

Kinepict Case Study – Innovative Career Pathways in Medical Imaging

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1

Unfolding Path: from Physics to Biophysics and Beyond

Academic Background:

MSc – Physics, József Attila University
PhD – Biophysics, József Attila University

Current Engagements:

Founder and CEO – Kinepict Health Ltd.
Senior Research Fellow – Semmelweis University

Research Track - Every part of the world invites us to explore.

Function of the photosynthetic apparatus
Structure, dynamics and function of proteins
Sub-cellular imaging
Medical imaging: **X-Ray Angiography**



2

X-Ray Angiography Today

Cardiovascular diseases and **cancer** cause
5.2 million deaths in Europe every year.

Minimally invasive **endovascular interventions**
play important role in the treatment of the above diseases.

These interventions require **X-ray based angiography**
technology, which has several limitations and drawbacks.



3

Pain Points in Angiography Procedures Today

Health risk

X-ray induced
adverse events

Kidney damage
from contrast
agents (~2%)

Low image quality

Poor visibility of
small vessels

Poor image
quality in CO2
angiography

High cost

A new angiography
suite costs €1,2M

X-ray tube costs
€100k

...but Kinepict has the painkiller



4

Kinepict Health Ltd. - Short Introduction

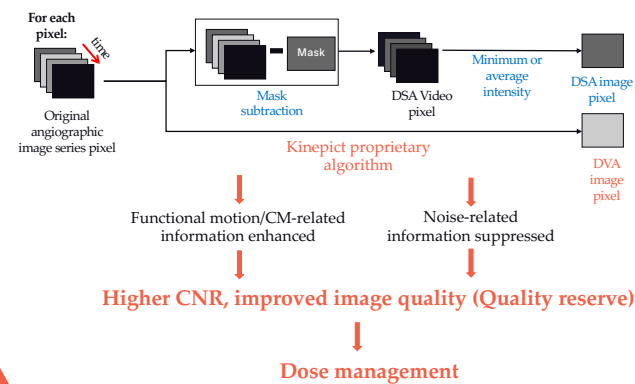


Founded in 2016
Develops New X-Ray Angiography Algorithms



5

Technology



6

Viewpoint Shift in X-ray Imaging (2009)



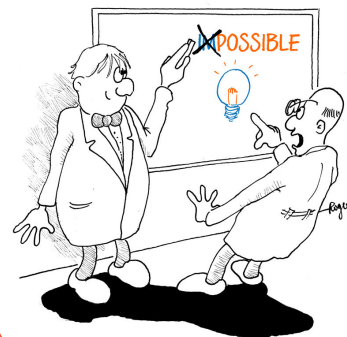
Motion artefact in X-ray imaging:
Occurs with patient or organ movement during image acquisition.

Motion artefact:
Physiological information.



7

Founding Kinepict (2012)



Sign a license agreement with the Semmelweis University (October 2011 – May 2012)

Need to continue patenting

Close to bankruptcy

Funding by 3F (family, friends, fools)



8

Patenting

Patenting:

PPA filed with US PTO in 2010
PCT filed with EPO in 2011
plans in 2012: spend 3-5 k € – USA, EU
truth: 32 k €

Obtained patents:

US9200947B2 (2015)
EP2628146B1 (2017)



9

Semmelweis Innovation Award 2016

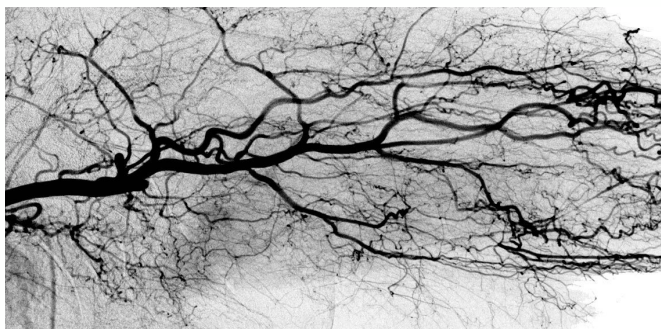
Provided visibility and opportunity
for partnering.

Prof. Péter Sótonyi (Semmelweis
University) contacted us.



10

Imaging Blood Vessels



ANGIOGRAPHY REDEFINED



11

Funding

Raise: 2.6 M €

Grant: 1.4 M €

FastVentures



12

Improved Image Quality in Lower Limb Interventions

Iodinated contrast media



Gyano et al, 2019, *Radiology*, 290:246-253

Siemens Artis Zee

Carbon dioxide



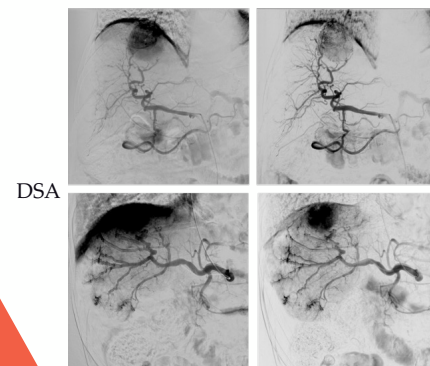
Orias et al, 2019, *Invest Radiol*, 54:428-436

GE Innova ICS 530, Siemens Artis Zee



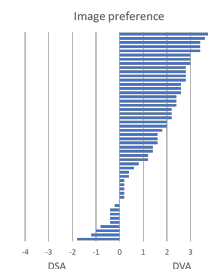
17

Improved Image Quality in Liver TACE



DSA

DVA



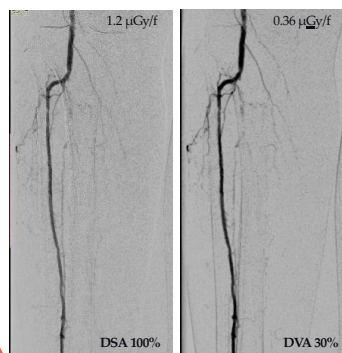
Siemens Artis Zee

Lucatelli et al, 2023, *Cardiovasc Intervent Radiol* 46:635-642



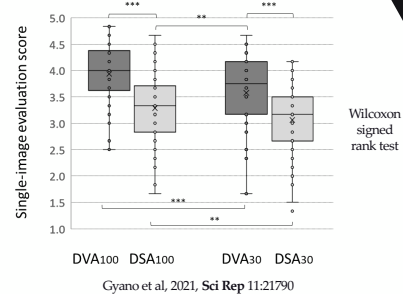
18

Radiation Dose Reduction



Lower limb angiography
(crural region, ICM)

Siemens Artis Zee

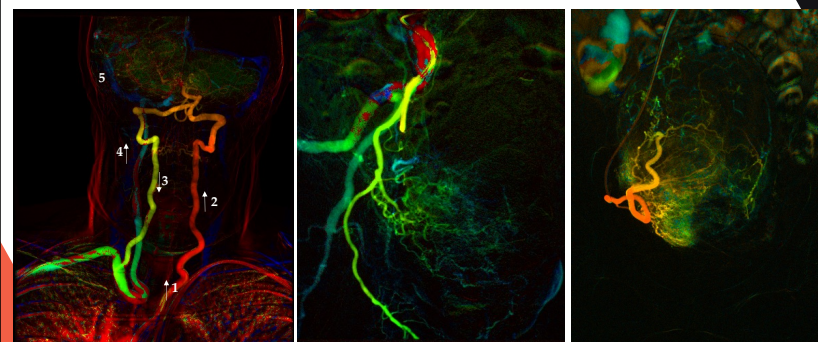


Gyano et al, 2021, *Sci Rep* 11:21790



19

Colour-Coded DVA



Visualization of flow dynamics
in subclavian steal syndrome

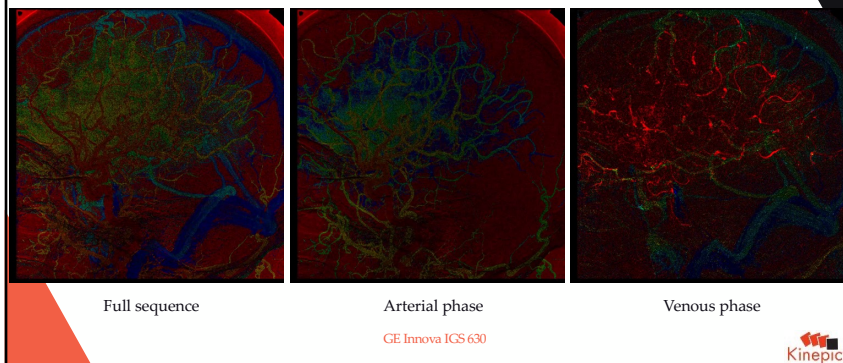
Prostatic artery embolization

Uterine fibroid embolization



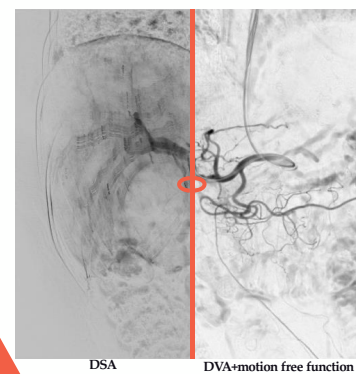
20

Colour-Coded DVA Video



21

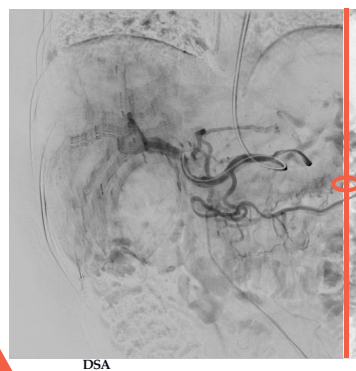
Kinepict Medical Imaging Tool - Additional applications



Motion-free registration in liver Trans
Arterial Chemo Embolisation

22

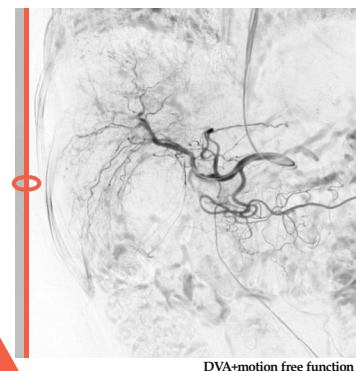
Kinepict Medical Imaging Tool - Additional applications



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23

Kinepict Medical Imaging Tool - Additional applications



Motion-free registration in liver Trans
Arterial Chemo Embolisation

24

Clinical Validation of DVA Technology (2019-2025)

- 10 completed and 3 ongoing clinical studies
- 600+ enrolled patients
- 12 published papers in peer-reviewed journals
- 1 granted patent, 1 patent pending, 1 patent in preparation



Validated Claims

- Improved image quality (ICM/CO2)
- Radiation dose reduction (-70%)
- Contrast media reduction (-50%)



MDD
MDR (Q4/24)



25

MTA Excellent Research Site

The company was awarded the MTA excellent research site qualification.

The rating is valid from May 22, 2024 to June 30, 2029.



26

Who Benefits?

Patients

- Dose management → **Reduced risk** of complications (70% less X-ray, 50% less contrast agent used)
- **Increased access** to interventions for patients with impaired renal function
- **Better diagnosis and safer interventions** → reduced number of necessary sessions

Healthcare professionals, medical staff

- Radiation protection → **Reduced risk** of radiation-induced complications (e.g. cancer, cataract)
- **Better diagnosis and safer interventions** → more efficient use of human resources

Institutions (hospitals, diagnostic centres)

- **Contrast material savings, X-ray tube savings, reduced time/patient** → reduced operational costs 5-10k/year savings on average catheter operating room



27

Who Benefits?

Health security (reimbursement) system

- Reduced number of kidney damage from contrast agents and radiation-induced cancer result in **€320k- 560k/year savings** on an average catheter operating room (Ansari pour et al, 2024, *J.Comp.Eff.Res.*, e230068:10.57264/cer-2023-0068)

Society

- Quality adjusted life years gains ranging from **0.048 to 0.109 per patient, €1.2M – 3.4M / year** value created for the society on an average catheter operating room (Ansari pour et al, 2024, *J.Comp.Eff.Res.*, e230068:10.57264/cer-2023-0068)

Imaging equipment manufacturers – e.g. Siemens, Philips, GE Healthcare, etc.

- Capacity to improve the performance of products; save years and € millions in R&D



28

Kinepict Medical Imaging Tool – Our users in Europe



Kinepict has extensive experience with:

- Siemens Artis
- GE Innova
- Philips Allura



29

Present in the EU and in the USA

US

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x-safe@kinepict.com

EU

Hungary, 1026 Budapest,
Szilágyi Erzsébet fasor 31. 2. em. 12.
+36 31 782 4019
kinepict@kinepict.com

15,000+ PATIENTS EXAMINED,
200,000+ DVA IMAGES GENERATED

NEW PARADIGM IN X-RAY ANGIOGRAPHY



30

Market Approach & Business Model

Product:

- Kinepict Medical Imaging Tool – software for enhanced X-ray imaging.

Revenue Streams:

- Software Sales: Initial license fee for software usage.
- Service Fees: Ongoing support, maintenance, and training.
- Upgrades: Fees for software enhancements and new features.

Go-to-Market Strategy:

- Direct sales only in Hungary.
- International sales via distributor partnerships.



31

International Market Strategy & Distribution

Distribution Model:

- Work exclusively with distributors outside Hungary.
- Distributors manage sales, installation, and support.

Current Distributors:

- AngioPro (main distributor for most countries).
- DVA IntelTech (Romania).

Expansion Plans:

- Open to new distribution partnerships in strategic markets.
- Seeking partners with strong networks in interventional radiology.



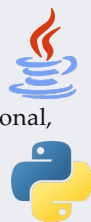
32

Future Plans

Provide value for clients in the EU and USA

Develop more new imaging technologies (AI and traditional, Python and Java)

Clinical validations



33

Engineers at Kinepict

Roles

Product Development:

Contribute to the enhancement of Kinepict Medical Imaging Tool

Research and Development:

Participate in research projects aimed at developing next-generation imaging algorithms

Field Service: **Open Position**

Installation of sites and training of users

Quality Assurance and Regulatory Compliance:

Ensure rigorous standards required for FDA clearance and CE marking

Professional Development

Continuous Education:

Kinepict offers the possibility of further training and participating in courses

Interdisciplinary Collaboration:

Teamwork on diverse challenges in an environment where everyone wears multiple hats and adapts quickly



34

The Power of Passion

Foundation of Our Journey

Fuel for Perseverance

Catalyst for Innovation

Attracts Like-Minded Talent

Inspires Adaptability and Learning



35

Achieve Flow

Set Clear Goal

Choose the Right Challenges

Concentrate

Allocate Time Wisely

Seek Quick Feedback

Prioritize Your Well-being



Mihály Csíkszentmihályi , 2008 Flow



36

Kinepict's Experience with Black Swans

Winning a 2 M HUF grant almost drove Kinepict bankrupted.

Prof. Péter Sótónyi contacted us giving new direction to the company.

COVID

AI



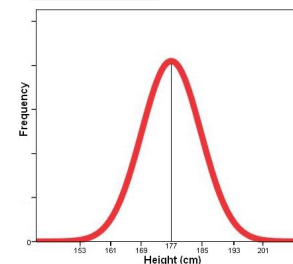
Nassim Taleb, 2011 The Black Swan



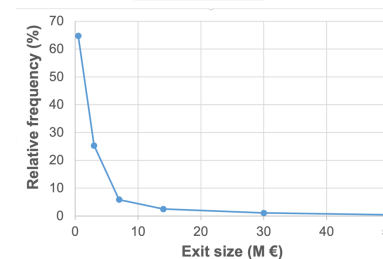
37

Choosing Path: Stability or/and the Unexpected

Mediocristan



Extremistan

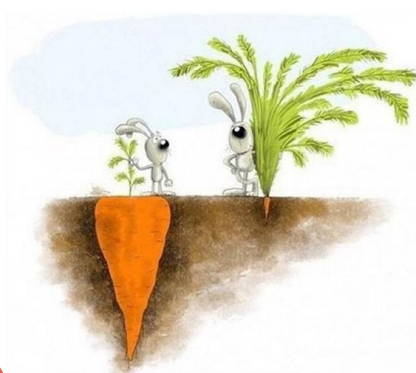


Nassim Taleb, 2011 The Black Swan



38

Take-home Message



Follow your passion

Find flow

Ride black swans

Wishing you success!



39