CURRICULUM VITAE

Name: Roberto Bernetti
Address: Via Strada Vecchia del Pinocchio 1/A
60131 ANCONA
tel./ fax 071/2867103
e-mail: rb@robertobernetti.com

Education

- 1980-1986: Degree in Civil Engineering, with honors, at the Università degli Studi di Ancona, Atncona.

- 2003-2006: Ph.D. in Mechanical Engineering, Università Politecnica delle Marche, Italy. Dissertation Thesys on "Developement of the Unbalanced Force Mapping Method for Defect Detection from Surface Velocity Mesureaments in Layered Shell Structure"

Job Position

- June-December 2003 research assistant in Numerical Analysis at the Laboratory of Applied Mathematics, Faculty of Engineering, University of Trento

- Since 1992 consultant in the fields of structural Analysis, Finite Elements Application and Development, Applied Mathematics, Computer Aided Engineering, Software Development and Information Technology.

- Since 1991 to march 1992 as manager at the stress analysis dept. of Nuova MA.NA.RO. Spa (semi-trailer tank maker)

- Since 1987 to march 1991 at the Snamprogetti s.p.a. in the Research & Development department of the Offshore Structure division.

Languages

Italian mother tongue, written and oral English

OS and Programming Languages

Deep knowledge of:

- GNU/Linux operating system and its tools in software development as version system IDE

- high level programming languages FORTRAN, C, perl, PHP,

- Database SQL syntax, MySQL, MS Access

- mathematical high level programming languages Matlab, Octave, Maxima, Mathematica,

- Web Collaboration Tools (Wiki, TWiki)

Last experiences

- Code developer for parallelization of NLSWE2D for fluid dynamic analysis of near shore area with defense structures, installation, set up and optimization of the HYDRO cluster od GNU/Linux workstations at The Hydrauilic Department of Ancona University

- Formulation of the mathematical model and the code developer of the software for NLSWE2D simulation for fluid dynamic analysis of near shore area.

- Formulation of the mathematical model and the code developer of the software for diffractive and refractive acoustic analysis in unbounded domain, using the Boundary Element Method. The software is able to import/export the geometry/result to the general purpose Finite Element program for INDESIT Company.

- Main code developer and GPL copyright holder of NLSWE2D a 2DH software simulation tools for predicting near-shore water flow field, extensively used in coastal engineering in industry and research project

- Code developer and GPL copyright holder of ACOSYS a 3D Acoustic simulation tools for diffractive and refractive acoustic analysis of fluid-structure interaction in unbounded domain, using the Boundary Element Method used in appliances industry

- Helding training courses on palarellel computing for the scientists of "Istituto Nazionale di Geofisica e Vulcanologia" in Rome

- leader engineer for the development of a FEM simulation of laboratory test of pipeline subject to land-slide load. The model consider non-linear material behaviour of the pipeline the non-linear soil-pipe interactin and the non-linear material behaviour of the soil

Principal Published Paper in Software Development

1. R. Bernetti, E.F. Toro, V. Titarev, "Exact solution of the Riemann problem for the shallow water equations with discontinuous bottom geometry", J.Comput.Phys 227(2008)3212-3243.

2. M. Brocchini, R.Bernetti, A. Mancinelli, G. Albertini (2001),"An Efficient Solver for Near Shore Flows Based on the WAF Method", Costal Eggineering june 2001

3. R. Bernetti, M. Brocchini , A. Mancinelli & L. Soldini (2003a). "Parallel computing for near-shore hydrodynamics". In: Coastal Engineering VI: Computer Modeling and Experimental Measurements of Seas and Coastal Regions , eds. C.A. Brebbia, D. Almorza & F. Lopez-Aguayo by WIT Press, Southampton, pp. 83-88.

4. R. Bernetti, F. Natalini, "BEM Solver for Acoustic Equations", ANSYS Users Conferences act Italy, Firenze 15 Ottobre 1998

5. R.Bernetti, G. Donida, "Finite elements approximation of dynamic problemens for semi-infinite solids in elasticity", Computers & Structures, Volume 41, No 4, pp 835-842, 1991

6. R.Bernetti, G. Donida, R. Bruschi, "The penalty function method for contact problems", Computers & Structures, Volume 36 No. 4, pp 777-782, 1990.

UE Funded Project Participation

- 2003-2004 Inside the MONOTONE project for the development of automatic quality control for industrial printing in ceramic tile and textile industry sectors, leader engineer for software development of program for laboratory test data acquisition and analysis

- 2006 inside the CASBliP project for development of a system capable of interpreting and managing real world information from different sources to provide mobility assistance project engineer for software development for image analysis

- 2008 Development of a Mathematical Model For Parallel solver in structural analysis for application in MUSCA project

Main Clients

AQUATER S.p.A.
SNAMPROGETTI S.p.A.
UMBRA CUSCINETTI S.p.A
SAR S.p.A
Indesit Company S.p.A.
MERLONI MTS S.p.A.
BEST S.p.A.
Morganite Italiana S.r.l.
Università degli Studi di Ancona

Pubblications

Journal papers ("refereed")

1. R. Bernetti, E.F. Toro, V. Titarev, "Exact solution of the Riemann problem for the shallow water equations with discontinuous bottom geometry", J.Comput.Phys 227(2008)3212-3243.

2. L. Soldini, A. Piattella, M. Brocchini, A. Mancinelli & R. Bernetti (2004b). "Macrovortices-induced horizontal mixing in compound channels." Ocean Dyn., Vol. 54 (3/4), pp. 333-339.

3. M. Brocchini, R.Bernetti, A. Mancinelli, G. Albertini (2001),"An Efficient Solver for Near Shore Flows Based on the WAF Method", Costal Egnineering june 2001

4. Agostinacchio M. Bernetti R., Diomedi M., Olita S., "Valutazione dei parametri geometrici e meccanici della sovrastruttura ferroviaria sulla risposta dinamica del binario sotto leffetto di un carico viaggiante ad alta velocità", Rivista Quarry and Construction, marzo 1999

5. Agostinacchio M. Bernetti R., Diomedi M., "Esame critico del comportamento di sovrastrutture stradali di tipo flessibile in zona sismica", Rivista Autostrade n. 2-3, aprile-settembre 1996

6. Agostinacchio M. Bernetti R., Diomedi M., "Modellazione dinamica dell' interazione armamentomassicciata-piattaforma ferroviaria e confronto con l' analisi statica", Supplemento alla Rivista Le Strade n.1314, ottobre 1995

7. Agostinacchio M. Bernetti R., "Definizione del sovraccarico dinamico nell' interazione veicolo-strada", Autostrade Aprile-Giugno 1995

8. M. Agostinacchio M. Bernetti R., Diomedi M., "Modellazione del regime fessurativo in conglomerati bituminosi nell' ipotesi di comportamento fragile del materiale", Rivista Le Strade n.1300, febbraio 1994.

9. P. Battistoni, R. Bernetti, G. Fava, "Filtri Elettrostatici a Doppio Stadio. Descrizione Matematica e Verifica dell'Efficienza di Rimozione di Particelle Respirabili", Ingegneria Ambientale, Anno XXII, N. 1 Gennaio 1993

10. Agostinacchio M. Bernetti R., Diomedi M., "Sulla Definizione di un Legame Costitutivo per Conglomerati Bituminosi", Le Strade n.1294, giugno 1993

11. Agostinacchio M. Bernetti R., Diomedi M., "Proposta di un metodo di calcolo di strutture cilindriche interrate per usi stradali", Rivista Le Strade n. 1227, luglio/agosto 1991

12. R.Bernetti, G. Donida, "Finite elements approximation of dynamic problems for semi-infinite solids in elasticity", Computers & Structures, Volume 41, No 4, pp 835-842, 1991

13. R.Bernetti, G. Donida, R. Bruschi, "The penalty function method for contact problems", Computers & Structures, Volume 36 No. 4, pp 777-782, 1990.

14. R.Bernetti, G. Donida, R. Bruschi, "Infinite elements in problems of geomechanics", Computers & Structures, Volume 29 NO. 1, pp 63-67, 1988.

Conference papers and abstracts ('refereed')

1. R. Briganti, M. Brocchini & R. Bernetti (2004h). "An Operator-Splitting approach for Boussinesq-type equations" GIMC 2004, XV Convegno Italiano di Meccanica Computazionale - AIMETA, CD-ROM, 4pp.

2. R. Bernetti, E.F. Toro & M. Brocchini (2003) "An Operator-Splitting method for long waves" Proc. Long Waves Symposium, pp. 49-56.

3. L. Soldini, A. Piattella, A. Mancinelli, R. Bernetti & M. Brocchini (2002) "Unsteady horizontal mixing in estuaries and channels". Extended Abstratcs PECS'02, pp. 75-78.

4. M. Brocchini, A. Mancinelli, L. Soldini & R. Bernetti (2002). "Structure-generated macrovortices and their evolution in very shallow depths". Proc. 28th Int. Conf, Coast. Engng. - ASCE (in print).

5. M. Brocchini, A. Mancinelli, L. Soldini & R. Bernetti (2002a). "Structure-generated macrovortices and their evolution in very shallow depths". Proc. 28th I.C.C.E., Vol.1, pp. 772-783, Cardiff, UK.

6. L. Soldini, A. Mancinelli, R. Bernetti & M. Brocchini (2002) "The flow circulation induced by waves overpassing a submerged breakwater". Book of Abstracts, 6th SIMAI Conference, p. 337.

7. R. Bernetti, M. Brocchini & L. Soldini (2002), "Parallel computing for nearshore hydrodynamic simulations", Atti del XXVIII Convegno di Idraulica e Costruzioni Idrauliche. Vol. IV, pp. 221-226.

8. L. Soldini, A. Mancinelli, R. Bernetti, M. Brocchini & P. Scalas (2002), "Are structure-generated macrovortices important for nearshore dynamics?" Atti del XXVIII Convegno di Idraulica e Costruzioni Idrauliche. Vol. IV, pp. 43-50.

9. A. Mancinelli, L. Soldini, M. Brocchini & R. Bernetti (2001a). "Modelling the effects of structures on nearshore flows." Proc. Ocean Wave Measurement and Analysis 2001, Vol. 2, pp. 1715-1725, San Francisco, U.S.A.

10. Agostinacchio M. Bernetti R., Diomedi M., "Experimental investigation on asphalt strength loaded along three mutual orthogonal directions at different temperatures", Atti Fifth International Rilem Symposium MTBM, Lione 14-16 maggio 1997

11. Agostinacchio M. Bernetti R., Diomedi M., "Analisi teorico-sperimentale del comportamento viscoelastico di conglomerati bituminosi per strati di usura", Atti Convegno Nazionale SIIV, Ancona 14-16 ottobre 1996

12. R. Bernetti, A. Mancino, "Design Optimization of a 40-Ton Tank Trailer", ANSYS Technology Conference and Exhibition, The Pittsburgh Hilton & Towers, June 8-12, 1992

13. G. Albertini,R. Bernetti,G. Caglioti,M. Ceretti, F. Fiori, F. Oggioni, F. Rustichelli,L.Viviani, "Misure di sforzi residui mediante diffrazione neutronica in un sistema termoelasticamente accoppiato in lega AA6082", Atti del XXVI Congresso Nazionale dell'Associazione Italiana di Metallurgia (AIM) Milano 6-8 Novembre 1996 pagg. 411-418

14. Agostinacchio M. Bernetti R., Diomedi M, "Experimental investigation on the behaviour of asphalt for loading three orthogonal directions", Atti Euroasphalt and Eurobitume Congress, Strasburgo, 7 - 10 maggio 1996

15. M. Agostinacchio M. Bernetti R., Diomedi M., "Sulla definizione della resistenza meccanica dei conglomerati bituminosi tramite un originale apparato triassiale", Atti XXII Convegno Nazionale Stradale A.I.P.C.R., Perugia, 27 giugno/1 luglio 1994

16. R.Bernetti, R. Bruschi, "Pipelines placed on erodible seabed", XII Symposium on "Offshore Mechanics and Arctic Engineering", Huston 1990

17. R.Bernetti, R. Bruschi, "Sull' utilizzo della risposta dinamica nella identificazione dei parametri catterizzanti l' interazione suolo tubo", XVII Convegno nazionale della "Associazione Italiana per l' Analisi delle Sollecitazioni" 12-16 Settembre Ancona 1989

book, book chapters and review papers

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1. R. Bernetti, "Dynamic Beam Analysis by FEM", Lulu.com 2008

2. R. Bernetti, M. Brocchini, A. Mancinelli & G. Albertini (2000). "An efficient solver for nearshore flows." In: Hydraulic Engineering Software VIII, eds. W. Blain & C.A. Brebbia, by WIT Press, Southampton, pp. 447-456.

3. R. Bernetti, M. Brocchini , A. Mancinelli & L. Soldini (2003a). "Parallel computing for nearshore hydrodynamics". In: Coastal Engineering VI: Computer Modelling and Experimental Measurements of Seas and Coastal Regions , eds. C.A. Brebbia, D. Almorza & F. Lopez-Aguayo by WIT Press, Southampton, pp. 83-88.

4. R. Bernetti, F. Natalini, "Un Solutore agli Elementi di Contorno per le Equazioni Acustiche", Conferenza Utenti ANSYS Italia, Firenze 15 Ottobre 1998

5. R. Bernetti, L. Pizzoni, "Non Linear Analysis on a Rubber Elastic Stop", Conferenza Utenti ANSYS, Firenze 10 Ottobre 1996