

# Radiation Therapy training, made real.

VERT™ – market leading  
radiation therapy VR software.  
Bridge the gap between theory  
and practice.



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# At Vertual, we're transforming the way Radiation Therapy is taught, learned and understood.

We understand how important hands-on technical training is. Our aim is to help innovate and improve the education of Radiation Therapy, worldwide. That's why we're proud to be the leading provider of virtual reality training solutions in Radiation Therapy.

Founded in Hull, in 2007, we started life as a joint research project with The University of Hull and East Yorkshire Hospital Trust. Now, we have an international community of users – who are making an impact across the globe.

### Discover our products

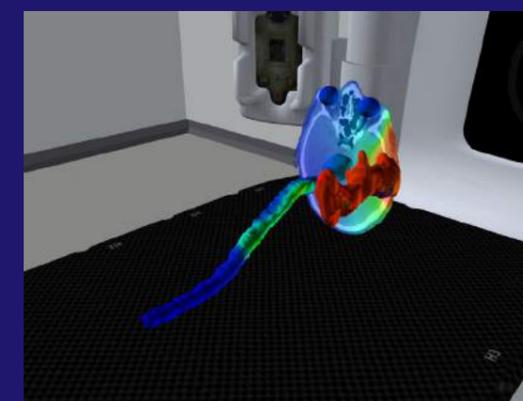
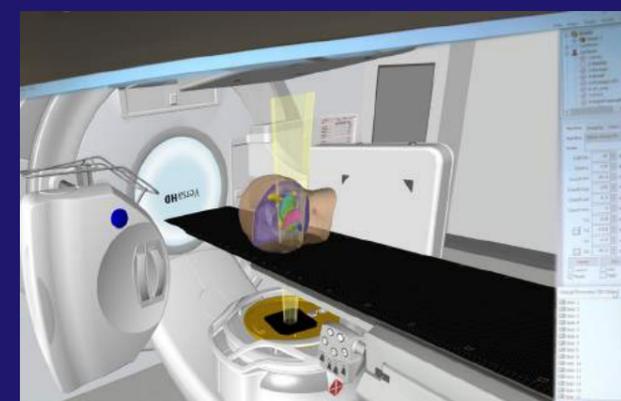
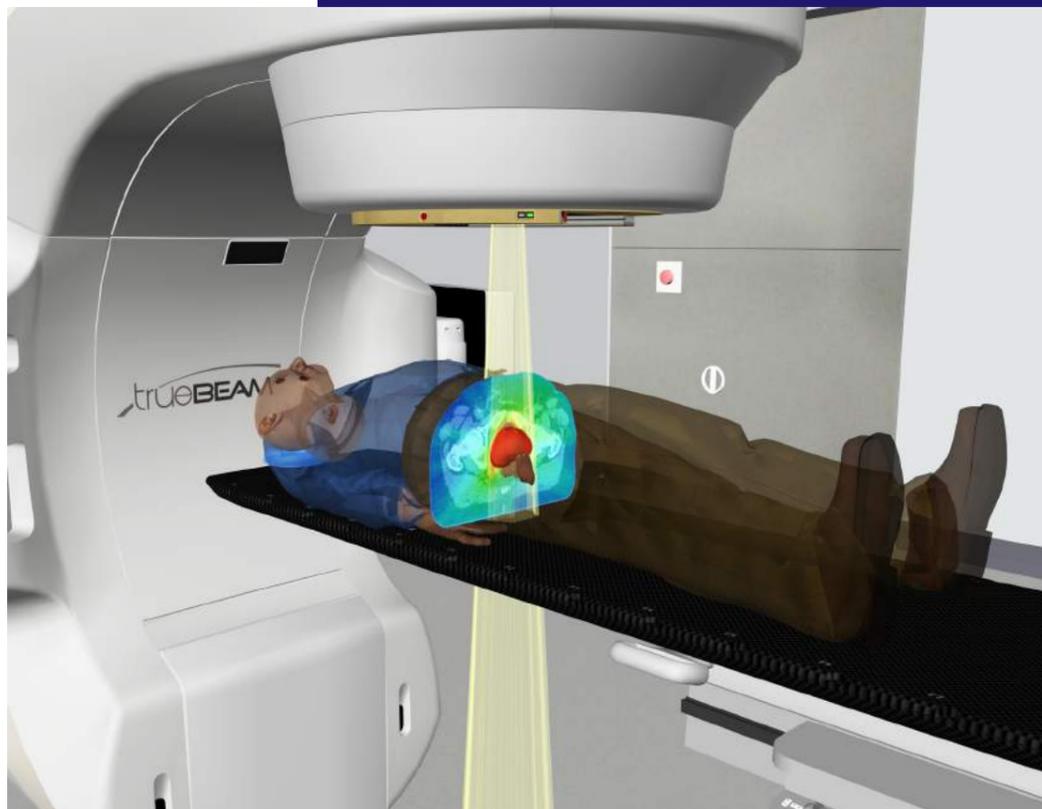
**VERT** – Teach the theoretical concepts of radiation therapy with an innovative, award winning, interactive training solution

**Compact VERT** – The Mobile VERT solution is offered as an alternative to an installed VERT where space is limited or budget is lower

### Additional Modules

**Proton VERT** – Enables the transition from Photons to Protons more effectively and in a safer environment

**VERT Physics** – A virtual reality tool designed to represent real world equipment and simulate clinical workflow (includes QA & Dosimetry modules)



### Linac models available:

- Varian iX and CX
- Varian TrueBeam
- Elekta Synergy, Synergy Platform, Agility and Versa HD
- IBA Proteus One and Varian ProBeam

## “Vertual has revolutionised the way radiation therapy is taught.”

**Shaun Caldwell**

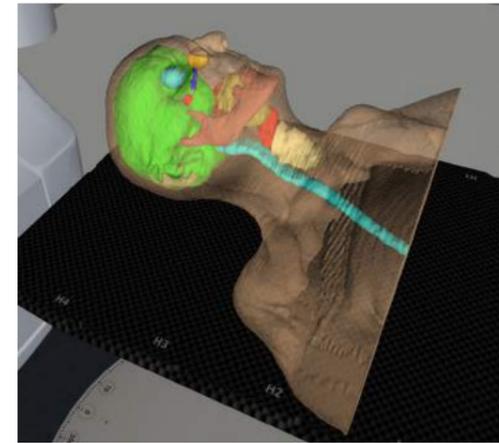
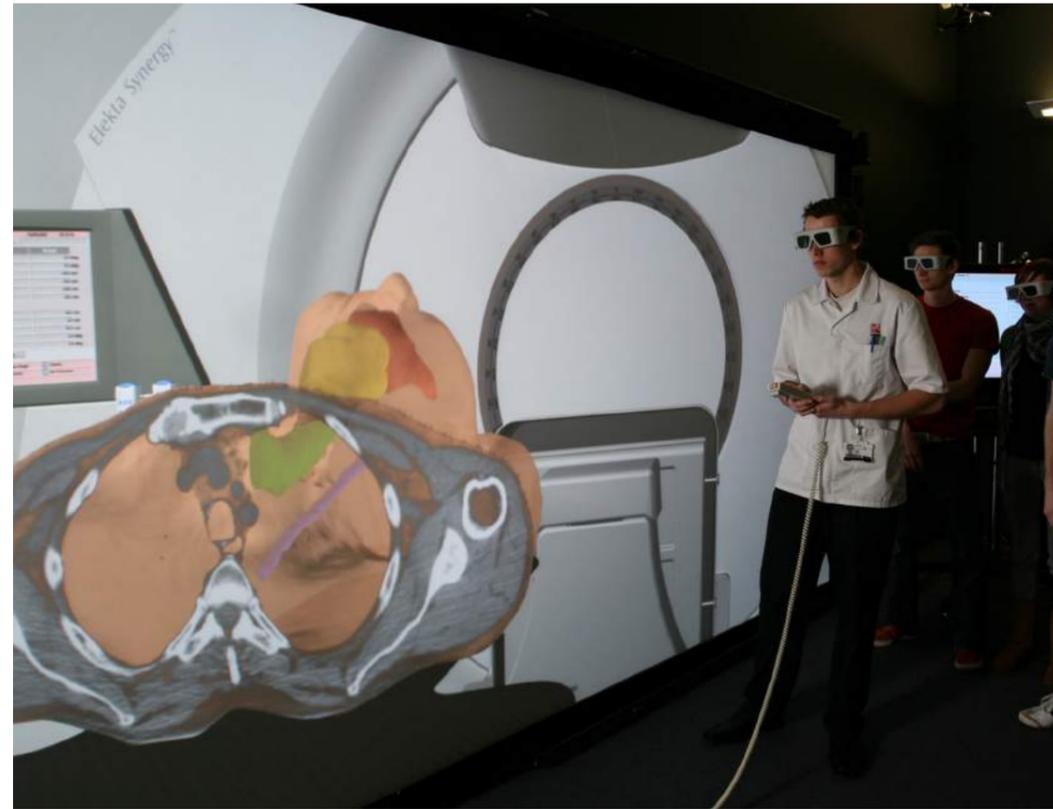
Assistant Professor and Program Director, MD  
Anderson Cancer Center, Houston, USA

# The best way to learn is by doing. Bring the clinic to the classroom.

VERT™ is our virtual environment of a Radiation Therapy treatment room. Just like the real thing, but in a safe, non-pressed environment. Fully-interactive, VERT helps you bridge the gap between theory and practice.

Now you can give your students the confidence to make crucial clinical decisions with real, scenario-based learning.

Below: Visualise anatomy in 3D



Above: Use the real Linac pendant to control the VERT software. Image courtesy of the University of the West of England, Bristol, UK



Above: Demonstrate full body patients and immobilisation

## How your students benefit:

### One-of-a-kind 3D simulation

VERT is the only system that combines a detailed 3D simulation of the treatment machine, a patient's anatomy and treatment plan.

### Simulate errors safely

Now you can simulate real errors and visualise their impact in a safe, controlled environment.

### Visualise DICOM data

You can visualise anything from CT, RT plans, CBCT data, MRI to PET.

## How you benefit:

### Flexible teaching styles for all learners

VERT's flexible software can easily adapt to fit your curriculum and provide the best teaching experience.

### Improve your academic reputation

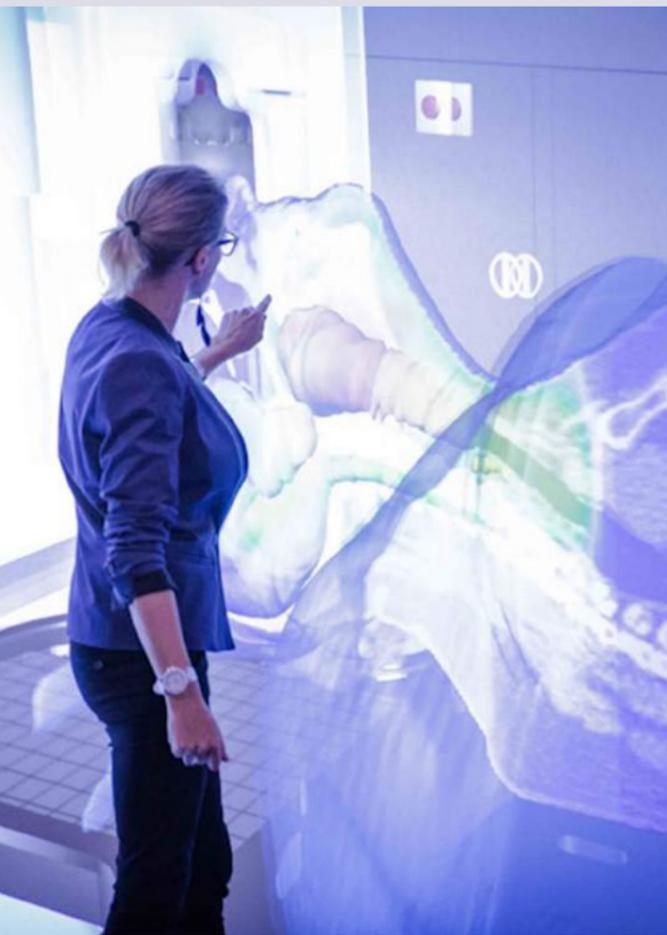
Give your students the best, most advanced Radiation Therapy training.

### Supports leading Linac models

Includes hand held pendant controls and simulates the workings of the world's leading radiation therapy vendors

# Fully-interactive, for a feels-real experience.

Immersive VERT™ is our state-of-the-art interactive system, built for real hands-on learning. Using 3D back-projection, you can choose to walk around the virtual radiation treatment room, freely.



Left: Immersive System installed at CEA Saclay, France. Image courtesy of Philippe Zimmer.

Right: Immersive system installed at University of Otago, New Zealand

Immersive VERT systems offer a new dimension to your training and educational programs. Expanding the possibilities, capabilities and offering tremendous value on your investment.

Room refurbishment may be required including construction of an aperture wall to mount the rear projection screen. Vertual will assist with room planning and system design during the procurement process.

Access to training and additional webinars will help ensure the value of your VERT system is maximised.

## Why choose Immersive VERT?

- Allows for scenario based learning without risk to patients or equipment.
- Fully functional models of Varian, Elekta, IBA and Siemens Linacs.
- Simulation of couch controls via touch screen or iPad.
- Makes the explanation of techniques, fundamental concepts and equipment easier.
- In room monitor display.
- Control the virtual Linacs via actual hand pendant controls.
- Load your DICOM plans demonstrating local techniques.
- Can operate in rooms from 12x6m.

	Seminar	Immersive X7	Immersive X9
<b>Projection</b>	Front Projection	Rear Projection	Rear Projection
<b>Max. screen size</b>	3.2 x 2m	3.8 x 2.4m	4.2 x 2.6m
<b>Min. room size</b>	6 x 6m	12 x 6m	12 x 6m
<b>Projection room</b>	N/A	5m	5m
<b>Resolution</b>	1920 x 1200	2560 x 1600	2560 x 1600
<b>Brightness</b>	5500 ansi lumens	6600	8500
<b>Lamp hours</b>	2000 hours	40,000 hours	40,000 hours
<b>Throw distance (lens to screen)</b>	3m	4m	4m
<b>Audience</b>	Up to 20	Up to 40	Up to 50

# Smaller space, big on impact.

VERT™ Seminar is our most cost-effective installed virtual treatment room simulation. Just like the real thing – projected onto a screen. It's superb for smaller budgets, spaces and audiences.



Below: Engage your students with interactive learning  
Image credit: University of Michigan-Flint



VERT systems are tailored to your available space and budget, minimal room refurbishment is required for a Seminar VERT installation.

A 6m x 6m room (20' x20') or larger is ideal and Vertual will advise on the suitability of rooms and will assist with room planning during the procurement process.

VERT offers a new dimension to your training and educational programs. Expanding the possibilities, capabilities and offering tremendous value on your investment.

## Why choose Seminar VERT™?

- Cost-effective.
- Allows for scenario based learning without risk to patients or equipment.
- Fully functional models of Varian, Elekta, IBA and Siemens Linacs.
- Simulation of couch controls via touch screen or iPad.
- Makes the explanation of techniques, fundamental concepts and equipment easier.
- In room monitor display.
- Control the virtual Linacs via actual hand pendant controls.
- Load your DICOM plans demonstrating local techniques.
- Can operate in rooms from 6x6m.

	Seminar	Immersive X7	Immersive X9
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**Choose your start level**

We've made planning for the future easy, with our simple upgrade path. You don't need to buy it all at once, simply upgrade to the next level as your needs change.

**Level 1 Compact VERT benefits:**

- Highly accurate Linac models
- Includes machine and couch movements
- Sample DICOM plans
- Patient models
- Transverse CT display
- Hand pendant support
- Collision detection
- Electron applicator
- Beam visualisation and delivery
- Beam's eye view display
- Dose display feature
- Video training materials

**Level 2 Compact VERT Plus benefits:**

- Includes Level 1
- Import own DICOM data
- Additional image options including CBCT matching, multi-planar viewing of images
- Virtual presenter
- Stimulate patient misalignment
- Stimulate errors in machine geometry
- Additional dose options
- Surface visualisation option

**Level 3 Compact VERT Ultimate benefits:**

- Includes Level 1 and 2
- Combines full body patients and DICOM plans
- Support for MR and PET
- Image fusion
- Image export
- Virtual presenter export
- Dose colour map
- Dose volume histograms
- VERT QA and Dosimetry module
- New features released annually if in your software support package



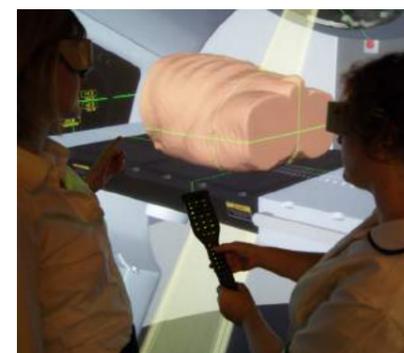
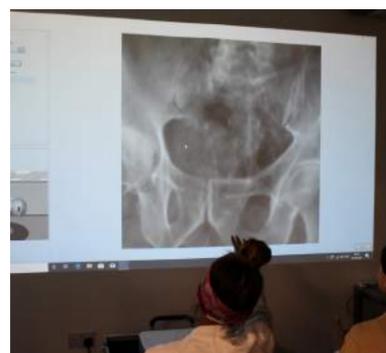
**Your radiation treatment room, on wheels.**

Mobile, self-contained and flexible, Compact VERT is the perfect alternative to an installed system – or as an add-on for existing VERT customers.

Compact VERT provides the tools to develop engaging and interactive simulated scenarios.

**Why choose Compact VERT?**

- Self-contained and portable
- Works anywhere with a screen or wall to project on
- Arrives ready to use
- Suitable for audiences between 10-15 people
- 12 colour choices
- Low start-up costs, with 3 software levels to choose from – basic to ultimate. Simply upgrade when needed.
- Worldwide recognised VERT software
- No dedicated room required
- No installation required

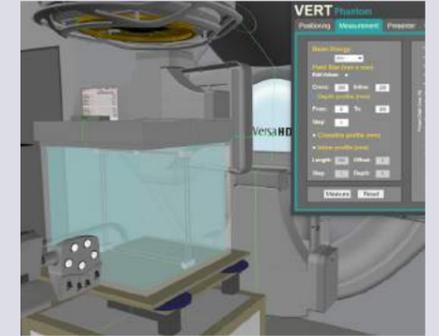
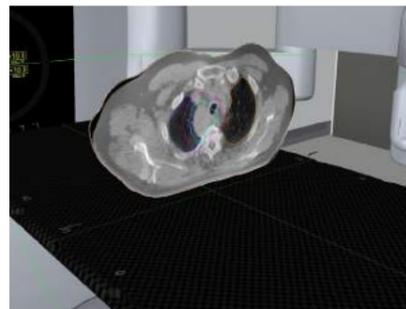
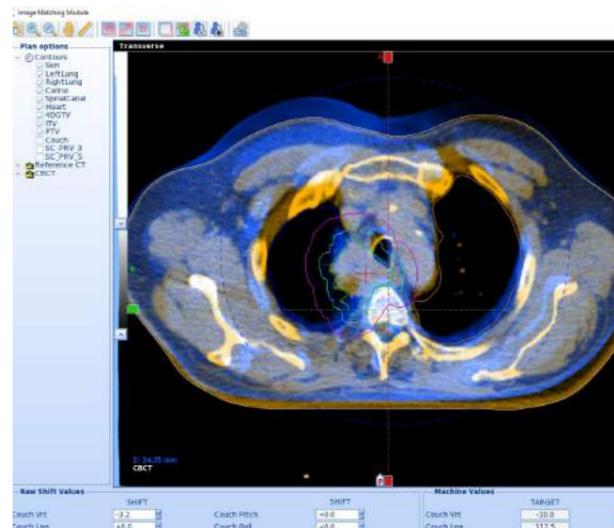


# Replicates the gold standard in clinical practice.

The IGRT module allows 2D matching for any DICOM data loaded into the software. It's also pre-loaded with CBCT data sets for a range of body sites facilitating the most up to date teaching experience.

## Benefits of IGRT:

- Facilitate your students to qualify with the highest level of skills.
- Support 2D and 3D CBCT matching on an interface mimicking clinical workflow.
- Allows practice of image matching away from the pressures of the clinical environment.
- Ability to perform clinical competency-based assessment.
- Enhance clinical decision making skills.



# Teach theoretical principles visually

Allows you to follow clinical QA protocols, take realistic measurements and introduce geometric errors to simulate the effects.

Currently there are 6 modules available: Plotting Tank, QA Plate, Alignment Phantom, Ion Chamber, Small Measurement Phantom & MU Calculation.

## Benefits of QA & Dosimetry:

- Practice Quality Assurance procedures required for daily clinical practice.
- Underpin the key principles of radiation therapy and dosimetry.
- Visualise how radiation interacts with matter and take your own measurements.
- Simulate errors in the equipment to visualise the consequences of these errors in a completely safe environment.
- Transform hard to envisage principles into fun interactive sessions for all learners.

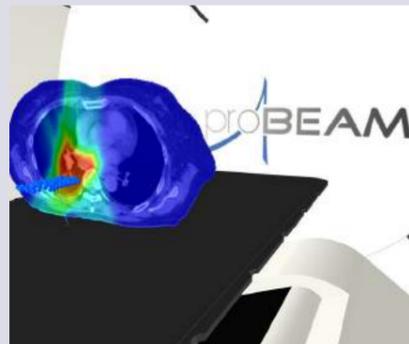
# Be ahead of the game when it comes to teaching Radiation Therapy.

Proton VERT simulates the important functions of the treatment machine and includes 3D visualisations of patient treatment plans (CT, structures, dose) displayed in situ on the machine, plus simulated beam delivery. The Proton VERT training system enables the transition from Photons to Protons more easily, more safely and more effectively.

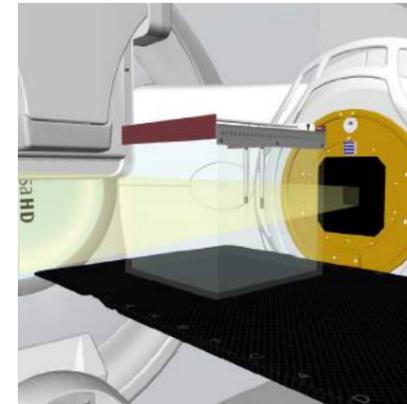


**Benefits of Proton VERT:**

- Enhance the current curriculum with cutting edge technology.
- Introduce the newest clinical techniques without the need for clinical placement.
- Compare Proton and Photon treatment plans and delivery at a glance.
- Ensure your students qualify with the most up to date teachings and skill set.



Left: Visualise spot depth delivery and dose distribution



Left: Ion chamber calibration protocol simulation of IPEM and TRS 398.

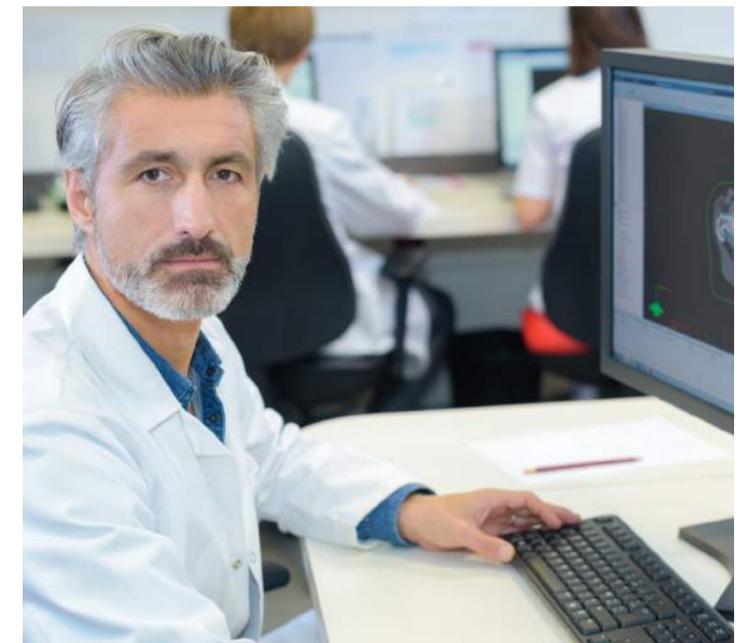
## Complex calibrations, simulated safely.

Now there's a smarter way to teach dosimetry equipment and techniques. Using VERT Physics 2, you can simulate complex machine calibrations and errors away from the busy clinic environment.

Models available: IPEM Calibration Protocol, TRS 398 Calibration Protocol, Small Chamber Dosimetry, Cobalt 60 Exposure Calibration.

### Benefits of VERT Physics:

- Easily build competency assessments for medical physics students in the classroom setting.
- Simulate equipment errors and visualise the consequences of them in a safe environment.
- Replicate exact clinical workflows.
- No more time constraints for learning, or after hours supervision needed. Everything can be taught in a classroom.



# Get more out of VERT™, with our software support.

We've made it easy for you to teach, learn and demonstrate all the latest techniques in radiation therapy. Simply join up to our annual software support programme and get updates that mirror the most recent developments in radiation therapy.

## Join now and enjoy:

### A dedicated account manager

Get online support and training sessions as and when you need them.

### Specialist IT support

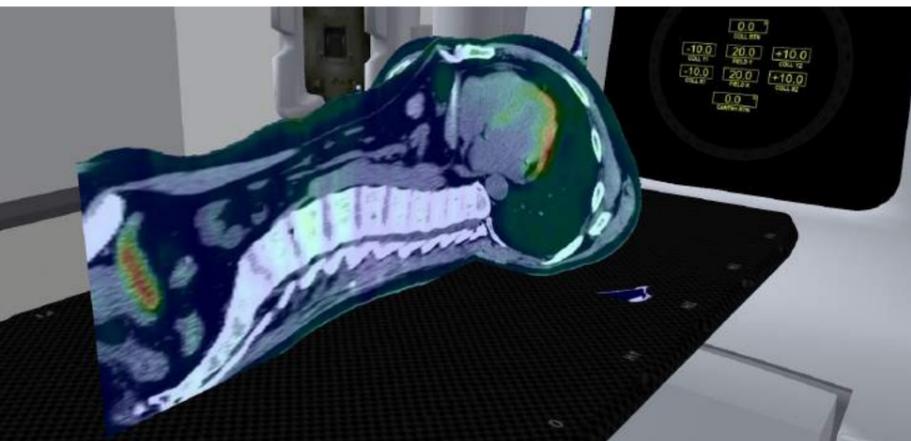
Your dedicated IT specialist will be on hand to help with any technical support needed.

### Teaching materials

Access our large library of teaching materials and webinars for free.

### Training credits

The longer you're signed up to our support programme, the more credits you accumulate. Each time you renew support, you'll earn credits towards an onsite refresher training day.



Benefits	Premium Support (In support for 3 continuous years)	In Support	Out of Support
Initial response time	Same working day	Same working day	Best endeavours
Response time (follow up)	Within 72 hours	Within 72 hours	Best endeavours
Designated account manager	✓	✓	×
Monthly hints and tips email	✓	✓	×
Invitation to user meetings and events	✓ Priority registration	✓	✓
Software upgrade	1 per year	1 per year	×
Access to pre-release versions of the VERT software	✓	×	×
Chance to participate in VERT research and focus groups	✓	✓	×
Access to Teaching materials	✓	✓	×
Basic DICOM data sets	✓	✓	✓
Enhanced DICOM data sets	✓	✓	×
Submit software suggestions and feature requests to Vertual	✓	✓	✓
Online or phone meeting on request with Vertual Account manager	✓	✓	×
Yearly face to face meeting with Vertual Account manager or distributor	✓	×	×
Simple upgrade path for new features	✓	✓	Further upgrades needed to reach latest release

Please note: software support for Compact VERT Level 1 and Level 2 differ from the above, please contact [info@vertual.co.uk](mailto:info@vertual.co.uk) for more information

# Be part of something bigger.

Join the VERT™ Research Group and help us continue to transform radiation therapy training, education and understanding. When you choose VERT, you don't just buy a system. You join a powerful community of educators and clinical staff, sharing one mission – to enhance best practice.

## Here's how you benefit:

### Be part of a global community

You'll get to connect and network with other VERT users across the world.

### Be the first to know

Get all the latest news on VERT developments and research publications – before anyone else.

### Get your research published

We can establish individual projects based on your research area, or you can collaborate on a joint research publication.

### Boost your global profile

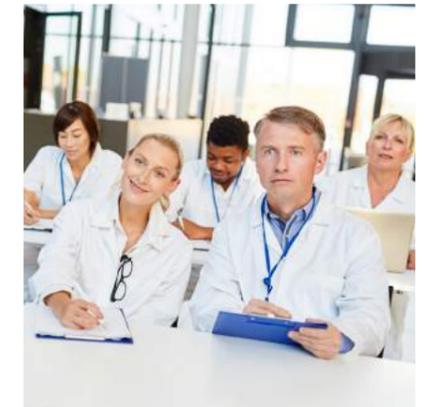
We share every publication with our VERT community – including customers and distributors across the world.

If you'd like to join, want to propose a research idea or you're interested in developing a research question in collaboration with other VERT users, we want to hear from you.

Get in touch at [info@vertual.co.uk](mailto:info@vertual.co.uk)



Left: Annual German user group meeting.



Together, let's take radiation therapy simulation to the next level.

Every year Vertual hold User Group Meetings all over the world giving our customer base an opportunity to learn and improve from peers whilst also sharing personal experiences of the system.

We also attend major conferences around the globe which gives customers the chance to meet the team and see demonstrations of upcoming software releases from the experts.

### Conferences include, but are not limited to:

- ESTRO (Europe)
- ASTRO (America)
- PTCOG (Worldwide)
- ESTRO meets Asia (Asia)
- ISRRT World Congress (Worldwide)
- AAMD (America)

“The introduction of VERT was the beginning of a new era in education for us.”

# Be at the heart of evidence based practice.

Since Vertual was founded in 2007 studies have been carried out evaluating the benefits of virtual reality training and VERT across many areas, including;

Student learning for both Radiation Therapists and Medical Physicists and more recently the role of Proton VERT in education & training.

The role VERT has in Patient Education and Multi-Disciplinary Staff development within the clinic and more recently how it can be used to strengthen the clinical practice of Radiation Therapists.

Here is a selection of educational based publications where you can find out more.

## The Application of the Virtual Environment for Radiation Therapy Training to Strengthen IGRT Education

C.Chamunyonga et al., (2020) J. of Med Imaging & Rad Sci 51, 207 – 213

## Evaluating VERT as a Radiation Therapy plan evaluation tool: comparison with treatment planning software

P. Bridge, M.C. Kirby, J.A. Callender. (2019) Journal of Radiation Therapy in Practice

## Assessing Student Disposition Using a Virtual Environment and Simulated Patient

S. BuShell & K.Valentino. (2020) Radiation Therapist, Vol. 29 (1), pg8-15

## Successful implementation of Virtual Environment for Radiation Therapy Training (VERT) in Medical Physics education: The University of Sydney's initial experience and recommendations. Australasian Physical & Engineering Sciences in Medicine, 40(4), pp.909-916

Jimenez, Y., Hansen, C., Juneja, P. and Thwaites, D. (2017)

## The VERT Physics environment for teaching Radiation Therapy physics concepts – update of four years' experience

M.C. Kirby, Medical Physics International Journal, vol. 6, NO. 2, pp 247 – 254, (2018)

## Evaluation of a VERT-based module for proton radiotherapy education and training

Rabus, A., Kirby, M., Nasole, L., & Bridge, P. (2020) Journal of Radiotherapy in Practice, 1-5

## Contact us

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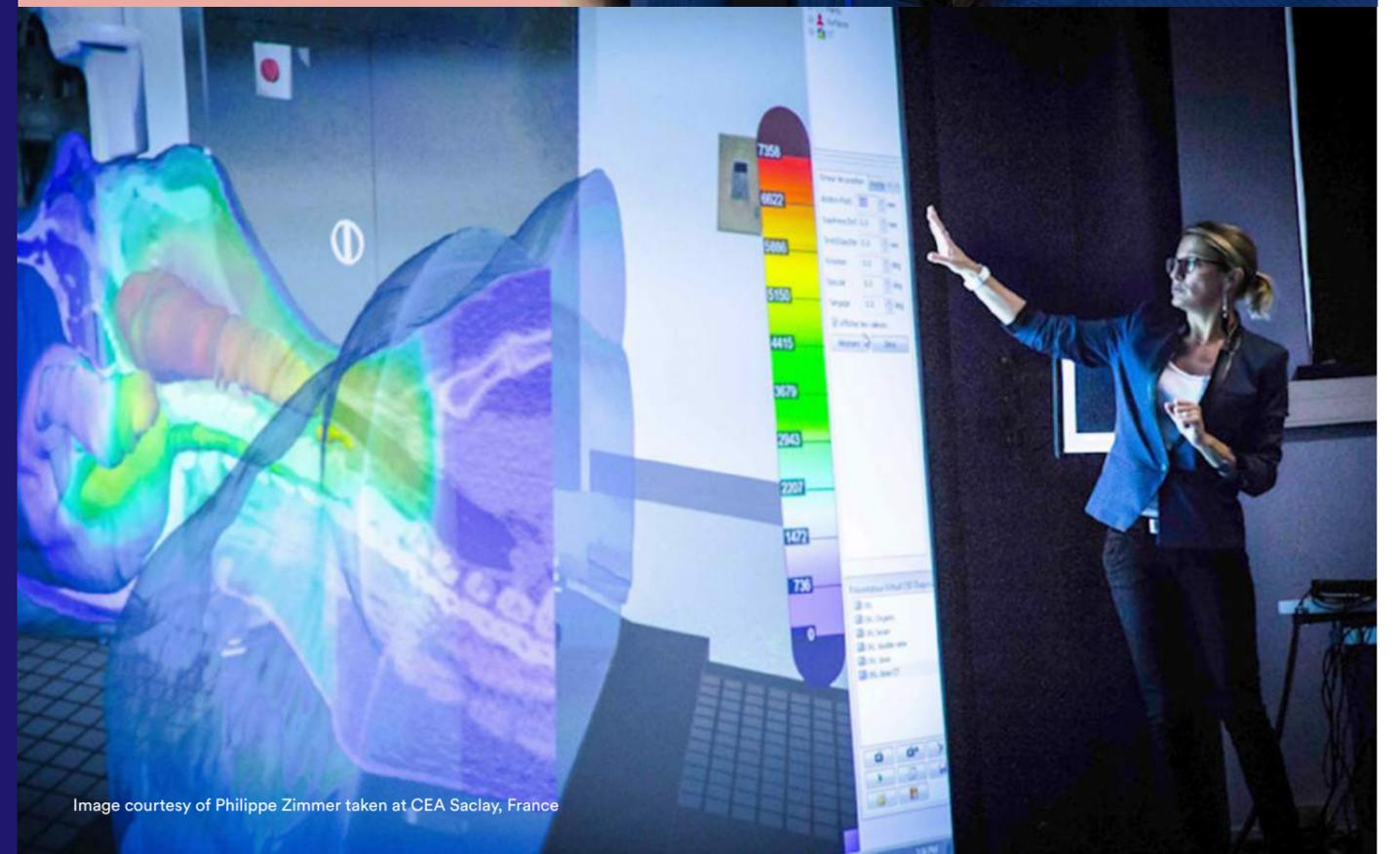


Image courtesy of Philippe Zimmer taken at CEA Saclay, France