



[osmia rufus]

OSMIA

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1 Introduction

1.1 Objectives

The aim of this document is to describe the progress of the OSMIA project in the current period from April 2002 until October 2002 inclusive.

1.2 Scope

This document applies to the first phase of the OSMIA project (IST-2001-34512) as described in the description of work.

1.3 Related documents

OSMIA Description of work
OSMIA Contract preparation forms (CPF)

2 Work Packages

The following tasks were active during the period relevant to this report;

- WP1: Project Management
- WP2: Open Source Distribution
- WP3: Commercial Interface
- WP4: Community Evaluation
- WP5: Dissemination and Exploitation

2.1 WP1: Project Management

The following personnel have been appointed to the project by the relevant partners:

Partner	Personnel	Start	End	Effort
UoM	Tony Lacey	0	18	8
	Giovanni Bounaccorsi	4	18	14
DCU	Naser Prljaca	0	8	8
	Ovidiu Ghita	8	18	10
Voxar	Ian Poole	0	18	12
UoWO	John Barron	0	18	18

Two project meetings have been organised. The first hosted by UoM in Manchester, UK and the second by DCU in Dublin, Eire. Both meetings were two day events and the minutes for the meetings have been posted to the project website. Technical breakout sessions were introduced at the meetings to allow time for face-to-face discussions of technical problems experienced by partners. Both meetings were attended by representatives from all partners.

The project partners have remained in regular contact via email. The project website was setup to act as a focus point for document transfer, deliverable status and as a general notice-board.

2.2 WP2: Open Source Distribution

A dedicated server has been used to provide direct access to the software and supporting data and documents. This machine is hosted in UoM and managed by UoM staff. The domain `tina-vision.net` was registered and is now used to provide web, email and other internet services for the project (via the dedicated server).

The final version of the prior incarnation of TINA (known as version 4) was distributed to project partners for evaluation and comment. This version provided the original installation procedures and existing documentation. This version was evaluated by partners at DCU and UoWO. The subsequent feedback and discussions were used to plan the new distribution. Informal discussions with the commercial partner Voxar were also valuable during this stage in particular they were able to advise on the separation of library code from the application code. Based on the feedback from all partners the code restructuring was planned.

In the workplan it was intended to develop, separately the release mechanisms and repository configuration. However, it became clear that these were two interdependent tasks and as such have been done simultaneously. A CVS repository was established on the server and can be accessed via `cv.s.tina-vision.net`. This has been populated with the new codebase for TINA 5. Mechanisms for packaged release version of the software are in place but will not begin full operation until the end of the project (when a production version of the software will become available). An autoconf build system has been employed to replace the original ad-hoc installation system. The codebase has received a complete overall which includes;

- directory restructuring,
- consistent file naming convention,
- consistent file structuring (standard LGPL header, CVS tokens, include file system etc)

All of which lead to a codebase which is easier to understand and manage and is therefore more likely to be used by others. The codebase was also split into two parts. `tina-libs` which represents the core algorithm libraries (the value code) and `tina-tools` which represents the existing application libraries and support code. This allows the libraries (`tina-libs`) to be used without the need for the existing, legacy interfaces which restrict the user to an X11 based interface.

As a result of these changes the current system can now be run in its entirety on all previously available platforms as well as on Microsoft Windows via the Cygwin (<http://www.cygwin.com>) library system and MacOSX, platforms that were previously unavailable to TINA.

The new website and resources are currently under development. A main website is available at <http://www.tina-vision.net> as well as a developer website at <http://developer.tina-vision.net>. The basic infrastructure for both sites has been established using PHP as the development language. The sites are now continually being populated.

Overall status of WP2: On schedule.

2.3 WP3: Commercial Interface

Technology familiarity sessions between UoM and Voxar took place in the first month of the project. This was achieved by seconding Tony Lacey to Voxar and Ian Poole to UoM for short periods of time. This time was also used to identify potential technologies which could be used to tackle the interface problem.

Initially the plan was for the two sided development of a single interface system (the TINA side developed at UoM the PlugN-View3D side at Voxar). Two potential approaches were considered.

1. A closely coupled interface where TINA code is linked directly into PlugNView3D.
2. A loosely couple interface where the two entities exists as separate programs and data and control is shifted between them.

A variety of technologies were considered and some prototype work done using the JAVA JNI framework. Finally it was decided that solutions utilising both approaches would be appropriate, providing two levels of exposure to TINA algorithms. The loosely coupled interface would allows users to experience new algorithms without the need for any programming and without the need to be familiar with the existing TINA interfaces (which are designed for development and debug). The closely coupled interface would allow users/developers to call the same algorithms from within the context of PlugNView3D.

ISBE is currently developing a TCL based web server using TINA which can be run alongside PlugNView3D. Interaction with this system requires only a web browser. A form based interface (HTML 4.0) allows interactions with any of the algorithms normally available from the current X11 tinatool implementations. Data is sent to the server using a DICOM compatible transport mechanism. This work leverages on other open-source software including TCL, tclHTTPd and the dcmtk. The infrastructure for this system have been completed and the current version is able to provide an equivalent to the image calculator. The system can also be accessed remotely and it is our intention to make available an open access analysis server together with example datasets in order to promote TINA. A working copy of this interface specification has been produced.

Voxar have ported the new foundation libraries (`tina-libs`) to Windows NT built using Microsoft Visual Studio. The build structure for this available under CVS and being maintained by Voxar. Voxar have identified several algorithms of interest in TINA and are working to link these with PlugNView3D with help from ISBE.

Overall status of WP3: Now providing two interface system instead of one, but on schedule.

2.4 WP4: Community Evaluation

DCU and UoWO provided highly useful feedback on the previous version of TINA. The results of this have been documented in the deliverables.

UoWO have been successful in implementing two optical flow analysis algorithms using the previous version of TINA. UoWO will port these algorithms, as projects, to the new codebase together with documentation.

DCU have successfully combined several aspects of the previous version of TINA with NeatVision their JAVA based image processing system. These include software for aorta tracking, NMR tissue segmentation and NMR tissue coil correction. DCU will move these developments over to the new codebase and use them to access to developments by UoWO

Non-project collaborators from the University of Bangor, UK have provided a Taliarach brain atlas for the identification of anatomical brain regions. This is currently being integrated into the new TINA codebase.

Overall status of WP4: On schedule

2.5 WP5: Dissemination and Exploitation

Work in this task has been deliberately limited until a proper software release in March 2003. It would be easy to dissuade people from using TINA with over promotion before an adequate release of the software can be made. However, several pieces of work have been undertaken;

- A two day workshop at UoM attended by DCU and UoWO was held to introduce the history, purpose and current state of the TINA system.
- A meeting at the UoM with researchers from the University of Essex (Stephen Sangwine) and the University of Surrey (Eddie Moxie) to demonstrate TINA and to discuss the inclusion of algorithms developed by these parties in TINA.
- Installation of software infrastructure to support community resources including establishing developer and announcement mailing lists which will be in operation in the new year.
- Presentations to relevant other projects including PCCV Project (IST-1999-14159) and IRC-MIAS a UK based multi-center research project.
- Demonstrations of TINA at the British Machine Vision Conference 2002, the premiere UK machine vision and image analysis event.

Voxar will attend RSNA 2002 in November in Chicago, USA. This is the worlds premiere medical imaging exhibition. Voxar will attend primarily to demonstrate PlugNView3D and will distribute literature regarding TINA and OSMIA as appropriate.

The establishment of a user group has been delayed until after the first release of the software is available. However, ISBE have been in contact with several potentially interested parties.

Overall status of WP5: Some aspects delayed until first release codebase available.

3 Outputs

3.1 Deliverables

Deliverable	Title	Month	Nature	Level	Status
D1.1	Project review	6	R	PP	Delivered
D1.2	Project review	18	R	PP	
D2.1	Alpha open source distribution of OSMIA	2	D	PP	Delivered
D2.2	Release of repository systems	6	D	PP	
D2.3	Release of developer website	12	D	PP	
D2.4	Release of improved codebase	17	D	PP	
D2.5	Open source distribution of OSMIA	18	D	PU	
D3.1	Working specification for interface	1	R	PP	Delivered
D3.2	Interface system for OSMIA	13	D	PU	
D3.3	Interface system for Plug N View 3D	13	D	PP	
D3.4	Public release of interface specification	13	R	PU	
D3.5	Algorithm evaluation report	18	R	PP	
D4.1	Assesment of TINA technology	2	R	PP	Delivered
D4.2	OSMIA integrated with Neatvision	15	D	PU	
D4.3	Optical flow techniques in OSMIA	15	D	PU	
D4.4	Assessment of OSMIA	18	R	PU	
D4.5	Documentation for software	18	R	PU	
D5.1	Dissemination plan	2	R	PP	Delivered
D5.2	Dissemination report	18	R	PU	

3.2 Effort expended

Effort expenditure planned overall:

Partner	UoM	Voxar	DCU	UoWO	Total
wp1	4	0	0	0	4
wp2	8	0	0	0	8
wp3	8	10	0	0	18
wp4	0	0	16	16	32
wp5	2	2	2	2	8
Total:	22	12	18	18	70

Effort expenditure to date:

Partner	UoM	Voxar	DCU	UoWO	Total
wp1	1.3	0	0	0	1.3
wp2	2.6	0	0	0	2.6
wp3	2.6	3.3	0	0	5.9
wp4	0	0	5.3	5.3	10.6
wp5	0.5	0.5	0.5	0	1.5
Total:	7	3.8	5.8	5.3	21.9