

## **Strategic Plan 2001-2004**

---

Dr. Seán Marlow  
Dr. Noel Murphy  
Dr. Noel O'Connor  
Prof. Alan Smeaton  
Dr. Alistair Sutherland

June 2001.

# *The Centre for Digital Video Processing Strategic Plan 2001-2004*

## **The Centre for Digital Video Processing**

The Centre for Digital Video Processing, DCU, is a small cohesive interdisciplinary research group. It was established in 1996, received its first research grant in 1997, and now, four years later is spinning off its first commercial offshoot, *Aliope Ltd*. The centre is built on a passion to find new and useful ways of working with Digital Video and Digital Media in general, for the benefit of our society — in Ireland and worldwide. The mission of the Centre is to operate in the domain of developing and evaluating automatic techniques for content-based operations on large repositories of digital video information.

## **The Work Organisation of The CDVP**

The work of the Centre for Digital Video Processing is organised along the three parallel strands of *basic research*, *applied research* and *exploitation*. Our basic research is directed by real world needs as defined by our applied research. Our applied research puts into practice and field-tests what we do in basic. As our applied research then looks marketable, we expect exploitation to generate a revenue stream back into the Centre. Each area is important and depends upon the others and no single strand is indispensable.

## **The Methodology of our Work**

Our methodology is simple. We are not going to know if something is useful unless people try it. Lots of people. All sorts of people. Again and again. In different places and for different reasons. So whatever ideas or technologies we develop through our basic and applied research, we incorporate into a single demonstration system that we call *Físchlár*. With this platform we test our theoretical research work in a *real* environment, and at the same time find focus and inspiration for our research, so the theory is re-enforced by the practice, while the practice gives some strategic direction to the theoretical developments.

## **Strategic Opportunities for the Centre**

The research environment right now in DCU, in Ireland, is as never before. Business, government and society are all convinced of the need “to move up the value chain” to secure jobs and prosperity, and they see indigenous research as the generator of the “value” resource. Consequently, very significant funding is available for research work that stands up to the highest international standards, particularly in the areas of ICT — our area — and Biotechnology. Equally, superb fund-raising efforts on behalf of DCU in private-public partnerships leveraged on staff commitment and track-record mean that the infrastructure of the DCU campus is becoming the envy of others in our sector.

The funding opportunity environment for the Centre is that of the HEA’s PRTL1, Science Foundation Ireland, an invigorated and refocused Enterprise Ireland, The Digital Hub initiative, a multi-national and indigenous software industry which is the world’s largest exporter of software, and that is not to mention EU and US funding sources.

DCU has its roots in the desire three decades ago to see a third-level institution close to the

needs of Irish and international industry. A cascade of strategic decisions consequent on this has seen NIHE/DCU develop schools, programmes, research labs, researchers and most recently research centres that have never strayed far from the original ideals. So the Centre for Digital Video Processing finds itself in DCU in a research environment with unique opportunities for research collaboration, with RINCE - the centre for Research In Networks And Communications Engineering, NCSR - the National Centre for Sensor Research and SteM - the Centre for Society, Technology and Media, being existing or potential bedfellows.

## **Specific Strategic Plans for 2001-2004**

### **Centre Growth**

The primary strengths of the Centre for Digital Video Processing are that it is a tight cohesive interdisciplinary research group with a single strong research focus in a nationally strategic research area. That means that we are not a broad umbrella group like other Research Centres but we have more narrow and directed areas which we address in our research. We see our growth over time being slow and deliberate and a feature of our expansion will be growth through alliances with other research groupings.

*Over the next three years, the Centre plans to build on these strengths by slow organic growth of the Centre itself that maintains its cohesion and maintains its focus, while strengthening its interdisciplinarity. We see on average one research-active member of academic staff aligning themselves with the centre per annum, bringing us from the present seven to about ten permanent research-active members of staff by 2004.*

Post-doctoral researchers and permanent academic staff freed of non-research duties are the principal engines of positive and sustained research output. The Centre currently has two post-doctoral students and on average one of its members of academic staff available through sabbatical.

*By summer 2004, we plan to grow towards a complement of five post-doctoral researchers or supported long-term senior academic visitors. In addition to the sabbatical availability of DCU centre members, we aim to put funding in place to release a second member of permanent DCU staff in the Centre for full-time research on a rotating basis.*

A critical mass of research activity which is likely to have a national and international impact requires sustained research income of the order of close to €1,000,000 per annum. This is roughly double the Centre's 2000/2001 income.

*To sustain growth in our measurable research output without substantial growth in the size of the Centre itself, we plan to form strategic collaborations or alliances with existing research groups/centres within DCU whose research interests and expertise complements those of the CDVP.*

## **Funding Sources**

The CDVP currently accesses PRTLTI funding benefits through its support of the strategic objectives of RINCE. It is not realistic for the Centre to directly access PRTLTI funding because of its size.

*The CDVP intends to strongly support DCU access to further rounds of PRTLTI funding by strengthening its collaboration with PRTLTI-funded centres in DCU in activities which are government funding priorities and within the chosen focus of the CDVP.*

In late 2000, the CDVP promoted an application, supported by DCU and in collaboration with the UMASS Centre for Intelligent Information Retrieval (CIIR), for Science Foundation Ireland Principal Investigator funding. While this was ultimately unsuccessful, the feedback from international reviewers recognised the international standing of the Centre and the PI, and the quality of its work.

*Over the next three years, the CDVP will position itself to avail of substantial SFI funding.*

The CDVP has successfully availed of a wide range of funding opportunities to date and been very proactive in applying for funding from all relevant funding sources.

*The Centre will continue to attempt to avail of all other relevant funding sources, both within and outside DCU, and within and outside Ireland.*

## **Research Activity, Output and Exploitation**

The collaborative work with UMASS CIIR to date has led to the identification of a new basic research area, in which work is needed to develop the technology behind significant-impact multimedia applications. With CIIR, we coined the term "Foundations of Transmedia Applications" to describe this area. An important supporting technology for this work is the analysis of visual, audio and audio-visual objects in digital media content.

*Over the next three years we intend to make significant scientific developments in the basic research areas of Foundations of Transmedia Applications and Digital Media Object Analysis. We expect to promote these research areas by organising at least one international workshop during the next three-year period in which these are substantive topics.*

Our applied research to date, manifested principally in the form of *Físchlár* has been pivotal in our internal development, our external visibility and our ability to attract funding.

*Over the next three years we intend transforming Físchlár into a platform that will support object-based transmedia information-retrieval applications (using the MPEG-4 and MPEG-7 standards) in multiple personal environments (including mobile) and also support real-world investigation of novel interface methods.*

Our research output in terms of publications and funding attracted has been growing steadily since we started working together in 1996. In year 2001 we will have published over 14 refereed

papers in international conferences and workshops in addition to guest lectures, keynote talks, etc. Our numbers of graduated research students and student projects and also shows consistent growth.

*Over the next three years we shall continue to produce high quality scientific publications in conferences, workshops, journals and book chapters which will increase our recognition and reputation as a centre of excellence in our field.*

The founding of *Aliope Ltd*, in which we have been involved for the last year, has provided the Centre with invaluable exposure to research-relevant feedback from industry and the market-place.

*The CDVP will undertake to maximise the possibilities for commercial exploitation of innovations and technologies developed within the Centre in DCU, consonant with the scientific imperative of information dissemination for the benefit of society as a whole and the constraints imposed by funding agencies.*

### ***International Activities***

The CDVP involvement with TREC (in the US) and COST211quat (in Europe) over a long number of years have given us a very significant and respected profile with our peers on both sides of the Atlantic, and indeed further afield. In addition, Prof Smeaton's involvement in national and international research evaluation panels has strengthened the overall ICT research area in which we work.

*Over the next three years we intend to continue to take leadership roles in collaborative research organisations and Networks of Excellence on both sides of the Atlantic as well as extending the involvement of members of the Centre in national and EU scientific evaluation panel activities.*

### **In Summary ...**

We believe that we are now at the point that when people in the "know" in *Ireland and abroad* think of Digital Video and Digital Asset Management research and technology development, they think of us.

In three years time we intend this to be the case for people familiar with this area *worldwide*.