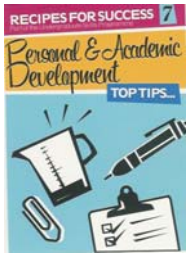
Report on

A Visit to The University of Warwick

- ☑ **EPSRC Symposium Workshop On New Directions In Computational Partial Differential Equations.**
- ☑ **Mr. Sean Russell, Director of Centre for Student Development and Enterprise (CSDE).**
- ☑ **Mr. Jamie Darwen, Project Manager of Warwick Volunteers.**
- ☑ **Mr. Gareth Bennett, International Gateway for Gifted Youth (IGGY).**
- ☑ **Reinvention: a Journal of Undergraduate Research.**



Submitted by

Dr. Faisal A. Fairag

January 2009

[1] Introduction about Warwick University, UK:

The University of Warwick is one of the leading higher education establishments in the United Kingdom and is the key organization behind the development and launch of IGGY. Warwick is committed to ensuring that all opportunities provided through IGGY are focused on benefiting the social and learning development of young people to help them fulfill their potential. Warwick is committed to ensuring that only organizations that have a useful contribution to make will be invited to be a partner within IGGY going forward.

In the 2001 Research Assessment Exercise, Warwick was ranked fifth in the UK for research quality, with 25 of its 26 academic departments gaining the highest ratings; departments awarded the top 5* rating were Applied Mathematics, Statistics, Economics, Warwick Business School, English, and Theatre Studies. Over 90% of Warwick's academic staff are research active.

[2] EPSRC Symposium Workshop On New Directions In Computational Partial Differential Equations

[2.1] Overview:

The EPSRC Symposium Workshop on New directions in computational partial differential equations was held at the Mathematics Research Centre, University of Warwick, UK . The Organizers were John Barrett (Imperial College), Charlie Elliott (Warwick) Chris Schwab (E.T.H.), Endre Süli (Oxford). The aim of the workshop is to identify areas of computational PDEs which are important in a range of new and developing application areas, and which require the development of new analytical and computational tools for their successful resolution.

[2.2] Date:

From Monday 12 to Friday 16 January 2009

[2.3] Attendance:

- Over 180 researchers.
- From different areas: engineering – applications – theoretical – academic – PhD students – researchers.
- From different countries: UK, France, USA, Germany, Switzerland, Netherlands, Spain ...

[2.4] Program:

All talks will be in Lecture Room B3.02, Mathematics Institute, Zeeman Building

Monday 12 January 2009

- 09:00 ***Registration*** in the Mathematics Research Centre Room B1.37
- 11:30 **E. Cances** (INRIA) *PDEs and electronic structure calculations*
- 12:30 Lunch in the Mathematics Institute Common Room
- 14:00 **K. Deckelnick** (Magdeburg) *Approximation of axisymmetric solutions of Willmore flow under Dirichlet boundary conditions*
- 15:00 Tea in the Mathematics Institute Common Room
- 15:45 **A. Szepessy** (Stockholm) *Stochastic molecular dynamics derived from the time-independent Schrödinger Equation*
- 16:30 **M. Rumpf** (Bonn) *Natural discretization of gradient flows - Applications to viscous thin films and Willmore flow*
- 17:15 **C-B. Schoenlieb** (Cambridge) *Fourth-order PDEs for image restoration*
- 18:00 Wine & Snacks in Common room

Tuesday 13 January 2009

- 09:30 **B. Stinner** (Warwick) *Elastic biomembranes involving lipid separation*
- 10:15 Coffee in the Mathematics Institute Common Room
- 11:00 **J. Lowengrub** (Irvine) *Multiscale models of solid tumour growth and angiogenesis*
- 11:45 Short talks
- 12:30 Lunch in the Mathematics Institute Common Room
- 13:30 ***Discussion***
- 15:15 Tea in the Mathematics Institute Common Room
- 16:00 **R. Nurnberg** (Imperial) *Numerical approximation of gradient flows for curve networks and surface clusters*
- 16:45 **R.H. Nochetto** (Maryland) *AFEM for geometric biomembranes and fluid-membrane interaction*

Wednesday 14 January 2009

- 09:30 **K. Kunisch** (Graz) *Semi-smooth Newton methods for optimal control of variational inequalities*
- 10:15 Coffee in the Mathematics Institute Common Room
- 11:00 **M. Hintermueller** (Berlin) *Recent advances in optimal control of variational inequalities*
- 11:45 **M. Hinze** (Hamburg) *Optimization with PDEs in the presence of constraints - tailored discrete concepts and error analysis*
- 12:45 Lunch in the Mathematics Institute Common Room
- 14:30 **A. Kunoth** (Paderborn) *Space-time adaptive wavelet methods for control problems constrained by parbolic PDEs*
- 15:15 Tea in the Mathematics Institute Common Room
- 16:00 **M. Luskin** (Minnesota) *Mathematical foundations for predictive and efficient quasicontinuum methods*
- 16:45 ***Short Talks***

Thursday 15 January 2009

- 09:30 **S. Ganesan** (Imperial) *An accurate finite element solution of interface flows with surfactants*
- 10:15 Coffee in the Mathematics Institute Common Room
- 11:00 **I. Graham** (Bath) *Multiscale finite elements for high-contrast elliptic interface problems*
- 11:45 **A. Prohl** (Tübingen) *Fabrication of aluminium – modeling, analysis, and numerics*
- 12:45 Lunch
- 14:30 **O. Lakkis** (Sussex) *Error control via elliptic reconstruction in some evolution equations* pdf of abstract
- 15:15 Tea in the Mathematics Institute Common Room
- ***Change of Lecture Room to MS.01*** 16:15 **A. Quarteroni** (Milan) *Domain decomposition methods and partial differential equations*
- Evening Workshop Dinner in Kenilworth

Friday 16 January 2009

- 09:30 **C. Ortner** (Oxford) *Analysis of quasicontinuum methods*
- 10:15 Coffee in the Mathematics Institute Common Room
- 11:00 **A. Voigt** (Dresden) *PDE's on surfaces - a diffuse interface approach*
- 11:45 **E. Zuazua** (Madrid) *Dispersive methods for linear and nonlinear Schrödinger equations*
- 12:30 Lunch
- 14:30 ***Closing Discussion***
- 15:20 Tea in the Mathematics Institute Common Room
- 16:00 *Departmental Colloquium* **A. Quarteroni** (Milan) *Mathematical modelling and the Galileo legacy*
- 17:15 Wine & Cheese in Common room

[2.5] Abstract of Talks:

Klaus Deckelnick (Magdeburg) *Approximation of axisymmetric solutions of Willmore flow under Dirichlet boundary conditions*

We consider the Willmore flow of axially symmetric surfaces subject to Dirichlet boundary conditions. The corresponding evolution is described by a nonlinear parabolic PDE of fourth order for the radial variable. A suitable weak form of the equation, which is based on the first variation of the Willmore energy, leads to a semidiscrete scheme, in which we employ C1 finite elements for the approximation in space. Our main results are optimal error bounds in Sobolev norms for the solution and its time derivative. This is joint work with Friedhelm Schieweck (Magdeburg).
S. Ganesan (Imperial) *An accurate finite element solution of interface flows with surfactants*

Ivan Graham (Bath) *Multiscale finite elements for high-contrast elliptic interface problems*
We introduce a new multiscale finite element method which is able to accurately capture solutions of elliptic interface problems with high contrast coefficients by using only coarse quasiuniform meshes, and without resolving the interfaces. A typical application would be the modelling of flow in a porous medium containing a number of inclusions of relatively low permeability, embedded in a matrix of relatively high permeability. Our method is H1- conforming, with degrees of freedom at the nodes of a triangular mesh and requires the solution of subgrid problems for the basis functions on elements which straddle the coefficient interface, but uses standard linear approximation otherwise. A key point is the introduction of novel coefficient-dependent boundary conditions for the subgrid problems. Under moderate assumptions, we prove that our methods have (optimal) convergence rate of O(h) in the energy norm and O(h2) in the L2 norm where h is the (coarse) mesh diameter and the hidden constants in these estimates are independent of the coefficient “contrast”. The proof does not depend on perodicity or any homogenisation argument. This is joint work with Jay Chu and Tom Hou of Caltech.

Jonas Haehnle (Tübingen) *Approximations of the Mumford-Shah functional for unit vector fields*

E. Cances (INRIA) *PDEs and electronic structure calculations*

Klaus Deckelnick (Magdeburg) *Approximation of axisymmetric solutions of Willmore flow under Dirichlet*
Michael Hintermueller (Berlin) *Recent advances in optimal control of variational inequalities*

From an optimization theoretic point of view optimal control problems for variational inequalities belong to the class of mathematical programs with equilibrium constraints (MPECs, for short) in function space. These problems typically lack

constraint qualifications for proving existence of Lagrange multipliers in first order characterizations. In this talk, new first order concepts based one relaxation techniques for the original problem are presented. These approaches are constructive and allow to pattern solution algorithms after the proof steps. In addition, these techniques my be intertwined with multigrid concepts. Corresponding algorithms including their convergence analysis are discussed and numerical results are presented.

M. Hinze (Hamburg) Optimization with PDEs in the presence of constraints – tailored discrete concepts and error analysis

Karl Kunish (Graz) *Semi-smooth Newton methods for optimal control of variational inequalities*

Semi-smooth Newton methods are superlinearly convergent iterative methods for non-differentiable optimization methods in function space. In the context of optimal control of variational inequalities proper regularization is required to profit from this property. Asymptotic as well as qualitative properties of this regularization are analysed.

Angela Kunoth (Paderborn) *Space-time adaptive wavelet methods for control problems constrained by parbolic PDEs*
Optimization problems constrained by partial differential equations (PDEs) are particularly challenging from a computational point of view: the first order necessary conditions for optimality lead to a coupled system of PDEs. For these, adaptive methods which aim at distributing the available degrees of freedom in an a¬posteriori-fashion to capture singularities in the data or domain appear to be most promising. For control problems constrained by a parabolic PDE, one needs to solve a system of PDEs coupled globally in time. For such problems, an adaptive method based on wavelets is proposed. It builds on a recent paper by Schwab and Stevenson where a single linear parabolic evolution problem is formulated in a weak space-time form and where an adaptive wavelet method is designed for which optimal convergence rates can be shown.

Omar Lakkis (Sussex) *Error control via elliptic reconstruction in some evolution equations*

I will review the elliptic reconstruction technique (ERT) in a posteriori error analysis and its impact on error contro and adaptivity for fully discrete schemes for parabolic equations. The flexibility of the ERT, in contrast with more standard approaches, allows a almost indiscriminate combination of various parabolic PDE techniques such as energy methods, duality methods and heat-kernel estimates. The ERT simplifies and allows interesting extensions of previous methods (Lakkis & Makridakis, 2006; Makridakis & Nochetto 2003). In particular, it provides previously unavailable error bounds for Fully Discrete Schemes, such as pointwise norm error bounds for the heat equation (Demlow, Lakkis & Makridakis, 2009) and optimal-order and to derive estimates for fully-discrete parabolic schemes using elliptic gradient-recovery estimators (Lakkis & Pryer, 2009) and for certain non-conforming methods such as spatial DGFEM (Georgoulis & Lakkis, 2009).

John Lowengrub (Irvine) *Multiscale models of solid tumor growth and angiogenesis*
We present and investigate models for solid tumor growth that incorporate features of the tumor microenvironment including tumor-induced angiogenesis. Using analysis and nonlinear numerical simulations, we explore the effects of the interaction between the genetic characteristics of the tumor and the tumor microenvironment on the resulting tumor progression and morphology. We account for variable cell-cell/cell-matrix adhesion in response to microenvironmental conditions (e.g. hypoxia) and to the presence of multiple tumor cell species. We focus on glioblastoma and quantify the interdependence of the tumor mass on the microenvironment and on the cellular phenotypes. The model provides resolution at various tissue physical scales, including the microvasculature, and quantifies functional links of molecular factors to phenotype that for the most part can only be tentatively established through laboratory or clinical observation. This allows observable properties of a tumor (e.g. morphology) to be used to both understand the underlying cellular physiology and to predict subsequent growth or treatment outcome, thereby providing a bridge between observable, morphologic properties of the tumor and its prognosis.

Mitchell Luskin (Minnesota) *Mathematical foundations for predictive and efficient quasicontinuum methods*
The development of predictive and efficient atomistic-to-continuum computational methods requires both an analysis of the error and efficiency of its many components (coupling method, model and mesh adaptivity, solution methods) as well as its integration into an efficient code capable of solving problems of technological interest. There are many choices available for the interaction between the representative atoms of the quasicontinuum method, especially between those in the atomistic and continuum regions, which has led to the development of a variety of quasicontinuum approximations. We will present criteria for determining a good choice of quasicontinuum approximation that considers trade-offs between accuracy and algorithmic efficiency. Our criteria are based on the effect of the coupling error on the goal of the computation, on the integration of the quasicontinuum approximation with model and mesh adaptivity, and on the development of efficient iterative solution methods. Joint Work with Marcel Arndt, Matthew Dobson, and Christoph Ortner

Aurora Marica (BCAM) *Wave propagation and discontinuous Garelerkin approximations*

R.H. Nochetto (Maryland) *AFEM for geometric biomembranes and fluid-membrane interaction*

R. Nurnberg (Imperial) *Numerical approximation of gradient flows for curve networks and surface clusters*

Christoph Ortner (Oxford) *Analysis of Quasicontinuum Methods*
In this talk, I will review some of the fundamental results in the analysis of the QC method, with particular focus on the nonlinear and non-convex nature of the problem. I will present some technical aspects for a simple next-nearest neighbour chain, however, I will comment on where the methods break down and explain some particularly interesting challenges for future research.

A Prohl (Tübingen) *Fabrication of aluminium – modeling, analysis, and numerics*

We consider the density-dependent magneto-hydrodynamics equations, which couples the incompressible Navier-Stokes equation with variable density and viscosity with Maxwell's equation to describe a viscous, incompressible, and electrically conducting multi-fluid. In the main part of the talk, we discuss problems to overcome to construct a convergent implicit stabilized finite element discretization: The proposed scheme satisfies a discrete energy law, and a discrete maximum principle for the positive density. These properties, together with a discrete version of the compactness result by R. DiPerna and P.L. Lions then establishes solvability, and convergence of the finite element solutions to weak solutions of the limiting problem for vanishing discretization parameters. Computational studies are provided. This is joint work with L. Banas (HW Edinburgh, UK).

Martin Rumpf (Bonn) *Natural discretization of gradient flows - Applications to viscous thin films and Willmore flow*

The talk will focus on the natural time discretization of gradient flows based on a balance of dissipation and energy decay. Typically the dissipation is formulated in terms of a flow or transport field, whereas the energy primarily depends on a deduced quantity. This leads to a nested structure of the resulting variational problem and concepts from PDE constraint optimization come into play. Applications will include thin film flow in coating layers, the spreading of thin films on curved surfaces, and the evolution of curves and surfaces under Willmore flow.

Carola-Bibuabe Schoenlieb (Cambridge) *Fourth-order PDEs for image restoration*

In this talk I will present the method of PDEs, i.e., functional minimization, used in a wide range of image processing tasks, such as image denoising, deblurring, and image interpolation. In particular I am interested in nonlinear PDEs of fourth differential order appearing in image inpainting, i.e., image restoration. Thereby inpainting is the process of filling in missing parts of damaged images based on the information obtained from the surrounding areas. Digital image restoration is an important challenge in our modern computerized society: From the reconstruction of crucial information in satellite images of our earth, restoration of CT- or PET images in molecular imaging to the renovation of digital photographs and ancient artwork, digital image restoration is ubiquitous. Motivated by these applications, I investigate certain PDEs used for these tasks. We shall discuss both some of their analytic properties, the efficient numerical solution of these equations as well as the concrete real world applications (like the restoration of ancient Viennese frescoes).

Markus Schmuck (Tübingen) Modeling, analysis and numerics in electrohydrodynamics

B. Stinner (Warwick) *Elastic biomembranes involving lipid separation*

The lipids of biomembranes may separate into coexisting phases. In addition to its elastic bending energy the membrane energy then involves a line energy arising from the phase interfaces. In biophysics, equilibrium shapes are of interest, in particular with respect to budding phenomena and vesicle fission. The goal has been to numerically study energy minima by relaxing suitable initial shapes according to an appropriate gradient flow dynamics. The intermembrane domains are described using the phase field methodology leading to a pde on the membrane which is coupled to a geometric evolution law for the membrane. The discretisation is based on representing the membrane by a triangulated surface on which linear parametric FEs are defined. The convergence as the interface thickness tends to zero has been numerically analysed, and the influence of various physical parameters numerically investigated. Adaptive refinement will be briefly discussed.

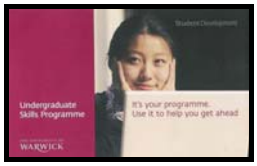
A. Voigt (Dresden) *PDE's on surfaces - a diffuse interface approach*

E. Zuazua (Madrid) *Dispersive methods for linear and nonlinear Schrödinger equations.*

Anders Szepessy (Stockholm) *Stochastic molecular dynamics derived from the time-independent Schrödinger Equation*

Smoluchowski, Langevin and Ehrenfest dynamics are shown to be accurate approximations of time-independent Schrödinger observables for a molecular system, in the limit of large ratio of nuclei and electron masses, without assuming that the nuclei are localized to vanishing domains. The derivation, based on characteristics for the Schrödinger equation, bypasses the usual separation of nuclei and electron wave functions and gives a different perspective on computation of observables and stochastic electron equilibrium states in molecular dynamics simulations

[3] Visit to Mr. Sean Russell, Director of Centre for Student Development and Enterprise (CSDE)



[3.1] What is CSDE?

CSDE is the home of the Undergraduate Skills Programme, (of which the Warwick Skills Certificate is a part), which offers a wide range of student support at the University of Warwick. I have had a valuable meeting with its Director, Mr. Russell and was introduced to the Skills Certificate. The Warwick Skills Certificate is a 30 credit qualification that will help undergraduate student develop his study skills, focus on personal development and make him more employable. It will also develop his competence, confidence and credibility in a range of essential graduate-level skills. It's free and available to all Warwick undergraduates. Modules are offered for 5 or 10 credits and are taught by experienced tutors. Student's success will be recorded on his transcript and will be awarded the Warwick Skills Certificate to recognize his achievement.

[3.2] The Structure of CSDE

The CSDE is made up of 15 Administrative Staff and 35 Tutors (trainers) in different areas of training subjects.

[3.2.1] The 15 Administrative Staff are as follows

1) Director of Student Development & Diversity
2) International Student Development Officer
3) Warwick Advantage Coordinator
4) USP Coordinator
5) WSC Administrator
6) Graduate School Skills Manager (& Projects)
7) Midlands Hub Regional Manager
8) Programme Assistant

9) LocalGRADschool Project Officer

10) Centre Coordinator

11) IT Coordinator

12+13) 2 Programme Officer

14+15) 2 Clerical Officer

[3.3] Certificates Offered by CSDE

CSDE offered 3 kinds of certificates to Warwick University students. They are:

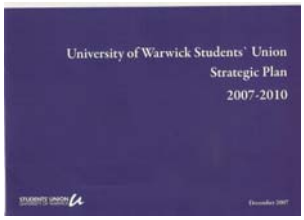
1. Skills for studying at Warwick
2. Personal Development Skills
3. Employability Skills

Following is a list of the courses to be completed for each certificate.

[3.3.1] Skills for Studying at Warwick

Skills to help a person be a better student

1. Academic Writing for Arts and Social Science Students
2. Academic Writing for Science and Engineering Students
3. Advanced Learning Skills
4. Beyond Google... Effective Academic Research
5. Critical Thinking Skills
6. **(Core) Getting Started on Skills Development**
7. IT Skills
8. IT Skills (ECDL)
9. Language Learning Skills and Strategies
10. Research as Learning
11. Surveying: Setting-out for construction



[3.3.2] Personal Development Skills

Skills students can transfer

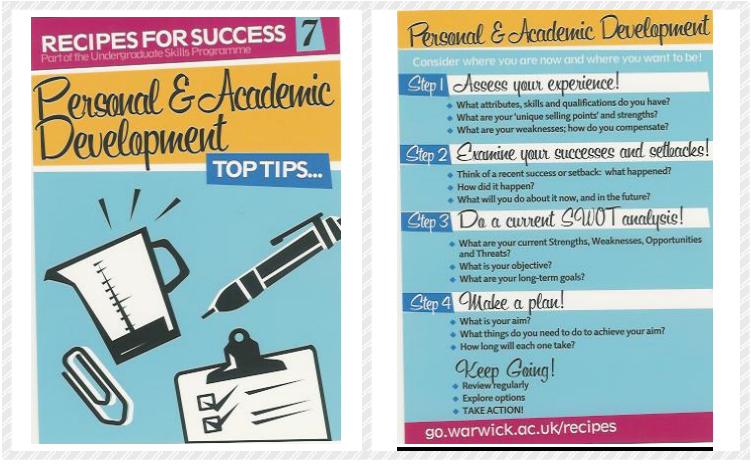
1. Communication Skills
2. Creative Writing
3. Finding Your Voice
4. Making Effective Presentations
5. **(Core) Personal Development and Assertiveness**
6. Personal Finance
7. Project Planning
8. Time Management and Teamwork
9. Warwick Welcome Tours

[3.3.3] Employability Skills

Thinking about future

1. **(Core) Career Management Skills**
2. Commercial Awareness
3. Creative Careers
4. Effective Business Writing
5. Making the most of Work Experience
6. NGOing for it
7. Understanding your personality type with the Myers Briggs Type Indicator
8. Warwick Advantage. Maximising your Graduate Employability

[3.4] Recipes for Success

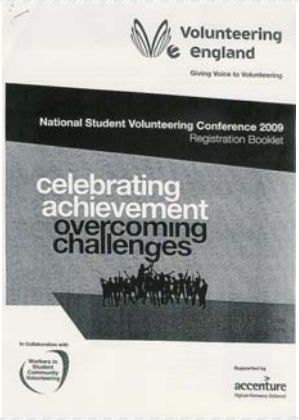


The Centre provides students with the Recipes for Success web site where they can find a lot of Recipe cards and plenty of other useful links.

[3.5] The Warwick Advantage

The Warwick Advantage helps students to make the most of their time at Warwick through a large number of opportunities. There is a vast range of opportunities for students to take advantage of while at Warwick and all these have been gathered in a website for easy student access through the university portal. Extend your experiences

[4] Visit to Mr. Jamie Darwen, Project Manager of Warwick Volunteers



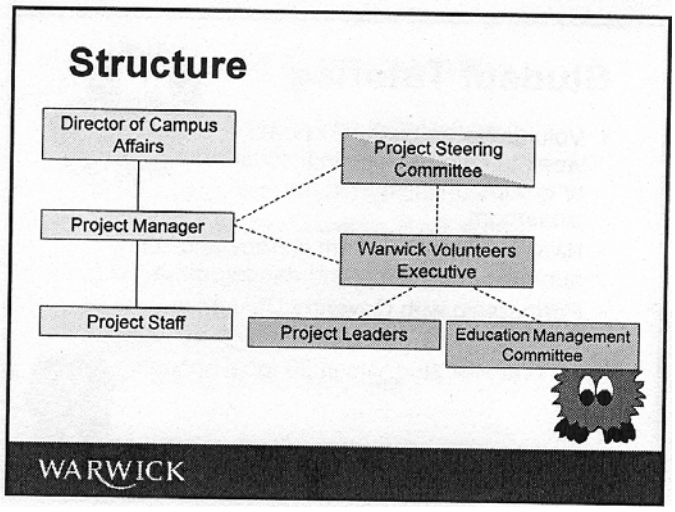
[4.1] What is Warwick Volunteers?

Warwick Volunteers provide opportunities for students and staff at the University to volunteer in a variety of roles, within the local community. I have met the Project Manager, Mr. Darwen who introduced me to the variety of projects they have. They have a range of different projects - some require a regular commitment, whereas others are very flexible and allow students to give as much time as they are able to. The role of Mr. Darwen office is to provide link between the University and the many projects around Coventry and Warwickshire that they either support throughout the year, or when they need that little bit of extra help. Community Action, a student-run society, had been around for over two decades. In 2002, they received new funding from the University through the Warwick Active Community Programme to develop new projects, increase the number of opportunities provided, and improve the training and support provided for volunteers.

[4.2] The Structure of Warwick Volunteers

Warwick Volunteers is made up of:

1. 5 full-time persons doing administrative work
2. Student Executive Committee
3. Steering Committee
4. over 20 Project Leaders



[4.2.1] The Administrative Persons

- Project Manager***:*** has overall responsibility for delivering the aims and objectives of Warwick Volunteers and line manages the other project staff. He is also responsible for development of administrative procedures, health and safety considerations, and for the expansion of voluntary activity under the programme
- Project Administrator***:*** deals with all the day-to-day financial and administrative aspects of Warwick Volunteers and is the first point of contact for enquiries from volunteers
- Project Development Co-ordinator: works with local community groups to develop the projects we offer and co-ordinates volunteer placements. She is also responsible for liaising between external contacts and Project Leaders
- Project Co-ordinator /Volunteers in Education: co-ordinates the education projects here at Warwick Volunteers, and works with LEAs and local schools to develop volunteering projects
- Project Co-ordinator /Sports Clubs & Societies: liaises with Sports Clubs and Societies at Warwick Volunteers, and co-ordinates cultural and language events in schools

[4.2.2] The Student Executive Committee

The Executive Committee is the public face of Warwick Volunteers, and is responsible for meeting the aims and objectives established by the Programme Steering Committee. Their general responsibilities include: approving policies and procedures, appointing Project Leaders, arranging an Annual General Meeting (AGM), promoting the activities of the society, recruiting new members and organising social events. This year there are eight members of the Executive Committee: the President, Secretary and Social Secretary, Fundraising and Development Officer, Marketing Officers [x 3], the Society Liaison Officer and the Sports and Education Representative.

President:

- Chairs exec meetings
- Maintains, manages and reviews roles and progress of the Exec and their objectives
- Liaises between Staff, Exec, PL's, Steering Committee & other volunteers
- Communicates with staff on behalf of the society
- Ensures equal opportunities, policies and welfare rights for all volunteers

Secretary & Social Secretary:

- Writes agenda for exec meetings
- Takes minutes from exec meetings and distribute to other members of the exec

- Takes care of all general administration needs, such as booking meeting rooms etc.
- Organises all social events (e.g. booking events, nibbles etc.)
- Stays aware of the administrative forms produced by Warwick Volunteers and their usage

Fundraising & Development Officer

- Researches, creates and develops fundraising opportunities for Warwick Volunteers
- Fundraises for different projects - including investigating funding from private companies and grant-making trusts
- Developing relationships with former Volunteers who have graduated from Warwick to form a database of volunteer alumni

Sports & Education Representative

- Creates and maintains relationships with Sports Clubs
- Organises the involvement of Sports Clubs in volunteering
- Maintains an active working relationship with the Education Management Committee (EMC)
- Oversees the new Warwick Volunteers Sports Award

Society Liaison Officer

- Creates new and maintains existing relationships with the Societies
- Organises the involvement of societies in volunteering
- Oversees the new Warwick Volunteers Society Award (launched in 2005)
- Reports to staff about involvement of societies in volunteering

Marketing Officers x 3

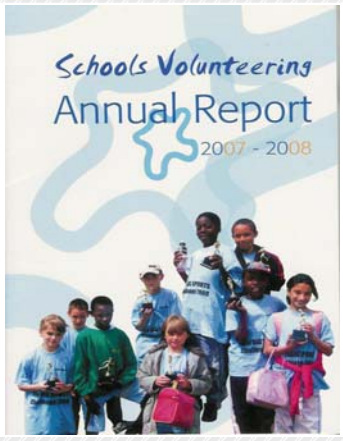
- Prepares and oversees marketing for the Freshers and Volunteering Fairs
- Produces and publishes flyers, posters, display boards etc.
- Maintains working relationships with the Boar, Word and RaW, and the local media
- Publicises events on the Warwick Volunteers website and blog
- Contributes to the communications strategy of Warwick Volunteers (in conjunction with the University Communications Office)

[4.2.3] The Steering Committee

- Pro-vice-Chancellor (Prof. Susan Bassnett)-Chair
- Directors of Student Services, Student Recruitment & Careers
- University Community Relations Manager
- Four university representatives, one from each faculty.
- Five student representatives of Warwick Volunteers
- Student Union representative
- Representative from Coventry University volunteering project
- Three representatives from local community organizations

[4.3] Project Classifications

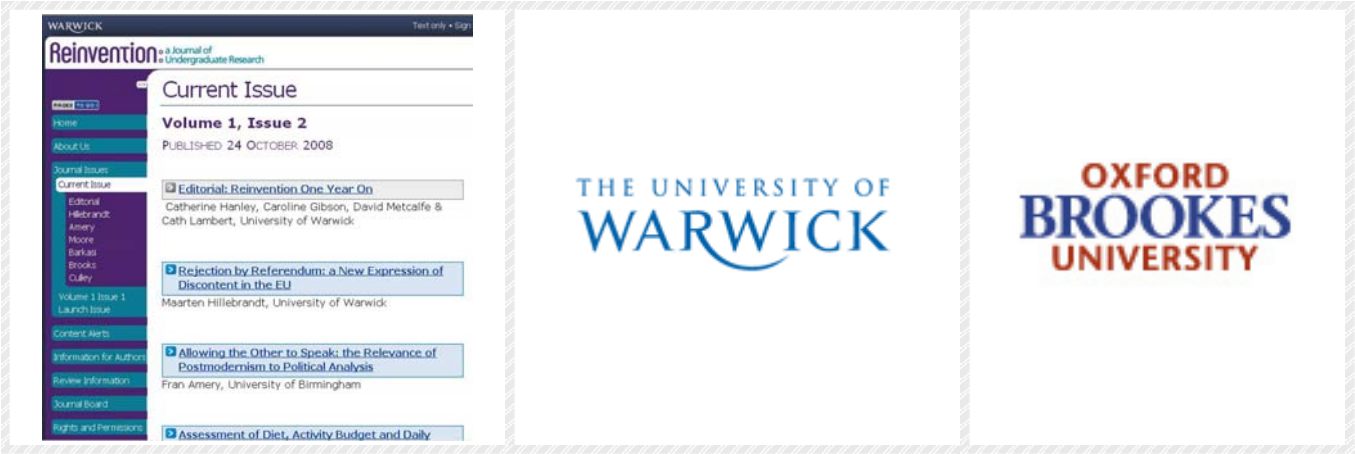
The volunteer work has covered vast range of projects classified in the following areas: Re-environment – Sports – Community – Events – Education –Older people – Young People – Human rights – Staff – International – Health – Summer.



[4] Visit to International Gateway for Gifted Youth (IGGY)

I have visited the International Gateway for Gifted Youth. IGGY is a new organisation aimed at the brightest and most creative young people from around the world. Members become part of a global community that gives them increasing access to a wide range of opportunities unavailable anywhere else. With opportunities designed for the top 5% of young people in terms of ability and potential, IGGY will offer members access to an increasingly diverse range of projects, challenges, and learning opportunities that are engaging, stimulating and provide genuine opportunities for international engagement and collaboration. IGGY will provide opportunities for individual endeavour, international teamwork and collaboration, competition, expertise and input from leading professional, academic and creative experts. IGGY is a gateway to a challenging academic world, but is also open to those who excel in the areas of talent and vocational disciplines. It will provide a centre of excellence for young people who are aiming to be in the top 5% in sport, the performing and creative arts, alongside other talent areas. IGGY does not replace or negate the need for high quality educational opportunities for the most able students within schools. Its aim is to supplement this provision and extend it to other areas of knowledge and experience which are not ordinarily available to all pupils, including cross-national learning.

[5] Reinvention: a Journal of Undergraduate Research



Mr. Russell, Director of CSDE, has refferd me to the Reinvention: a Journal of Undergraduate Research. It is a new, online, peer-reviewed journal, dedicated to the publication of high-quality undergraduate student research. The journal welcomes academic articles from all disciplinary areas. All articles in this journal undergo rigorous peer review, based on initial editor screening and refereeing by two anonymous referees. The journal is produced, edited and managed by students and staff at Oxford Brookes University and the University of Warwick. It is published bi-annually and only houses papers written by undergraduate students. The launch issue of the journal contained only papers from the Reinvention Centre's two host institutions, Warwick and Oxford Brookes Universities. Reinvention is published through the Reinvention Centre for Undergraduate Research, a collaborative Centre for Excellence in Teaching and Learning based at the University of Warwick and Oxford Brookes University. The aim of the Reinvention Centre is to put research at the heart of the undergraduate curriculum and to integrate undergraduate students into the research cultures of their subjects and universities.