name:	Siemens Medical Solutions USA, Inc.
Street Address:	51 Valley Stream Parkway
City:	Malvern
State/Country:	PENNSYLVANIA
Postal Code:	19355
PROPERTY NUMBERS Total: 1	
Property Type	Number
Patent Number:	7260254
CORRESPONDENCE DATA	
Fax Number: (212)813-9600 <i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>	
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Address Line 1: 488 Madison Avenue, 19th Floor	
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ATTORNEY DOCKET NUMBER:	KEMP 0008-US
NAME OF SUBMITTER:	William D. Schmidt, Esq.
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PATENT  
REEL: 021794 FRAME: 0845

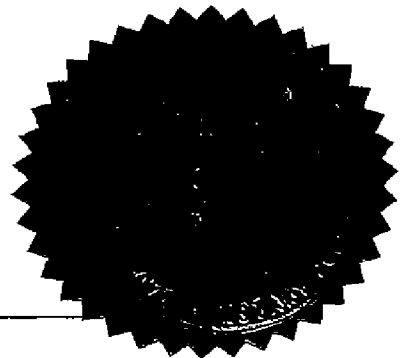
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DATED 1 December 2006

SIEMENS MOLECULAR IMAGING LIMITED  
(Company No. 03417726)

and

SIEMENS MEDICAL SOLUTIONS USA, INC.



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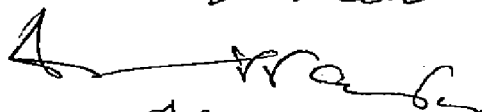
INTELLECTUAL PROPERTY RIGHTS ASSIGNMENT

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Legal Services  
Siemens plc  
Siemens House  
Bracknell  
Berkshire  
RG12 8FZ

Tel: 01344 396000

13th August 2008  
I, David John SAVAGE  
A NOTARY PUBLIC of  
Farnborough, Hampshire  
UK hereby certify  
this to be a true copy of  
the original which I  
have seen

  
DAVID J. SAVAGE

PATENT

REEL: 021794 FRAME: 0847

THIS ASSIGNMENT is made the 1st day of December 2006

BETWEEN:

- (1) **SIEMENS MOLECULAR IMAGING LIMITED** (Registered number 03417726) a company incorporated and registered in England whose registered office is at Siemens House, Oldbury, Bracknell, Berkshire RG12 8FZ (the "Assignor").
- (2) **SIEMENS MEDICAL SOLUTIONS USA, INC.**, a company incorporated and registered in the State of Delaware, USA, whose registered office is at 51 Valley Stream Parkway, Malvern, Pennsylvania 19355 USA (the "Assignee").

#### BACKGROUND

- (A) The Assignor owns and operates a worldwide business in the development and exploitation of medical imaging software, in particular molecular imaging (the "Business").
- (B) The Assignor now wishes to assign and the Assignee wishes to receive the intellectual property assets and the sales and other exploitation contracts of the Business.
- (C) By a Research and Development Agreement of the same date, the Assignee wishes to receive and the Assignor wishes to provide research and development services to support the further development by the Assignee of the intellectual property assets of the Business.

#### AGREED TERMS

##### 1. Interpretation

The definition in this clause applies in this Assignment.

<b>"Business Information"</b>	all information, know-how and techniques (whether or not confidential and in whatever form held) held by the Assignor including without limitation the information, know-how and techniques listed in Schedule 1 and those which in any way (wholly or partially) relate to: (a) all or any part of the Business; or (b) any products manufactured or sold or services rendered by the Assignor; or (c) any documentation, formulae, designs, specifications, drawings, data, manuals or instructions relating to (a) or (b); or (d) the operations, management, administration or financial affairs of the Assignor (including any business plans or forecasts, information relating to future business development or planning and information relating to litigation or legal advice); or (e) the sale or marketing of any of the products manufactured or sold or services rendered by the Assignor, including all customer names and lists, sales and marketing information (including targets, sales and market share statistics, market surveys
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and reports on research).

"Business IPR"	all Intellectual Property Rights owned, used or held for use by the Assignor.
"Effective Date"	1 October 2006.
"Intellectual Property Rights"	patents, rights to inventions, utility models, copyright and related rights, trade marks, service marks, trade names and domain names, rights in get-up, rights in goodwill or to sue for passing off, unfair competition rights, rights in designs, rights in computer software, database rights, topography rights, moral rights, rights in confidential information (including know-how and trade secrets) and any other intellectual property rights, in each case whether registered or unregistered and including all applications (and rights to apply) for, and renewals or extensions of, such rights and all similar or equivalent rights or forms of protection in any part of the world.
"IP Licences"	licences, agreements, authorisations and permissions (in whatever form, and whether express or implied) under which the Assignor uses or exploits or has rights in relation to any Business IPR or Business Information owned by any third party and any agreements granting the Assignor a right to acquire a licence to or an interest in any Intellectual Property Rights (including those specified in Schedule 5).
"OEM Contracts"	all contracts granting a licence to or otherwise exploiting any Business IPR or Business Information, including without limitation, the contracts listed in Schedule 6.
"Registered IPR"	the applications for, and registrations of, the intellectual property rights set out in Schedule 3.
"Work"	the materials listed in Schedule 2.

## **2. Assignment**

2.1 In consideration of the sum of £9,622, 000 exclusive of value added tax, the Assignor assigns (with effect from the Effective Date) to the Assignee with full title the following rights:

2.1.1 all right and title of the Assignor in and to the Business Information and the full unfettered and exclusive right throughout the world to use the Business Information for any purpose whatsoever;

2.1.2 all Intellectual Property Rights in the Work;

2.1.3 the Registered IPRs;

- 2.1.4 the Business IPR;
- 2.1.5 all goodwill attaching to the registered trade marks listed in Part 1 of Schedule 3 (Registered Trade Marks) and the marks listed in Schedule 4 (Unregistered Marks);
- 2.1.6 the exclusive right for the Assignee and its successors and assignees to carry on the Assignor's business under the Unregistered Marks and to represent itself as carrying on such business in succession to the Assignor;
- 2.1.7 the right to sue for damages and other remedies for any infringement of any of the rights listed in this clause 2.1.1 to 2.1.6 which occurred prior to the Effective Date;
- 2.1.8 the IP Licences; and
- 2.1.9 the OEM Contracts.

### **3. Business Information**

- 3.1 The Assignor hereby agrees not to communicate or otherwise make available the Business Information to any third party without the prior written consent of the Assignee, nor use the Business Information for any purpose except, in either case, to the extent that the Assignor can show that the Business Information:
  - 3.1.1 has become public knowledge other than through any breach of this Assignment; or
  - 3.1.2 is received after the date of this Assignment by the Assignor from a third party who did not acquire it in confidence from the Assignor or the Assignee, or from someone owing a duty of confidence to the Assignor or the Assignee.
- 3.2 The Assignor shall, for a period of four weeks after the date of this Assignment, provide the Assignee with such explanations concerning the Business Information as the Assignee reasonably requires.

### **4. Further assurance**

- 4.1 The Assignee shall be responsible for updating the relevant registers for all Registered IPRs.
- 4.2 The Assignor shall at the cost and expense of the Assignee do or procure to be done all such further acts and things, and execute or procure the execution of all such other documents, as the Assignee may from time to time reasonably require in order to give the Assignee the full benefit of this Assignment, whether in connection with any registration of title or other similar right or otherwise.
- 4.3 The Assignor agrees and undertakes to provide to the Assignee (at its request) all reasonable assistance with any proceedings which may be brought by or against the Assignee against or by any third party relating to the rights assigned by this Assignment.

**5. Contracts**

5.1 Insofar as the benefit or burden of the IP Licences and OEM Contracts cannot effectively be novated, transferred or assigned by the Assignor to the Assignee without the agreement of a third party or parties:

5.1.1 the Assignor and the Assignee shall use their respective reasonable endeavours to procure that such IP Licences or OEM Contracts are novated, transferred or assigned (or the consents are obtained) as soon as reasonably practicable after the Effective Date;

5.1.2 until any such IP Licences or OEM Contracts shall have been novated, transferred or assigned the Assignee shall perform all the obligations and liabilities of the Assignor thereunder and shall indemnify the Assignor against all costs, proceedings, claims, demands and expenses which may be incurred by the Assignor to the extent that the same arises as a result of any failure by the Assignee of its obligations under this Clause 7; and

5.1.3 until any such contract shall be novated, transferred or assigned the full benefit of all contractual rights, benefits and claims thereunder, whether arising before or after the Effective Date shall vest in and be held on trust by the Assignor for the Assignee and its successors in title absolutely; and

5.1.4 unless and until any such IP Licences or OEM Contracts shall be novated, transferred or assigned the Assignor shall act in connection with such contract in all respects as the Assignee may from time to time reasonably direct and shall give to the Assignee all reasonable assistance within its power to enforce the contract against the contracting parties and the Assignee shall reimburse to the Assignor costs which the Assignor properly incurs in giving such assistance.

5.2 Without prejudice to Clause 2, to the extent that any payment is made to the Assignor in respect of the IP Licences and OEM Contracts after the Effective Date (other than a payment of value added tax attributable to a supply made before the Effective Date), the Assignor shall receive the same as trustee for the Assignee absolutely, shall record such payments separately in its books and shall as soon as reasonably practicable account to the Assignee for the same.

**6. Waiver of moral rights**

The Assignor shall provide to the Assignee, on or before the date of this Assignment, written absolute waivers from all authors of the Work in relation to all moral rights which subsist in the Work by virtue of Chapter 4 of the Copyright, Designs and Patents Act 1988 and, so far as is legally possible, any broadly equivalent rights such authors may have in any territory of the world.

**7. Restrictive Covenants**

7.1 The Assignor shall not, during the period of two years beginning with the Effective Date, in any geographic areas in which the Business was carried on at the Effective Date, carry on or be employed, engaged or

interested in any business which would be in competition with any part of the Business as the Business was carried on at the Effective Date.

- 7.2 The Assignor shall not, during the period of two years beginning with the Effective Date, deal with or seek the custom of any person that is at the Effective Date, or that has been at any time during the period of 12 months immediately preceding that date, a client or customer of the Business.
- 7.3 The Assignor shall not, at any time after the Effective Date, use in the course of any business, any trade or service mark, business or domain name, design or logo which, at the Effective Date, was or had been used by the Business, or anything which is, in the reasonable opinion of the Assignee, capable of confusion with such words, mark, name, design or logo.
- 7.4 The undertakings in this Clause 8 are intended for the benefit of the Assignee and apply to actions carried out by the Assignor in any capacity, and whether directly or indirectly, on behalf of the Assignor, or on behalf of any other person or jointly with any other person.
- 7.5 Each of the covenants in this Clause 8 is:
  - 7.5.1 a separate undertaking by the Assignor and shall be enforceable by the Assignee separately and independently of its right to enforce any one or more of the covenants in this Clause 8; and
  - 7.5.2 considered fair and reasonable by the parties, but if any restriction is found to be unenforceable but would be valid if any part of it were deleted, or the period or area of application reduced, the restriction shall apply with such modification as may be necessary to make it valid and effective.
- 7.6 The consideration for the undertakings contained in this Clause 8 is included in Clause 2.

## **8. Entire Agreement**

- 8.1 This Assignment constitutes the entire and only agreement between the parties in respect of its subject matter and extinguishes all prior agreements arrangements or statements (in whatsoever form) with respect to such subject matter.
- 8.2 Without prejudice to any liability for fraudulent misrepresentation and save as specifically provided for in this Assignment, the Assignor excludes any representation, warranty, condition or undertaking implied at law or equity or by custom whether in contract, tort or by statute or otherwise in respect of the Business or any other matter to which this Assignment relates and the Assignee confirms that it has not relied on any representation, warranty, condition or undertaking in entering into this Assignment and irrevocably and unconditionally waives any right it may have to claim damages for any misrepresentation or for breach of warranty implied at law, equity or by custom whether in contract, tort, by statute or otherwise.



**9. Notices**

- 9.1 Any notice required or permitted to be given by or under this Assignment may be given by delivering it to the party in question at its registered office for the time being or by sending it in a pre-paid envelope by first-class mail to the party concerned at its registered office shown in the Assignment or to such other address as the party concerned may have notified to the other and any such notice shall be deemed to be served in the case of personal service at the time of delivery to the party concerned and in any other case 24 hours after the time at which it is put in the post and in proving such service it shall be sufficient to prove that the notice was properly addressed and posted.

**10. VAT**

- 10.1 The purchase price is exclusive of VAT and the parties intend that the transfer of the Business shall be treated as a transfer of a business as a going concern. Each party shall use its best endeavours to ensure that the conditions laid down in VAT (Special Provisions) Order 1995 (SI 1995/1268) Article 5 are satisfied. However, in the event that HM Revenue and Customs at a later date rule that the transfer should not have been treated as a going concern and that VAT is due, the Assignee undertakes to pay any VAT due upon receipt of the valid tax invoice from the Assignor.

**11. Transfer of Undertakings**

- 11.1 The Assignor and the Assignee agree that the Transfer of Undertakings (Protection of Employment) Regulations 2006 ("Transfer Regulations") shall not apply to this Assignment. If the Transfer Regulations are deemed to apply to this Assignment, the Assignor shall indemnify the Assignee against all employment and other costs incurred by the Assignee as a consequence of the Transfer Regulations.

**12. Waiver**

- 12.1 No waiver by either party of any requirements of this Assignment or any of its rights will release the other party from the full performance of its remaining obligations.

**13. Contracts (Rights of Third Parties)**

- 13.1 Except as expressly provided in this Assignment, a person who is not party to this Assignment shall have no rights under the Contracts (Rights of Third Parties) Act 1999 to rely upon or enforce any term of this Assignment provided that this does not affect any right or remedy of the third party which exists or is available apart from that Act.

**14. Counterparts**

- 14.1 This Assignment may be executed in any number of counterparts and by each of the parties on separate counterparts each of which when executed and delivered shall be deemed to be an original, but all the counterparts together shall constitute one and the same agreement.

**15. Governing Law**

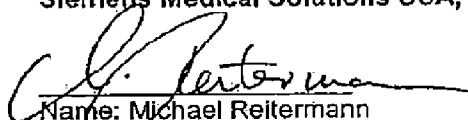
**15.1** This Assignment shall be governed by and construed in accordance with the law of England and Wales.

This Assignment has been entered into on the date stated at the beginning of it.

Signed for and on behalf of  
**Siemens Molecular Imaging Limited**

  
\_\_\_\_\_  
Name: Mark Evans  
Title: Managing Director

Signed for and on behalf of  
**Siemens Medical Solutions USA, Inc.**

  
\_\_\_\_\_  
Name: Michael Reitermann  
Title: President  
Molecular Imaging

  
\_\_\_\_\_  
Name: Dr. Georg Klein  
Title: Vice President & Chief Financial Officer  
Molecular Imaging

### **Schedule 1. Business Information**

Customer lists for OEM Customers will be transferred.

The following know how will be transferred:

1. Multi-modal analysis within customer focussed workflow
2. High performance software architecture
3. Integration of life sciences knowledge and software engineering
4. Knowledge based software
5. 3<sup>rd</sup> party integration capability

## **Schedule 2. Work**

### **Media Viewer**

The syngo Media Viewer can be burnt on a CD or DVD with a copy of some selected data to give a user, such as a patient or a referring physician, a means of interactively viewing the data from any PC. It provides tools for viewing but not modifying the data. These tools include orthogonal views (i.e. axial, coronal and sagittal planes), overlay of hybrid data (e.g. PET scan overlaid onto a CT scan), Maximum Intensity Projection (showing only the brightest data points) and Standard Update Value calculation (a means of quantitatively comparing PET scans). Disks with syngo Media Viewer can currently be burnt from the Siemens Medical workstation (MMWP) or from the Codonics Virtua (a CD printer connected to a hospital network).

### **Fusion7D**

Fusion7D™\* is a multi modality and vendor neutral analysis software that aids in the diagnosis of pathologies. It provides deformable (non-rigid) registration, which fuses anatomical and functional images utilizing a unique algorithm. Fusion7D assist radiologists and nuclear medicine physicians in evaluating regions of the body, such as the base of the lung, dome of the liver, abdomen, or pelvis.

### **Research workstation -**

The Inveon Research Workplace provides an imaging research toolbox to enable translational research. The aim of these tools is to allow the extraction of quantitative information from image data in a reproducible and user independent manner. With multi-species, support Inveon Research Workplace can fulfil the vision of research that proceeds "from mouse to man".

### **Schedule 3. Registered IPRs**

#### **Part 1. Registered trade marks**

- 1) VirtualMammo
- 2) Fusion7D (EU: 3535366, US 2760344, worldwide via Madrid protocol)
- 3) RTist (UK: 3597358, EU: 3597358)
- 4) Mirada (UK: 228500, EU: 4005146, US: 2783756)5) Oxiva
- 6) Oxford Medical Image Analysis
- 7) Scenium
- 8) Miraview (EU)
- 9) SMF

#### **Part 2. Trade mark applications**

- 1) FusionXD

#### **Part 3. Registered patents**

Please refer to the IP Summary Sheet below

#### **Part 4. Patent applications**

Please refer to the IP Summary Sheet below

#### **Part 5. Registered designs**

Nil

#### **Part 6. Design applications**

Nil

SMIL Ref:	Kemp Ref:	Title (abbreviated as necessary)	Inventors	1 <sup>st</sup> app	date	Status PCT	Appln EU	US	J	Grant
P001	N.75807A	X-Ray Image Processing	Brady, Highnam	UK	01.03.99	Y	Y	Y	Y	EU
P002	N.76269	Method and Apparatus for Image Processing	Brady, Hayton	UK	19.03.99	Y	Y	Y	Y	EU, US
P003	N.77491	Non Rigid Motion Image Analysis	Noble, Jacob	UK	27.08.99	Y	Y	Y	Y	
P004	N.79218	3-D Reconst. of a Breast from 2 Mammog.	Brady, Highnam, Yam	UK	17.03.00	Y	Y	Y	Y	
P005	N.78936	Improvements in processing data for interptn.	Brady, Feldmar	UK	23.03.00	Y	Y	Y		
P006	N.80219	Detection of Features in Images	Noble, Mulet-Parada	UK	22.11.00	Y	Y	Y		EU
P008	N.83034	Method and App. for Ultrasound Examination	Noble, Burcher	UK	11.09.01	Y	Y	Y		
P011	N.85601	Computation of Endocardial Contour	Mulet, Feldmar, Declerck	UK	20.08.02	Y	Y	Y		
P012	N.86153	Multi-modality data in imaging	Declerck, Behrenbruch	UK	19.07.02	Y	Y	Y		US, UK
P013	N.85600	Communication of Medical Information	Highnam, Brady, Behrenbruch	UK				Y		
P015	N.75807C	X-Ray Image Processing (Divisional of P001)	Brady, Highnam		01.03.99		Y	Y		
P016	N.87965	Image Reg. using Local Parametric Est.	Roche, Declerck, Brady	UK	08.09.03		Y	Y	Y	
P017	N.87369	Improvements in Image Registration	Declerck, Behrenbruch	UK	29.11.02	Y	Y	Y		
P018	N.87266	Comparing Images	Highnam, Taylor, Ancelin, Brady	US			Y	Y		
P019	N.87367	Improvements in or relating to processing system	Behrenbruch, Declerck, Brady	UK	11.12.02		Y	Y		
P020	N.87368	System for Controlling Data Acquisition Process.	Behrenbruch, Declerck	UK	15.01.03		Y	Y		EU
P021	N.87371	Improvements re dynamic medical imaging	Behrenbruch, Declerck	UK	15.01.03		Y	Y		EU
P023	N.89579	Scatter Correction for X-ray Mammograms	Highnam, Ancelin	US	07.10.03			Y		
P024	N.89159	Assessment of bilateral diseases	McLaughlin, Wright, Declerck	UK	18.09.03		Y			
P025	2005P22754GB	Characterisation of Functional Medical Image Scans	Schenk, Kadir	UK	21.04.06					
P027	2006P10174GB	Estimation of Blood Input Function	Declerck, Schottlander	UK	02.06.06					
P028	2006P10183GB	Mask-based 3D ROI stretching	Declerck, Wright	UK	02.06.06					
P029	2006P13140GB	Regional Reconstruction	Kadir, Schottlander	UK	25.08.06					
P031	2006P19061GB	ROI Based Assessment of Normality Patent Application	Ancelin	UK	07.09.06					

# **Patent Summary P001**

<b>Title</b>	X-ray Image Processing			
<b>Inventors</b>	Mike Brady and Ralph Highnam			
<b>Abstract:</b>  A method of enhancing and normalising X-ray images, particularly mammograms, by correcting the image for digitizer blur, glare from the intensifying screen and the anode-heel effect. The method also allows the calculation of the compressed thickness of the imaged breast and calculation of the contribution to the mammograms of the extra-focal radiation. The correction of the image for intensifying screen allows the detection of noise, such as film shot noise, in the image, and in particular the differentiation between such noise and micro-calcifications.				
<b>Mirada Ref:</b>	P001	<b>Ownership/use</b>	Assigned to Mirada from ISIS	
<b>Country of first Application</b>	UK	<b>Application No.</b>	GB9904692.2	<b>Date</b> 01.03.99
<b>PCT</b>	<b>Date</b>	21.02.00	<b>Reference</b>	WO0052641
<b>European Patent Office</b>	<b>Date</b>	18.06.03	<b>Reference</b>	EP1163641
<b>US Patent Office</b>	<b>Date</b>	10.11.01	<b>Reference</b>	09/914,460
<b>Japanese Patent Office</b>	<b>Date</b>	12.11.02	<b>Reference</b>	JP2002538704
<b>Status of Application:</b>			Date: 9 <sup>th</sup> March 2005	
Granted in the EPO (FR, DE, UK). Published in Japan. Under examination in US and Japan.				

# **Patent Summary P002**

<b>Title</b>	Method and Apparatus for Image Processing			
<b>Inventors</b>	John Michael Brady and Paul Hayton			
<b>Abstract:</b>				
<p>A method of detecting and correcting non-rigid body motion in a sequence of images, for instance MRI images of the human breast. The method uses a similarity measure, such as mutual information, to estimate the probabilities of a plurality of candidate movements for each of a plurality of sampling points in the image. The probabilities of the candidate movements are refined in an iterative process by multiplying them with weighted probabilities of the most probably motions for the neighbouring sampling points. After iteration the motion field is generated by taking the movement of the sampling point the candidate movement with the highest probability after the iteration process. The sequence of images can be corrected by the motion field and then the process repeated using different, for instance more closely spaced, sampling points for further refinement. The process is particularly advantageous for detecting and correcting for non-rigid movements in images which do not contain recognisable geometric features and in images which are non-conservative ie the total amount of brightness in the image changes with time, for instance as a results of the introduction of contrast agent and its dynamic take-up by the tissue being imaged.</p>				
<b>Mirada Ref:</b>	P 002	<b>Ownership/use</b>	Assigned to Mirada by ISIS	
<b>Country of first Application</b>	UK	<b>Application No.</b>	GB9906420.6	<b>Date</b> 19.3.99
<b>PCT</b>	<b>Date</b>	28.09.00	<b>Reference</b>	WO0057361
<b>European Patent Office</b>	<b>Date</b>	29.09.04	<b>Reference</b>	EP1163644
<b>US Patent Office</b>	<b>Date</b>	19.09.01	<b>Reference</b>	09/936,998
<b>Japanese Patent Office</b>	<b>Date</b>	18.09.01	<b>Reference</b>	2000-607163
<b>Status of Application:</b>		Date: 9 <sup>th</sup> March 2005		
Granted in the EPO (FR, DE, UK). Waiting for examination in the US and Japan.				



# Patent Summary P003

<b>Title</b>	Non Rigid Motion Image Analysis			
<b>Inventors</b>	Alison Noble and Gary Jacob			
<b>Abstract:</b>				
<p>A method of automatically detecting and tracking the endocardial and epicardial boundaries of the left ventricle in an echocardiographic image sequence. The endocardial boundary is manually located in some frames of the image sequence, a B-spline curve is fitted to the manually located boundary and a shape-space for the deformation of the boundary through the sequence is calculated by a principal component analysis (PCA) of the motion. The location of the endocardial boundary for all frames in the sequence is then predicted using the shape-space and this prediction is adjusted by searching for image features such as sharp changes in intensity, in the vicinity of the prediction. The amount of movement of the endocardial boundary in each clinically significant segment of the ventricular wall is obtained by measuring the degree of movement of the control points for the spline in that segment, and also monitoring the variation in the amount of movement between the control points for each spline. The epicardial wall is located by combining a prediction of its position based on the endocardium and a search for variations in image intensity consistent with the epicardial wall. The prediction of its position is based on construction of a PCA model of the distance between the two walls. The search can involve plotting of the image intensity along a search line and decomposing the intensity profile using a wavelet based ridge detector. The myocardial thickening during the heart cycle can be deduced from the tracked positions of the endocardial and epicardial walls and quantitative measurements of the thickening and of the variation within each segment can be obtained.</p>				
<b>Mirada Ref:</b>	P 003	<b>Ownership/use</b>	Assigned to Mirada from ISIS	
<b>Country of first Application</b>	UK	<b>Application No.</b>	GB9920401.8	<b>Date</b> 27.08.99
<b>PCT</b>	<b>Date</b>	08.03.01	<b>Reference</b>	WO0116886
<b>European Patent Office</b>	<b>Date</b>	12.06.02	<b>Reference</b>	EP1212729
<b>US Patent Office</b>	<b>Date</b>	25.2.02	<b>Reference</b>	10/069291
<b>Japanese Patent Office</b>	<b>Date</b>	04.03.03	<b>Reference</b>	JP2003508139
<b>Status of Application:</b>		Date: 9 <sup>th</sup> March 2005		
Examined in EPO. Waiting for examination in US and Japan.				

### Patent Summary P004

<b>Title</b>	Three-Dimensional Reconstructions of a Breast from Two X-Ray Mammograms			
<b>Inventors</b>	John Michael Brady, Ralph Highnam and Margaret Yam			
<b>Abstract:</b>	<p>Methods are described for the production of a three-dimensional reconstruction of an undeformed object from two different views of the object under deformation using a volume constraint and also by matching corresponding features in the two images. The volume constraint involves assuming that the deformed volume is the same as the undeformed volume, and calculating the undeformed volume from one of the images. Further, the deformation of the object can be parameterised by finding corresponding image entities in each of the images. The method is particularly applicable to breast mammograms in which case the two images are the cranio-caudal (CC) image and the medio-lateral oblique (MLO) image who's angular separation varies from 35 to 60 degrees. The image entities which are detected in the two images are microcalcifications, and these are matched by detecting a value representing their volume and looking for matches in this value between the two images.</p>			
<b>Mirada Ref:</b>	P 004	<b>Ownership/use</b>	Assigned to Mirada from ISIS	
<b>Country of first Application</b>	UK	<b>Application No.</b>	GB0006598.7	<b>Date</b> 17.03.00
<b>PCT</b>	<b>Date</b>	20.09.01	<b>Reference</b>	WO0169533
<b>European Patent Office</b>	<b>Date</b>	11.12.02	<b>Reference</b>	EP1264277
<b>US Patent Office</b>	<b>Date</b>	20.05.04	<b>Reference</b>	US20040094167
<b>Japanese Patent Office</b>	<b>Date</b>	16.09.03	<b>Reference</b>	JP2003527700
<b>Status of Application:</b>		Date: 9 <sup>th</sup> March 2005		
International search report published. Waiting for examination in all regions.				

### Patent Summary P005

<b>Title</b>	Improvements in or Relating to Processing Data for Interpretation			
<b>Inventors</b>	John Michael Brady and Jacques Feldmar			
<b>Abstract:</b>				
<p>A system for improving sensor-based decision making provides for the automatic submission of data obtained locally from instrumentation (such as image data) together with the interpretation of that data, which can be the output of some software which has been checked and possibly corrected by a user according to his/her expertise, to a remote database via an internetwork. The submission to the remote database is preferably automatic so that the remote database grows over time. The local site can access the remote database or retrieve information to assist in interpretation of the locally produced data (for example similar images and their corresponding interpretations), or can retrieve updated or improved software or parameters improving the software used for processing the data. The information on the remote database can also be reprocessed by software agents to provide statistical information from a variety of such local sites. The system is particularly useful in improving the interpretation of data which is difficult to interpret such as medical data (e.g. mammographic or cardiac ultrasound data).</p>				
<b>Mirada Ref:</b>	P 005	<b>Ownership/use</b>	Mirada Solutions Ltd	
<b>Country of first Application</b>	UK	<b>Application No.</b>	GB0007156.3	<b>Date</b> 23.03.00
<b>PCT</b>	<b>Date</b>	27.09.01	<b>Reference</b>	WO0171660
<b>European Patent Office</b>	<b>Date</b>	18.12.02	<b>Reference</b>	EP1266356
<b>US Patent Office</b>	<b>Date</b>	31.07.03	<b>Reference</b>	US2003144976
<b>Japanese Patent Office</b>	<b>Date</b>	N/A		
<b>Status of Application:</b>		<b>Date:</b> 9 <sup>th</sup> March 2005		
Published in EPO. Waiting for examination in EPO and US.				

# **Patent Summary P006**

<b>Title</b>	Detection of Features in Images			
<b>Inventors</b>	Alison Noble and Miguel Mulet-Parada			
<b>Abstract:</b>				
<p>An image processing technique which identifies pixels in images which are associated with features having a selected shape, such as but not exclusively step edge, roof, ridge or valley. The shape of the intensity profile in the image is compared in an intensity independent way with a shape model to select those pixels which satisfy the shape model and are thus associated with the feature of interest. This comparison is achieved by examining the phase and amplitude of a spectral decomposition of parts of the image profile in the spatial or spatio temporal frequency domain. This decomposition can be achieved using quadrature wavelet pairs such as log Gabor wavelets. The difference between the odd and even components, known as the feature asymmetry, gives an indication of the velocity of a moving feature. Pixels identified a belonging to a feature of the right shape are labelled with the value of feature asymmetry, the local amplitude, feature orientation and feature velocity, and this information can be used to improve the tracking of detected features through a sequence of images.</p>				
Mirada Ref:	P 006	Ownership/use	Assigned to Mirada by ISIS	
Country of first Application	UK	Application No.	GB0028491.9	Date 22.11.00
PCT	Date	24.07.03	Reference	WO0243004
European Patent Office	Date	08.10.03	Reference	EP1350223
US Patent Office	Date	11.03.04	Reference	US2004047498
Japanese Patent Office	Date	N/A		
Status of Application:		Date: 9 <sup>th</sup> March 2005		
To be granted by the EPO. Awaiting examination in the US.				

### Patent Summary P007

<b>Title</b>	Magnetic Resonance Imaging			
<b>Inventors</b>	Mike Brady, Paul Armitage, Chris Behrenbruch			
<b>Abstract:</b>				
<p>A method of dynamic contrast enhanced magnetic resonance imaging, and of processing the signals from such imaging, in order to improve the characterisation of tissue types being imaged. A calculation of the longitudinal relaxation time <math>T_1</math> is made for each voxel in the image by applying pulse sequences having different flip angles or TRs and fitting the resulting resonance signals to a model of the imaging process. Dynamic, contrast-enhanced imaging is then conducted and by using the <math>T_1</math> values the results may be fitted to a pharmacokinetic model of the uptake of contrast agent in the tissue being imaged. This gives values for physiological parameters relating to the permeability of the tissue and the extravascular extracellular space volume fraction. These, together with the <math>T_1</math> value provide an excellent characterisation of the tissue as malignant or benign. The parameters may be displayed using a vector map or by displaying each of them in a different colour, allowing a quick and meaningful assessment of the image to be made.</p>				
<b>Mirada Ref:</b>	P 007	<b>Ownership/use</b>	Assigned to Mirada by ISIS.	
<b>Country of first Application</b>	UK	<b>Application No.</b>	GB0117187.5	<b>Date</b>
<b>PCT</b>	<b>Date</b>	23.01.03	<b>Reference</b>	WO03007010
<b>European Patent Office</b>	<b>Date</b>	14.04.04	<b>Reference</b>	EP1407283
<b>US Patent Office</b>	<b>Date</b>	02.12.04	<b>Reference</b>	US2004242994
<b>Japanese Patent Office</b>	<b>Date</b>	N/A		
<b>Status of Application:</b>		Date: 9 <sup>th</sup> March 2005		
<p>Examined by EPO who found major prior art. We have submitted reduced claims. Awaiting examination in US.</p>				

### Patent Summary P008

Title	Method and Apparatus for Ultrasound Examination			
Inventors	Alison Noble and Michael Burcher			
Abstract:				
<p>An ultrasound apparatus and method of ultrasound examination in which the contact force between the ultrasound probe and the subject is measured and recorded. Because contact between the ultrasound probe and the subject deforms the underlying tissue, recordal of the contact force allows the deformation to be calculated. Then an inverse deformation can be calculated and used to correct the received signals to generate the signals which would have been obtained if there had been no contact between the ultrasound probe and the subject. The deformation of the subject may be predicted using a model, such as a finite element model.</p>				
Mirada Ref:	P 008	Ownership/use	Assigned to Mirada by ISIS	
Country of first Application	UK	Application No.	GB0121984.9	Date 11.9.01
PCT	Date	20.03.03	Reference	WO03022152
European Patent Office	Date	14.07.04	Reference	EP1435839
US Patent Office	Date	16.12.04	Reference	US2004254460
Japanese Patent Office	Date	N/A		
Status of Application:			Date: 9 <sup>th</sup> March 2005	
Awaiting examination in all regions.				

### IP Summary P009

Title	FSL-FMRIB Software Library		
Inventors	Staff from the Oxford Centre for the Functional Magnetic Imaging of the Brain Unit		
<b>Abstract:</b> Licensing of this library and know-how is agreed with fMRIB. At present there are no patents associated with it.			
Mirada Ref:	P009	Ownership/use	FMRIB Centre
Status:		Date: 9 <sup>th</sup> March 2005	
It is planned that the FSL-FMRIB Software Library will be offered as an add-on feature in MiraView work stations under licence, subject to the negotiations currently in progress.			

# **Patent Summary P010**

<b>Title</b>	Yasmina – Yet Another Similarity Measure for Image Nice Alignment			
<b>Inventors</b>	Alexis Roche and Grégoire Malandain			
<b>Abstract:</b> Yasmina is a program for automatic registration of images. It was created in order to carry out the fusion of medical images of different modalities (MRI, CT, PET, SPECT, US). An example of its use is to load an MR image and a CT image representing the same patient's brain.; the program will then calculate the geometric transformation to apply to the CT for example so that the anatomical structures common to the two modalities (bone, soft tissue, skin) are perfectly superimposed. The general principle is to find the parameters of rigid transformation which maximise a certain alignment criterion between the two images. Such criterion is generally called a similarity measure, like Woods, mutual information, correlation ratio, etc.				
<b>Mirada Ref:</b>	P 010	<b>Ownership/use</b>	Owned by INRIA	
<b>Country of first Application</b>	France	<b>Application No.</b>	IDDN.FR.001.510029.01. R.P.1998.000.21000	<b>Date</b> 14.5.01
<b>PCT</b>	<b>Date</b>		<b>Reference</b>	GB3417726
<b>European Patent Office</b>	<b>Date</b>		<b>Reference</b>	
<b>US Patent Office</b>	<b>Date</b>	27.7.99	<b>Reference</b>	US361313
<b>Japanese Patent Office</b>	<b>Date</b>			
<b>Status of Application:</b>			<b>Date:</b> 9 <sup>th</sup> March 2005	
The application is in the hands of INRIA and we are not privy to the progress with the various applications. INRIA is bound by contract to pursue all necessary procedures to make sure the application is granted (if possible) and that the patent fees are paid.				

# **Patent Summary P011**

<b>Title</b>	Computation of Endocardial Contour			
<b>Inventors</b>	Miguel Mulet, Jacques Feldmar, Jérôme Declerck			
<b>Abstract:</b>				
<p>A method of computing a contour, such as the endocardial boundary in an ultrasound long-axis view of the heart, is disclosed. A plurality of points are input, each point being indicative of a predetermined landmark point in the image. A preliminary contour is then derived based on the input points and a known average contour shape which has been obtained from a database of contours derived from previous images. Finally, the preliminary contour is deformed to fit features identified in the image by a feature-extraction algorithm, to obtain the computed contour.</p>				
<b>Mirada Ref:</b>	P 011	<b>Ownership/use</b>	Mirada Solutions Ltd	
<b>Country of first Application</b>	UK	<b>Application No.</b>	0219408.2	<b>Date</b> 20.8.02
<b>PCT</b>	<b>Date</b>	04.03.04	<b>Reference</b>	WO2004019275
<b>European Patent Office</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>US Patent Office</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>Japanese Patent Office</b>	<b>Date</b>	N/A		
<b>Status of Application:</b>		Date: 9 <sup>th</sup> March 2005		
Filed in the US and EPO in 01/04. No filing references received yet.				



### Patent Summary P012

<b>Title</b>	Multi-modality data in imaging			
<b>Inventors</b>	Jérôme Declerck and Chris Behrenbruch			
<b>Abstract:</b>				
<p>A method of registration of a functional emission image to an x-ray image is disclosed in which the emission image is first processed to mask out regions of the background and lungs identified in a corresponding transmission image. Only areas which are not masked out in the emission image are matched to areas in the x-ray image. The x-ray image and masked emission image may then be displayed in superposition.</p>				
Mirada Ref:	P 012	Ownership/use	Mirada Solutions Ltd	
Country of first Application	UK	Application No.	GB0216854.0	Date 19.07.02
PCT	Date	N/A	Reference	
European Patent Office	Date	N/A	Reference	
US Patent Office	Date	15.04.04	Reference	US2004071325
Japanese Patent Office	Date	N/A		
Status of Application:			Date: 9 <sup>th</sup> March 2005	
Under examination in UK and awaiting examination in US.				

### Patent Summary P013

<b>Title</b>	Communication of Medical Information			
<b>Inventors</b>	Ralph Highnam, John Michael Brady, Christian Behrenbruch			
<b>Abstract:</b>				
A method of communicating medical information comprising the steps of: obtaining raw image data from at least a portion of the body of a subject; constructing a computer representation of the raw image data; applying image processing to the computer representation; and giving the result of the image processing to a person to whom medical information contained in the image data is to be communicated.				
<b>Mirada Ref:</b>	P 013	<b>Ownership/use</b>	Mirada Solutions Ltd	
<b>Country of first Application</b>	US	<b>Application No.</b>	10/236,223	<b>Date</b> 05.09.02
<b>PCT</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>European Patent Office</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>US Patent Office</b>	<b>Date</b>	11.03.04	<b>Reference</b>	US2004047496
<b>Japanese Patent Office</b>	<b>Date</b>	N/A		
<b>Status of Application:</b>			Date: 9 <sup>th</sup> March 2005	
This is an US only application since it describes a process. Published but awaiting examination.				

### Patent Summary P014

<b>Title</b>	Improvements in or relating to radiation treatment planning			
<b>Inventors</b>	Christian Behrenbruch and Jérôme Declerck			
<b>Abstract:</b>				
<p>A method of defining a treatment volume for use in radiation treatment planning in which the treatment volume is defined by use of at least two co-registered or fused images, one of which shows structural information and one of which shows up the tumour well. The images may be a CT image and a PET image, or one or both may be MR images.</p>				
<b>Mirada Ref:</b>	P 014	<b>Ownership/use</b>	Mirada Solutions Ltd	
<b>Country of first Application</b>	UK	<b>Application No.</b>	GB0223068.8	<b>Date</b> 04.10.02
<b>PCT</b>	<b>Date</b>	15.04.04	<b>Reference</b>	WO2004030761
<b>European Patent Office</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>US Patent Office</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>Japanese Patent Office</b>	<b>Date</b>	N/A		
<b>Status of Application:</b>			Date: 9 <sup>th</sup> March 2005	
Major prior art found by international search report. To be dropped.				

### Patent Summary P015

<b>Title</b>	X-Ray Image Processing			
<b>Inventors</b>	Mike Brady and Ralph Highnam			
<b>Abstract:</b>				
<p>A method of enhancing and normalising x-ray images, particularly mammograms, by correcting the image for digitizer blur, glare from the intensifying screen and the anode-heal effect. The method also allows the calculation of the compressed thickness of the imaged breast and calculation of the contribution to the mammograms of the extra focal radiation. The correction of the image for glare from the intensifying screen allows the detection of noise, such as film shot noise, in the image, and in particular the differentiation between such noise and microcalcifications.</p>				
<b>Mirada Ref:</b>	P015	<b>Ownership/use</b>	Mirada Solutions Ltd	
<b>Country of first Application</b>	UK	<b>Application No.</b>	GB9904692	<b>Date</b> 01.03.99
<b>PCT</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>European Patent Office</b>	<b>Date</b>	02.04.03	<b>Reference</b>	EP1298586
<b>US Patent Office</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>Japanese Patent Office</b>	<b>Date</b>	N/A		
<b>Status of Application:</b>		<b>Date:</b> 9 <sup>th</sup> March 2005		
<p>This is the divisional patent application arising out of P001, filed in September 2002.</p>				

### Patent Summary P016

Title	Image Registration using Local Parametric Estimators			
Inventors	A. Roche, J. M. Brady, J Declerck and O. Corolleur			
<b>Abstract:</b>  A method of matching data sets, such as different images, by estimating a transformation which relates the two images. Different candidate transformations are scored by using a similarity measure calculated on the basis of probability density functions derived from the two data sets themselves. The probability density functions are based on local likelihood density estimation (LLDE). The technique is applicable to image registration, and also to data fusion.				
Mirada Ref:	P016	Ownership/use	Co-owned ISIS and Mirada Solutions Ltd, assigned wholly to Mirada Solutions.	
Country of first Application	UK	Application No.	GB0320973	08.09.03
PCT	Date	N/A	Reference	
European Patent Office	Date	09.03.05	Reference	EP1513104
US Patent Office	Date	07.09.04	Reference	10/935,045
Japanese Patent Office	Date	08.11.04	Reference	2004-261609
Status of Application:			Date: 9 <sup>th</sup> March 2005	
Awaiting examination in all regions.				

### Patent Summary P017

<b>Title</b>	Improvements in or relating to image registration			
<b>Inventors</b>	Chris Behrenbruch and Jérôme Declerck			
<b>Abstract:</b>				
<p>A method of displaying two images in registration with each other in which a visually distinguishable overlay is also displayed to represent the degree of "confidence" in the registration process. The degree of confidence may be calculated on the basis of the degree of non-rigid deformation needed to register the two images. The visually distinguishable overlay can be in the form of a transparent colour wash whose colour and/or intensity indicate the level of confidence, or a symbol, e.g. a circle, whose size represents the degree of confidence.</p>				
Mirada Ref:	P017	Ownership/use	Mirada Solutions Ltd	
Country of first Application	UK	Application No.	GB0227887.7	Date 29.11.02
PCT	Date	17.06.04	Reference	WO2004051571
European Patent Office	Date	N/A	Reference	
US Patent Office	Date	N/A	Reference	
Japanese Patent Office	Date	N/A		
Status of Application:			Date: 9 <sup>th</sup> March 2005	
Awaiting national phase of PCT.				

### Patent Summary P018

<b>Title</b>	Comparison of Mammograms			
<b>Inventors</b>	Ralph Highnam, Peter Taylor, Bruno Ancelin and Mike Brady			
<b>Abstract:</b>				
<p>Comparing first and second images taken on different imaging systems and under different exposure conditions is achieved by the steps of: applying a model to the data representing the first image, which model simulates at least one process step in the creation of said first image, to derive a representation of the first image at a level of processing common to the creation of the second image; and applying a further model to said representation, which model simulates at least one process step in the creation of said second image, to derive a further representation of the first image which corresponds to the same level of processing as said second image.</p>				
Mirada Ref:	P018	Ownership/use	Mirada Solutions Ltd.	
Country of first Application	US	Application No.	10/303,225	Date 25.11.02
PCT	Date	N/A	Reference	
European Patent Office	Date	N/A	Reference	
US Patent Office	Date	27.05.04	Reference	US2004101185
Japanese Patent Office	Date	N/A		
Status of Application:			Date: 9 <sup>th</sup> March 2005	
Awaiting examination in US.				

### Patent Summary P019

<b>Title</b>	Improvements in or Relating to Processing System			
<b>Inventors</b>	Chris Behrenbruch and Jérôme Declerck			
<b>Abstract:</b>				
<p>A processing system which comprises a processing apparatus and a processing agent which is administered to a processing subject. The processing agent has a primary behaviour which provides the desired process result in conjunction with the apparatus, but also has the distinctive signature characteristic which is detected best by test functionality in the processing system. The behaviour of the processing system can be modified in response to the test result. In an example such as a contrast enhanced medical imaging, the full functionality of the imaging equipment may be available only if a contrast agent having the particular distinctive signature characteristic is used, thus tying use of the apparatus to use of a particular agent.</p>				
<b>Mirada Ref:</b>	P019	<b>Ownership/use</b>	Mirada Solutions Ltd.	
<b>Country of first Application</b>	UK	<b>Application No.</b>	GB0228960	<b>Date</b> 11.12.02
<b>PCT</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>European Patent Office</b>	<b>Date</b>	16.06.04	<b>Reference</b>	EP1429275
<b>US Patent Office</b>	<b>Date</b>	22.07.02	<b>Reference</b>	US2004143449
<b>Japanese Patent Office</b>	<b>Date</b>	N/A		
<b>Status of Application:</b>		<b>Date:</b> 9 <sup>th</sup> March 2005		
Awaiting examination in all regions.				



### Patent Summary P020

Title	System for Controlling Medical Data Acquisition Process			
Inventors	Chris Behrenbruch and Jérôme Declerck			
Abstract:				
<p>A system for controlling medical data acquisition, such as imaging, comprises a supervisory protocol controller which controls in real time a data acquisition device, such as an imaging apparatus, and an agent administration controller, such as a drug delivery device for delivering contrast agent. The supervisory protocol controller receives data from the acquisition apparatus and controls the acquisition apparatus and the administration controller based on that acquired data. Thus the acquisition protocol can be controlled and changed in response to the actual acquisition protocol and changed in response to the actual acquisition circumstances.</p>				
Mirada Ref:	P020	Ownership/use	Mirada Solutions Ltd	
Country of first Application	UK	Application No.	GB0300922.2	Date 15.01.03
PCT	Date	N/A	Reference	
European Patent Office	Date	21.07.04	Reference	EP1439482
US Patent Office	Date	02.09.04	Reference	US2004172303
Japanese Patent Office	Date	N/A		
Status of Application:			Date: 9 <sup>th</sup> March 2005	
Awaiting examination in all regions.				

### Patent Summary P021

<b>Title</b>	Improvements or Relating to Dynamic Medical Imaging			
<b>Inventors</b>	Chris Behrenbruch and Jérôme Declerck			
<b>Abstract:</b>				
<p>A method of dynamic medical imaging in which the quality of the image registration or motion correction between frames is assessed by examining the temporal behaviour of a region of interest through the sequence, and in particular how closely the behaviour follows the expected behaviour. For a temporal sequence a temporal model of the expected behaviour of the region of interest is available and the quality of the fit between the model and the data points from the dynamic imaging sequence can be calculated. In the image regions of high patient motion the fit will be poor whereas if there is no patient motion the fit will be better. The quality of fit can be displayed on the image as an indication of the validity of motion correction, and in areas of poor fit the motion correction can be re-executed using different parameters to try and improve the fit between the behaviour model and the actual data points. The invention is applicable to any contrast-enhanced medical imaging technique.</p>				
Mirada Ref:	P021	Ownership/use	Mirada Solutions Ltd	
Country of first Application	UK	Application No.	GB0300921.4	Date 15.01.03
PCT	Date	N/A	Reference	
European Patent Office	Date	03.11.04	Reference	EP1473674
US Patent Office	Date	26.08.04	Reference	US2004167395
Japanese Patent Office	Date	N/A		
Status of Application:		Date: 9 <sup>th</sup> March 2005		
Awaiting examination in all regions.				

# Patent Summary P022

<b>Title</b>	Image Velocity Estimation			
<b>Inventors</b>	Aïson Noble and Djamal Boukerroui			
<b>Abstract:</b>				
<p>A method of image velocity estimation in image processing which uses a block matching technique in which a similarity measure is used to calculate the similarity between blocks in successive images. The similarity measure is used to calculate a probability density function of candidate velocities. The calculation is on the basis of an exponential function of the similarity in which the similarity is multiplied by a parameter whose value is independent of position in the frame. The candidate velocities are thresholded to exclude those having a low probability. The value of the parameter and threshold are optimised together by coregistering all frames to the first frame, calculating the registration error and varying them to minimise the registration error. The similarity measure is normalised with respect to the size of the block, for example by dividing it by the number of image samples in the blocks being compared. The similarity measure used may be the <math>CD_{2-bl}</math> similarity measure in which the mean and standard deviation of the two blocks being compared are adjusted to be the same before calculation of the similarity. This makes the similarity measure particularly suitable for ultrasound images. Further, the block matching may be conducted across three frames of the sequence by comparing the intensities in blocks of the first and third, and second and third of the frames and finding the block in the third frame which best matches the block in the second frame and that block's corresponding position in the first frame.</p>				
<b>Mirada Ref:</b>		<b>Ownership/use</b>	University of Oxford	
<b>Country of first Application</b>	UK	<b>Application No.</b>		<b>Date</b> 04.12.02
<b>PCT</b>	<b>Date</b>	17.06.04	<b>Reference</b>	WO2004052016
<b>European Patent Office</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>US Patent Office</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>Japanese Patent Office</b>	<b>Date</b>	N/A		
<b>Status of Application:</b>			Date: 9 <sup>th</sup> March 2005	
Not licensed by Mirada.				

### Patent Summary P023

<b>Title</b>	Scatter correction for X-Ray mammograms			
<b>Inventors</b>	Bruno Ancelin and Ralph Highnam			
<b>Abstract:</b>				
<p>A method of processing a radiographic image obtained with a slot-scanning radiographic system to compensate for scattering of the illuminating beam in the tissue being imaged. A conventional circularly symmetric scatter mask, for example a point spread function, is adjusted to take account of the shape of the detector and time delay integration used in the slot scanning system, the presence of an air gap between the detector and the bottom of the tissue being imaged, and the collimation of the radiation beam. The result is a sharpened and shortened point spread function.</p>				
<b>Mirada Ref:</b>	P023	<b>Ownership/use</b>	Mirada Solutions Ltd	
<b>Country of first Application</b>	US	<b>Application No.</b>	10/686,382	<b>Date</b> 14.10.03
<b>PCT</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>European Patent Office</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>US Patent Office</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>Japanese Patent Office</b>	<b>Date</b>	N/A		
<b>Status of Application:</b>			Date: 9 <sup>th</sup> March 2005	
US only application due to prior disclosure. Awaiting examination in US.				

### Patent Summary P024

<b>Title</b>	Assessment of bilateral diseases			
<b>Inventors</b>	Rob McLaughlin, Tom Wright and Jérôme Declerck			
<b>Abstract:</b>				
<p>A technique for assessing the progression of multilateral dysfunction, e.g. bi-lateral diseases is described. The process consists of two stages: firstly, a 'health measure' is computed for each of the features of the multi-lateral dysfunction. One example is in terms of the progression of Parkinson's disease by applying it to the uptake of imaging agent in the two striata of the brain, which can be viewed using SPECT imaging. In this example, a characteristic graph for each striatum is matched to a family of such graphs in order to quantify the state of each striatum as a health measure. Then the lower health measure is plotted against the higher health measure. This point is then projected onto a previously computed disease progression trajectory which is used to assign a percentage to the progression of the disease, from 0% normal to 100% extreme progression of the disease. In addition to the disease progression percentage, the technique also provides a confidence measure of the accuracy of this estimation. The invention is applicable to other forms of multilateral dysfunction, including other human or animal conditions and dysfunction in non-biological systems such as mechanical, electrical or electronic systems.</p>				
<b>Mirada Ref:</b>		<b>Ownership/use</b>	Mirada Solutions Ltd.	
<b>Country of first Application</b>	UK	<b>Application No.</b>	GB0321901.1	<b>Date</b> 18.09.03
<b>PCT</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>European Patent Office</b>	<b>Date</b>	29.06.04	<b>Reference</b>	04253908.0
<b>US Patent Office</b>	<b>Date</b>	tbc	<b>Reference</b>	tbc
<b>Japanese Patent Office</b>	<b>Date</b>	N/A	<b>Reference</b>	
<b>Status of Application:</b>			<b>Date:</b> 9 <sup>th</sup> March 2005	
Also filed in US but awaiting reference number. Awaiting examination in all regions.				

### Patent Summary P025

<b>Title</b>	Characterisation of Functional Medical Image Scans			
<b>Inventors</b>	Veit Schenk and Timor Kadir			
<b>Abstract:</b>				
N/A				
<b>Mirada Ref:</b>		<b>Ownership/use</b>	Mirada Solutions Ltd.	
<b>Country of first Application</b>	UK	<b>Application No.</b>	0607910.7	<b>Date</b> 21.04.06
<b>PCT</b>	Date		Reference	
<b>European Patent Office</b>	Date		Reference	
<b>US Patent</b>	Date		Reference	

Office				
Japanese Patent Office	Date		Reference	
Status of Application:			Date: 28/9/06	
Examined in UK.				

### Patent Summary P027

<b>Title</b>	Estimation of Blood Input Function			
<b>Inventors</b>	Jerome Declerck and David Schottlander			
<b>Abstract:</b>				
N/A				
<b>Mirada Ref:</b>		<b>Ownership/use</b>	Mirada Solutions Ltd.	
<b>Country of first Application</b>	UK	<b>Application No.</b>	0610758.5	<b>Date</b> 02.06.06
<b>PCT</b>	Date		Reference	
<b>European Patent Office</b>	Date		Reference	
<b>US Patent Office</b>	Date		Reference	
<b>Japanese Patent Office</b>	Date		Reference	
<b>Status of Application:</b>			Date: 28/9/06	
Awaiting examination in UK.				

### Patent Summary P028

<b>Title</b>	Mask-based 3D ROI stretching			
<b>Inventors</b>	Jerome Declerck and Tom Wright			
<b>Abstract:</b>				
N/A				
<b>Mirada Ref:</b>		<b>Ownership/use</b>	Mirada Solutions Ltd.	
<b>Country of first Application</b>	UK	<b>Application No.</b>	0610757.7	<b>Date</b> 02.06.06
<b>PCT</b>	Date		Reference	
<b>European Patent Office</b>	Date		Reference	
<b>US Patent Office</b>	Date		Reference	
<b>Japanese Patent Office</b>	Date		Reference	
<b>Status of Application:</b>			Date: 28/9/06	
Awaiting examination in UK.				

### Patent Summary P029

<b>Title</b>	Regional Reconstruction			
<b>Inventors</b>	Timor Kadir and David Schotlander			
<b>Abstract:</b>				
N/A				
<b>Mirada Ref:</b>		<b>Ownership/use</b>	Mirada Solutions Ltd.	
<b>Country of first Application</b>	UK	<b>Application No.</b>	0616859.5	<b>Date</b> 25.08.06
<b>PCT</b>	<b>Date</b>		<b>Reference</b>	
<b>European Patent Office</b>	<b>Date</b>		<b>Reference</b>	
<b>US Patent Office</b>	<b>Date</b>		<b>Reference</b>	
<b>Japanese Patent Office</b>	<b>Date</b>		<b>Reference</b>	
<b>Status of Application:</b> <span style="float: right;">Date: 28/9/06</span> Awaiting examination in UK.				

### Patent Summary P031

<b>Title</b>	ROI Based Assessment of Normality Patent Application			
<b>Inventors</b>	Bruno Ancelin			
<b>Abstract:</b>				
N/A				
<b>Mirada Ref:</b>		<b>Ownership/use</b>	Mirada Solutions Ltd.	
<b>Country of first Application</b>	UK	<b>Application No.</b>	0617515.2	<b>Date</b> 07.09.06
<b>PCT</b>	<b>Date</b>		<b>Reference</b>	
<b>European Patent Office</b>	<b>Date</b>		<b>Reference</b>	
<b>US Patent Office</b>	<b>Date</b>		<b>Reference</b>	
<b>Japanese Patent Office</b>	<b>Date</b>		<b>Reference</b>	
<b>Status of Application:</b> <span style="float: right;">Date: 28/9/06</span> Awaiting examination in UK.				



**Schedule 4. Unregistered marks**

Nil

#### Schedule 5. IP Licences

- 1) ms714: licensing agreement for Yasmina (Correlation Ratio) technology from INRIA (French and English version. The French version prevails)
- 2) ms1402: licensing of FSL software (from OU's fMRIB lab)
- 3) ms5269: OU MVL Master License Agreement
- 4) ms11908: amendment of contract for licensing a technology from INRIA: French version.
- 5) ms11909: amendment of contract for licensing a technology from INRIA: English version.
- 6) ms12236: licensing option agreement for Kadir patent
  - INRIA
    - g. ms11716: NDA with Vincent Arsigny (INRIA PhD student)
    - l. ms11908: amendment of contract for licensing a technology from INRIA (Yasmina: correlation ratio): French version.
    - j. ms11909: amendment of contract for licensing a technology from INRIA (Yasmina: correlation ratio): English version.
  - UCLA
  - Mercury
  - Apache
  - a. ms773: assignment of a patent (P001) from OU and ISIS Innovations to Oxiva Ltd (8 Dec 2000)
  - e. ms10680: Software License Agreement for SMF with University of Cambridge (Ruth Warren)
  - f. ms10758: Software License Agreement for SMF with London School of Hygiene (Valerie McCormack)
  - Banner Health contract (msXXXX): licensing of database for Scenium (PET version)
- 7) Agreement dated 9 June 2002 between the American Society of Radiologic Technologists and Mirada Solutions Ltd, sometimes known as the "ASRT agreement".

#### **Schedule 6. OEM Contracts**

1. Software Development and License Agreement between Mirada and Hitachi Medical Systems of America, Inc. dated 29 April 2002.
2. Fusion 7D Software Reseller Agreement between Mirada Solutions Limited and Toshiba Medical Systems Corporation dated 1 February 2004.
3. Value Added Marketing Agreement between Mirada Solutions Limited and McKesson Information solutions LLC dated 15 February 2005
4. Software Reseller Agreement between Siemens Molecular Imaging Limited and ImageONE dated 9 November 2005
5. Software Reseller Agreement in respect of Fusion7D Image Fusion Software between Siemens Molecular Imaging Limited and Medasys SA dated 10 November 2005.
6. DICOM Converter Software Reseller Agreement between Siemens Molecular Imaging Limited and Toshiba Medical Systems Corporation dated \_\_\_\_\_ 2006.
7. Software Reseller Agreement between Siemens Molecular Imaging Limited and Eastman Kodak Company dated 19 April 2006
8. Software Reseller Agreement between Siemens Molecular Imaging Limited and Vital Images, Inc. dated 12 May 2006
9. Agreement dated 9 June 2002 between the American Society of Radiologic Technologists and Mirada Solutions Ltd, sometimes known as the "ASRT agreement".