Civil Engineering, Software Development

Expertise Groundwater Flow, Numerical Methods

Education Ph.D. (Civil Engineering), 1985; M.S.C.E. (Civil Engineering), 1980
University of Minnesota

Ingénieur Géologue, 1976, University of Liège, Belgium

Professional Experience

1993 - Present	*Itasca Consulting Group, Inc., Minneapolis, Minnesota, Software Engineer*
1990 - 1991	*Project Engineer*
1986	*Consultant*
1984	*ACRI, Los Angeles, California, Consultant*
1982	*University of Minnesota, Department of Civil and Mineral Engineering Teaching Assistant*
1981	*University of Liège, Department of Geologie de l'ingènieur, Belgium Consultant*
1977 - 1981	*University of Minnesota, Department of Civil and Mineral Engineering Research Assistant*
1976 - 1977	*University of Liège, Department of Applied Mathematics, Belgium Research Assistant*

Project Experience

Code Development

Finite Difference — Development and implementation of: two-phase flow logic and pile structural element in FLAC; fluid flow and thermal modules in FLAC3D; and coupled fluid-thermo-mechanical logic, creep and viscoplastic constitutive models and artificial viscosity damping in FLAC and FLAC3D.

Analytic Element Method — Development of a computer code to model a regional aquifer using the analytic element method (LEGIA); code development related to front tracking, computation of travel time, modeling of flow in a permeable fissured media; and analytical derivation of linear and circular element to model groundwater flow.

Semi-Analytical Method — Development of a non-iterative semi-analytical method to solve a class of two-dimensional flow problems involving free surfaces (such as phreatic surfaces, interface between fresh and salt water, and seepage face; development of computer codes for the numerical and analytical solutions to problems of leakage from a pond.

Finite Element Method — Development and implementation of a finite element procedure to model fluid flow with free surfaces, using a fixed grid.