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Growth through collaboration

A very short history 1973-2008
and some lessons

Roderick Snell
Founder and Research Director
SNELL & WILCOX

History

- Why we started Snell & Wilcox Electronic Consultants Ltd (1972)

  1.Snell, working in a University, could not start an engineering business.

  2. Wilcox, running a small private lab. did not have the industrial contacts.

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History

- How we started….

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History

- How we started: we sought DTI support
- Our first collaboration (1978): A British Studio Quality Videotape Recorder ???

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Our first collaboration *(1979)*

- Three small UK Companies
- A core mechanism to European standards (*Germany)*
- A contracted Videotape expert
- Managed by Brighton University
- A very small grant from the DTI
- The result: a technical success but without a market!

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A lesson learned *(only with hindsight)*

- The bright fellow in the DTI did not fund a commercial winner
- But, more important for our future, he did fund the creation of a video R&D capability!

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Our next collaboration- 1980: a Digital Synchroniser

- Brighton University
- Snell & Wilcox
- Contract Digital Designer
- Funded by UNESCO from Paris
- Designed to assist Developing Country Broadcasters exploit low cost VCR's

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Project inflation

- During development we upgraded the design to Convert between TV Standards
- Conversion quality the worst in the industry!
- Functionality the best in the industry
- It cost a small fraction of the competition
- Good sales paid for work on an improved conversion algorithm

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A New collaborative partner-
BBC Research Department

- Conversion quality improved
- Market share improved
- Joe Wilcox retired-1988
- New CEO joined April 1988
- Snell joined full-time. We were now 25 staff
- We designed first HDTV Product

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1989: A key collaboration – again with BBC Research

- Eureka 95 High Definition converter sub-contract to S&W via the BBC
- Best collaboration yet: with BBC on Motion Analysis
- With Queens University Belfast on FFT chip design
- Outcome: the worlds best high-end TV Standards Converter

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Growing through a recession: 1991-3

- Many large organisations cut staff
- We hired staff!
- We joined then led major European collaborative projects
- Such as MPEG Codecs, Archive restoration systems and also some other UK, DTI funded projects

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With European Support for collaborations we:-

- Lead the development of file wrapping standards for media exchange: G-FORS, NUGGETS and MXF. *(MXF is now a worldwide standard for file exchange).*
- Lead the High-End digital Imaging for Film and HDTV project: '*Metavision'* and '*Metacamera'*

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ARRI

Functional model of the MetaVision camera

- Single, large format sensor
- High spatial and temporal resolution
- Optically optimised lenses
- Assurance of image quality via optical viewfinder
- Operational features as required by professional users

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A new European industry is born

- Version 1 (Arri D20) is now making digital ‘feature films’
- Version 2 D21 is Just announced
- Our contributions to depth segmentation and temporal over-sampling are yet to be exploited

ARRI D-21 is their second Digital camera

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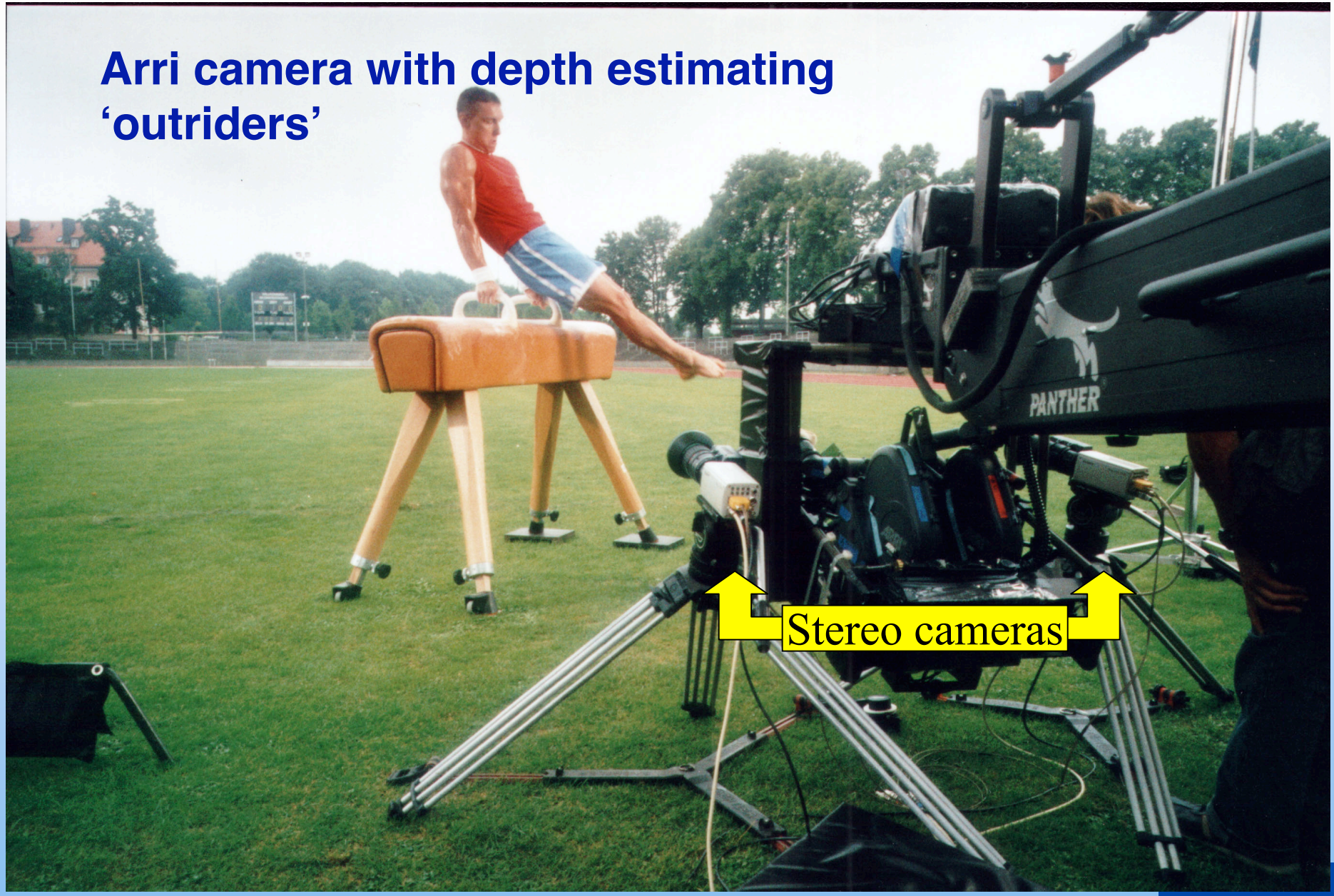
Arri camera with depth estimating ‘outriders’



MetaVision 3D

Original Scene

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Depth Map

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Object Separation by Distance

Original Scene with Virtual Object added

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With sustained support from the EU for over a decade we:-

- Formed a collaborative projects team
- Started a schools work experience project
- Sponsored several undergrads each year
- Sponsored some postgrad projects
- Increased our staff from 25 (in 1988) to over 500 (in 1999)
- Won a number of awards and some customers

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Awards:

- Four technical Emmys
  - Phase correlation motion compensation (Ph.C) - the key to superior standards conversion
  - Prefix MPEG pre-processing - saves storage and transmission costs
  - DEFT 3:2 cadence detection and repair - improves Hollywood workflow efficiency
  - HD up and down conversion - for flexibility in production and broadcast

- Some of our other other awards:
  - Nine Queens Awards
  - First to win two IABM Peter Wayne Technology and Innovation Awards

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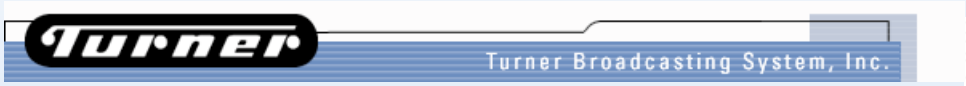
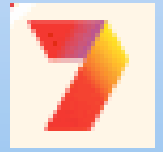
Some Customers:





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On collaboration (*again with hindsight)*

- ***Collaboration*** *is a recursive process where two or more people work together toward an intersection of common goals — for example, an intellectual endeavor that is creative in nature—by sharing knowledge, learning and building consensus. Collaboration does not require leadership, and can sometimes bring better results through decentralization and egalitarianism. In particular, teams that work collaboratively can obtain greater resources, recognition and reward when facing competition for finite resources.*

» ***Wikipedia***

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Collaboration notes

- Non-business advice :

  The National Council for Voluntary Organisations: *ncvo-vol.org.uk*

- My favourite example of commercial engineering collaboration is in aerospace: Farnborough Aerospace Consortium: *www.fac.org.uk*

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What of the future?

- *Television was*: a small black & white screen (*when I trained with the BBC)*
- *Is now*: large screen visual spectacle with surround sound, (and 3D imaging just emerging).
- It is now technically the same as cinema, including: *Digital Image Capture, Processing, Post Production,Storage, Distribution and Display.*

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The other future:

- IPTV,
- Video Games,
- Mobile
- Security and Defense
- *And myriad uses for moving images for public information, advertising etc, etc*

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Tentative Conclusions

- We had experienced help with funding applications
- We were lucky with our DTI contact
- EU project support was consistent over a decade
- We had a good mix of ‘off the wall’ vision and real engineering ‘journeymen’
- Our partners in academia and industry were mostly complementary and not competitors

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Thank you for your attention

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