MARIO BEHAR, M.Sc., P.D., P.E.
Structural Bridge Engineer

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EDUCATION

- **Diplom-Ingenieur** (equiv. to M.Sc.), Structural/Civil Engineering, May 1983, Institute of Architecture & Civil Engineering (VIAS), Sofia, Bulgaria.
- **Graduate studies** with a topic of research *"Post-buckling behaviour of Thin-walled tall Bridge Piers of Reinforced & Prestressed Concrete"*, 1987-1989, Institute of Architecture & Civil Engineering (VIAS), Sofia, Bulgaria.
- **M.Sc.** (2nd), Structural/Civil Engineering, February 1995, Technion (the Technology Institute of Israel), Haifa, Israel
- **Professional Degree** in Civil Engineering & Engineering Mechanics, February 1998, Columbia University, New York.

REGISTRATION

Professional Engineer:

- **1983**, **BULGARIA**, P.E. license **#B82-008476**
- 2002, State of **Connecticut**, P.E. license **#22754**

FIELDS OF EXPERIENCE

- Bridge Design and Load Rating
- Regular Reinforced & Prestressed Concrete
- Steel Structures
- Fiber Reinforced Polymer (FRP) Structures
- Scientific Research
- Construction Cost Estimation
- Construction Surveying
- Bridge Inspection
- In-Situ Load Tests of Bridges
- Business Administration (w/out formal education for the purpose)
- *Event organization and coordination*
- *Documentary Filmmaking*
- *Web design & maintenance*
- *Software Design*
- *Languages & Translation; Dictionaries*

EXPERIENCE with U.S. CODES & SPECS

- **AASHTO** Standard Specs for Highway Bridges
- **LRFD** Specifications for Highway Bridge Design
- **NYSDOT** & **NYCDOT** Specifications for Bridges
- **OhioSDOT** & **NJSDOT** Specs for Bridges (partially)
- **AISC-ASD** & **AISC-LRFD** Specs for Steel Design
- **ACI 318** Specifications for Concrete Design
- **ASTM** Standards
- **NY State** & [partially] **Fed. Inspection** Regulations
- others ...

PROFESSIONAL EXPERIENCE

(companies in alphabetical order – by country)

U.S.A.

⇨ **MRCE (Mueser Rutledge Consulting Engineers), New York City**

Design of Bridge Foundations. Examples:

- Pile Foundations of "Victory" & "Edison" Bridges, near Perth Amboy, NJ.
- Pile Foundations for the JFK Airport Light-Train in NY City.

Excavation Support Systems - Design & Review of designs. Examples:

- for the New City Waste-water Treatment Plant at Newtown Creek in Brooklyn, N.Y.
- for the Street Drain-water collection & treatment plant in northern Queens, NY.

Underpinning of existing buildings & structures. Examples:

- Underpinning of Russia Wharf complex buildings as part of the ground-freezing tunneling project below them – Boston, Massachusetts
- Expansion of the underground "Pavonia" station on the PATH lines under Hudson River – N.J. side

General solutions of Soil Mechanics Problems.

Finite Element Modeling of Structures **with 2D & 3D versions of *RISA software*** - for most of the above listed projects.

Supervisory checking of design calculations & drawings

Cost-Estimations for the construction & reconstruction phases of several projects. Examples:

- the Russia Wharf underpinning project - mentioned above.
- underwater reconstruction work (in tidal conditions) of a passenger train-to-ferry terminal on the New Jersey side of Hudson River, in front of Manhattan.

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⇨ **NYCDOT (New York City Department of Transportation) –** an internship during the Graduate studies in Columbia University

Tasks performed:

- Review of the **NYCDOT Database of Bridge Structures.**
- **Search for correlation** between the **Rating** of specific bridge details and the **General state** of the **Bridges** using *dBase* & *MSExcel* software for: sorting of the data; correlation coefficients; and graphical presentation.

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⇨ **Prudent Engineering, Syracuse, NY**

Assistant Team Leader for Biennial & Interim Inspections in Westchester & Putnam counties of NY State using the **NYSDOT Computer Program – BIPPI, for bridge inspection record keeping.**

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⇨ **Roman Wolchuk Consulting Engineers; Jersey City, NJ**

Consultant & Reviewer (Supervisory Checker) on Designs of:

- the new **Self-anchored (w/ inherently Bi-directionally Prestressed Steel Orthotropic Deck) Suspension Cable Bridge** in the **San-Francisco-Oakland Bay Area, California**
- Chelsea Street **Vertical Lift Bridge** in Boston, Massachusetts

Design of the Scaffolding & Formwork for the Redecking of a bridge in New Jersey.

AutoCAD drafting of details related to a study and conference presentation on Orthotropic Decks.

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⇨ **Wagh Engineers, P.C., New York City**
(position: **Structural Engineer**)

Creation of a Database for the Company including contract information, information about partners, business contacts, etc. using *MSAccess*.

Concept & structural designs of the tunnel extension at the West St. exit of **Battery Park Underpass** in Manhattan, N.Y., incl. Finite Element modeling in **LARSA** with consideration of shrinkage, differential & overall Temperature effects. **Deck-Slab, Foundation Slab, Pier-Wall & Retaining Walls of Reinforced Concrete (RC).**

Concept Design of a **Curved Cable-Stayed Pedestrian Approach to the TAPPAN ZEE BRIDGE** – A curved steel tube bridge structure with a single concrete tower (Finite Element analysis using **LARSA**)

Design of a complex system of **Temp. Bridge Structures** necessary for the reconstruction in stages of the **WHITESTONE EXPWY TO VANWYCK EXPWY JUNCTION** combining "Mabey" modular bridge elements with conventional triangular (in plan) transition spans, and re-using of existing foundations; *Vertical & Horizontal Alignments* using Microstation and survey & road-tracing computations (incl. numerous changes to avoid conflicting points with the remaining and new-built structures). **Existing RC Column-Piers & their Cantilever Pier-Heads design-checked for temporary usage during the reconstruction stages.**

Reconstruction Assessment & Alternatives for **"BEN FRANKLIN" SUSPENSION BRIDGE** between Philadelphia, PA & Camden, NJ (in the capacity of internal – within the company, consultant in numerous brief occasions – not a primary engagement in the project).

Environmental Impact Study & **Seismic Analysis** of **TAPPAN ZEE BRIDGE** over Hudson River in NY State, including proposed *alternatives* aiming to increase the capacity of the NY State Thruway system while reducing the congestion along this longest bridge on Hudson River (in the capacity of internal – within the company, consultant in numerous brief occasions – not a primary engagement in the project). Seismic Analysis of **the Reinforced Concrete Piers** for some of the *design alternatives*, **incl. Strengthening Design using the *"pcaColumn" software* for Force-Moment Interaction.** Redundancy Analysis using a 3D-Model of the superstructure. Deck Replacement Concept for the Deck-Truss spans.

Load Rating of **TAPPAN ZEE BRIDGE** over Hudson River in NY State (incl. **Finite Element modeling** of the structure using **LARSA software** and development of **Macros in VisualBasic** for data transfer between structural analysis software applications) – a joint team with *Arup*, *Lichtenstein*, *Mueser Rutledge*, *PACO* & *Clough Harbour*.

Load Rating (which is essentially Redesign) of the existing structure of ***2nd Ave. Bridge*** in Brooklyn, N.Y. (including **Finite Element modeling** of the structure with **LARSA**). **Part of this Bridge Structure consisted of Reinforced Concrete Deck, Beams & Columns.**

Structural consultant to a contractor for the *Demolition*

& Reconstruction of **2nd Ave** and **14th Ave Bridges** over LIRR in Brooklyn, N.Y.; *Design of Temporary Support Structures* necessary for the demolition in stages of the existing structures with simultaneous maintenance of the traffic on the bridges.

Design of **Steel Bridge Structures**:

- Sutter Avenue Bridge over the LIRR lines in Brooklyn, NY

Design of **FRP (Fiber Reinforced Polymer) Bridge structures**:

- Replacement of the concrete deck of a Steel Truss Bridge over Bentley Creek with **a FRP Deck**, Upstate NY, near Elmira, NY

3D Finite Element Modeling & Design of Bridge Structures **& their Foundations using STAAD**:

- Pedestrian Bridge on 78th street - over the FDR (Franklin Delano Roosevelt) East River Drive in Manhattan, New York, NY

Load Rating of Bridges.

Condition Inspection of Bridges (see "Inspections" section below).

AutoCAD & [in rare occasions] **Microstation** drafting.

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⇨ **Wilbur Smith Associates, Poughkeepsie, NY**

Assistant Team Leader for the Biennial & Interim Inspections of more than 80 bridges in Region 8 of New York State, including the ***suspended cable bridge over Rondout Creek in Ulster County***.

Implementation into company's practice of a **new NYSDOT Computer Program for fully automatic bridge inspection reporting & record keeping process (BIPPI).**

Participation in the **Reconstruction design** of **Two Reinforced Concrete Bridges** in Columbia County of NY State: on Routes 23B & 66 - both on Claverack Creek.

Level I & [primarily] **Level II Load Rating** of more than 800 bridges. Level II LR done w/ the NY State approved computer program & file system.

Rehabilitation Design for the NYS Bridge Authority (NYSBA) of Toll Booths for the Mid-Hudson & Kingston-Rhinecliff Bridge crossings over Hudson River (design & drafting w/ *Microstation*).
Bridge Inspection Reports - Preparation & Pre-Quality Control.

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BULGARIA

⇨ **Freelance Bridge Design Groups in Bulgaria (1982-1990** – simultaneously with the studies in VIAS & with the work in the Road Research Institute, Bulgaria**)**

Projects:

- **Design of new-technology bridge-structures - Balanced Cantilever Prestressed Concrete Bridge w/ spans longer than 100 meters (300 feet).**
- **Stairway Access to Bridges** for Pedestrians - **Reinforced Concrete (RC).**
- **Chief Designer** of a Multi-functional and versatile, reusable Steel Formwork, with constantly changing geometry for the Core & Outer Faces of a Balanced Cantilever Bridge Cast In-situ.

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⇨ **Road Research Institute, Sofia, Bulgaria**

Scientific Assistant (Structural Bridge Engineer).

- Chief of the Bulgarian half of a research group on the problem of "**Flexible piling** (Column-buried-in-the-soil) **reinforced concrete bridge abutments**" - joint project with a group of the former USSR;
- Team-mate in other Bridge Research & Bridge Maintenance Groups;
- **Construction & Condition Inspections** of Bridges (see "Inspections" section below);
- **Field Test work & Research work**: on the tallest bridges in Bulgaria (up to 125 m high) **w/ Precast Prestressed Concrete Beam Spans & Reinforced Concrete Piers;** on new types of steel, **concrete (Precast RC & Precast Prestressed Concrete Beams)** & FRP (fiber-reinforced polymer) bridge-structures; on newly introduced bridge-elements – as bearings, etc.;
- **Repairs & Reconstruction Design** for Existing Failed Bridge Structures **(incl. severely damaged RC Bridge Beams, severely damaged Piers w/ Flat & Pile Foundations exposed and partially destroyed – with soil beneath them washed away)**;
- **Replacement of Failed Bridge Bearings** and structural components around them;
- **Load-Tests of Mobile Trusses** for transportation & assembling of big beams on Highway Bridges;
- **Load-Tests of highway & other bridges** with electronic & non-electronic equipment, before opening them to traffic and during structure's active life;
- **Field Test** of a Tall Steel Tower temporary supporting a Steel Bridge put in place using the "jack-advanced" bridge construction technology;
- **Small software products** for particular research problems;

⇨ **"Transproekt" (State Structural & Railways Design Company) – Sofia, Bulgaria.**

Internship Practice as a student in the Technical High School for Architecture & Construction

Later projects:

- **Design of elements of Artificial Water Ways & elements of Port Structures**, e.g. Ship-Sink Elevators to link different levels of the Water Way, or Bridges to link same level valley-separated-parts of the Water Way.
- **Repairing facilities** for ships

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⇨ **VIAS (Institute of Architecture & Civil Engineering) – Sofia, Bulgaria;** Department of Solid Structures

Adjunct Teaching Assistant on Bridge Design Courses, during my Graduate Studies in Bulgaria, and during a several-months-long stay there.

FIRST DESIGN PROJECT (Prestressed in both principal directions Hollow-Slab Deck Bridges with Reinforced Concrete Columns) going together with a SCIENTIFIC RESEARCH as part of the Diploma Work towards "Diplom-Ingenieur" Degree (see **technical paper #1** in List of Publications)

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In the military (1976-77) - in Bulgaria
Technician; Building Construction

ISRAEL

⇨ **"Bloch & Sokal" Private Design Bureau, Haifa, Israel** (simultaneously with the *M.Sc. studies* in the Technion – the Technology Institute of Israel)

Bridge Designer ... Pedestrian Bridges – **Beams, Deck & Columns of Reinforced Concrete**.

MEXICO

⇨ **ICA-ISTME, Mexico City, Mexico**

Design Engineer for Elevated Subway Stations (actually Bridge structures) **of Steel & Reinforced Concrete** for the Mexico City Underground, On-ground & Overground Transportation System.

Other EXPERIENCE

Invited to participate in the **Review process of the New [3rd] Suspended Tacoma Narrows Bridge in the State of Washington** on a part-time basis …
Compilation of a **Dictionary** …

Website design & maintenance …
Filmmaking: a ***13-hour 13-part Documentary*** on the **First World Summit of people with family names Behar, Bejar, Bejarano, etc. in Spain (9/6--9/9/2004)**

Event organization & coordination:

First World Summit of people with family names Behar, Bejar, Bejarano, etc. in Spain (9/6--9/9/2004): Creation of a Database of names, regular & e-mail addresses, and telephones of prospective participants in the **Summit**; Distribution of promotional material in 5 languages to more than 4300 people in 23 countries around the World; **Web design & maintenance**; **Pre-Event coordination** among all parties involved & dispersed in different points around the World – organizers, town authorities, museum sponsor, lecturers & tour guides; **Event-coordination & Logistics during the Summit itself** in Spain involving around 100 participants & local people.

In Mexico (1990 to 1992)
Self-employed (my own small company) in Mexico City, Mexico
Area of activity:

- **Computer-based Customized Organization** of Administrative Procedures and Info-Distribution in Small Private Businesses.
- **Professional (Technical & other) Translations**.

Throughout my active professional career:
Various Editorial & Translation Companies, Bulgaria & Mexico
Translation to and from various languages (see "Languages" List below)

MAIN BRIDGE [and other] DESIGN PROJECTS:

- Two **Prestressed Concrete hollow-Plate Bridges** in Tikrit, Iraq, using the British (BS), German (DIN), American & Iraqi codes (key member of the designers group);
- **Multi-lane, multi-span bridge w/ Precast RC & Prestressed Concrete Beams** carrying a main heavy-traffic urban artery, and crossing over a wide & busy railway station area in Plovdiv, Bulgaria (member of the designers group);
- **Prestressed in both principal directions Cast-In-Situ Concrete Balanced Cantilever Bridge** on the Northern Expressway of Bulgaria - more than 100 m long spans over a deep valley; (member of the designers group, and **Chief-designer** of **the external & internal formworks** mentioned in the "Professional career" section above);
- Several **Elevated & On-ground Subway Stations** in Mexico City **of Steel & Reinforced Concrete**;
- **Pedestrian Bridge of Reinforced Concrete** in Qiriat Bialiq, Haifa, Israel (de-sign partner);
- the **Pile Foundations for the JFK Light Train** in NY City;
- **Pile Foundations for the new Victory & Edison Bridges** in New Jersey;
- **Excavation support structures** in the NY City area;
- **Underpinning** of the Russia Wharf historical buildings complex in Boston, Massachusetts;
- **Underpinning & extension of the underground**

"***Pavonia Station***" at the New Jersey side of PATH Train system;
- **Triple-simple-span Steel Bridge** carrying Sutter Ave. in Brooklyn, N.Y. (Design & Load-Rating);
- **FRP (FIBER-REINFORCED POLYMER) BRIDGE DESIGN: Replacement** of the concrete Deck of a Steel-Concrete Composite Truss Bridge ("Bentley Creek") in Upstate N.Y. (Design & Load-Rating);
- **Pedestrian Bridge** over FDR Drive at 78th Street in Manhattan, N.Y. (Finite Element Modeling);
- The new **Self-anchored Suspension Bridge** in San-Francisco-Oakland Bay Area, California;
- Chelsea Street **Vertical Lift Bridge** in Boston, Massachusetts;
- Participation in the **Reconstruction Design** of two bridges - over Claverack Creek, on Route 23B & Route 66, in Columbia County, NY State
- **TAPPAN ZEE BRIDGE** – LOAD RATING, SEISMIC ANALYSIS, ENVIRONMENTAL IMPACT STUDY (of Reconstruction, Duplication, and several Replacement options), CONCEPT DESIGN of CURVED CABLE-STAYED PEDESTRIAN APPROACH TO THE BRIDGE …
- **2nd Ave. & 14th Ave. Bridges** in Brooklyn, N.Y. (*Load Rating* and *Design of Temp. Support Structures* necessary for demolition in stages of the existing structures);
- **WHITESTONE EXPWY AT VANWYCK EXPWY JUNCTION** – A very complex system of Temporary Bridge Structures necessary for the reconstruction in stages of the Junction …
- **Battery Park Underpass** in Manhattan, N.Y. – Concept & Structural designs of the tunnel extension at the West St. exit of the Underpass **– a Reinforced Concrete Box Structure**;
- **BEN FRANKLIN SUSPENSION BRIDGE** between Philadelphia**,** PA & Camden, NJ – Reconstruction Assessment & Alternatives;
- Invited to participate in the **Review process of the New [3rd] Suspended Tacoma Narrows Bridge in the State of Washington** on a part-time basis …
- others ...

MAIN INSPECTION PROJECTS:

CONDITION (MAINTENANCE) INSPECTIONS:
In U.S.:
- **Manhattan Bridge (1999 Interim Inspection)** – Baker Engineering, Weidlinger Associates, HAKS, Wagh Engineers;
- Bridge Structures carrying the **Approaches to the Port Authority Bus Terminal from Lincoln Tunnel** in Manhattan, N.Y. (preparation of Flag Reports – IKW Engineers, Wagh Engineers);
- Over **80 bridges in Region 8** of NY State, including a **Suspended Cable Bridge** over Rondout Creek in Ulster County – Wilbur Smith Associates.

In Bulgaria:

STEEL TRUSS BRIDGES
- in the Rodopi Mountains near the city of Kurdjali, Southern Bulgaria;
- on the Maritza River near the city of Purvomai;
- near the City of Elhovo in Southern Bulgaria;
- a bridge near the City of Mihailovgrad – with a preliminary project to move the existing narrow structure to a less populated area, while replacing it with a wider structure.

OLD ARCH STONE BRIDGES
- a cracked Stone Masonry Bridge in the City of Roman, Northern Bulgaria -with a project for rehabilitation;
- near the City of Mihailovgrad, Northern Bulgaria – with a project for rehabilitation.

RELATIVELY NEW REINF. CONCRETE BRIDGES
- near the City of Pleven, Northern Bulgaria;
- a three-span Bridge over the Osum River, near the City of Lovech, Northern Bulgaria – with foundations on piles (exposed after scour);
- near the City of Strajitza – a failed Bridge after an EQ;
- on the Northern Expressway – a bridge damaged by trucks due to a low vertical clearance.

OTHER REINFORCED CONCRETE. BRIDGES
- a multispan Cantilever Bridge over the Maritza River near the City of Plovdiv, Southern Bulgaria – condition inspection preceding our rehabilitation project for replacement of failed bearings and the concrete around them;
- a bridge over the Roussenski Lom River near the City of Rousse – a very high and long multi-span deteriorated Reinforced Concrete Open Spandrel Arch Bridge with a frame above the arches supporting the deck;
- the Pile-type & Retaining-Wall-type Abutments of significant number of recently built and older Reinforced Concrete Bridges related to a comparison and improvement study of the behaviour of said abutments;
- a very long multi-span "simple-beam" Reinforced Concrete Bridge along the Northern Expressway near the capital Sofia – condition inspection preceding the project for reconstruction of the failed abutments.

CONSTRUCTION INSPECTIONS & IN-SITU LOAD TESTS:

In Bulgaria:
- a week-old Prestressed Concrete Bridge near the City of Pleven, that was to be urgently opened for traffic. **In-Situ Load-Tested**;
- a Steel-Reinforced Concrete Composite Bridge over main R.R. lines – inspected & **In-Situ Load-Tested** during night traffic-free windows;
- two new very tall & long Steel-Box & Steel-Truss Multi-span Bridges along the Northern Expressway of Bulgaria – inspected & **In-Situ Load-Tested** before opening to traffic, monitored during the **Load-Test**, and later on;
- the piers & superstructure of the tallest (128 m tall) Prestressed Concrete Bridge along the Northern Expressway – inspected regularly during erection, prior to

In-Situ Load-Tested & opening to traffic, and after that;
- numerous other smaller Prestresssed & Reinforced Concrete bridges along the same mountain portion of the Northern Expressway ...

TECHNICAL PUBLICATIONS:

Available for review at: *http://mbehar.natureavenue.com*

- ***"Calculation of Internal Forces in Reinforced Concrete & Prestressed Concrete Structures subject to Thermal Effects"***, related to my first research during the Diploma-work towards the "Dipl.-Ing." Degree, "Roads" Magazine, Bulgaria, issue No.11, 1987;
- ***"Buried-in-the-Soil RC Abutments (Flexible Piling) for Motorway Bridges – Results of the Investigation & In-Situ Tests of a series of Bridge Structures"***, simultaneous publication in:
  a) "Roads" Magazine, Bulgaria, issue #6, 1988 (in *Bulgarian*), and
  b) "Motor Roads" Magazine, USSR, issue #2, 1989 (in *Russian*);
- ***"Thin-Walled Concrete Bridge Piers – Local and Overall Stability"***, related to my Graduate Research in Bulgaria, "Roads" Magazine, Bulgaria, issue No. 3, 1990;
- ***"Graphical Presentation in Axonometry of the Surfaces of Influence and Surfaces of Internal Forces & Deformations in Plates"***, related to my Graduate Research in Bulgaria, "Roads" Magazine, Bulgaria, issue No.5, 1990;
- ***"Program for Solution of Beams on Bi-Moduli and Non-Linear Elastic Foundation"***, related to, and made for the purpose of a Course given in the Technion, Israel – suitable also for the Engineering Practice, "Roads" Magazine, Bulgaria, issue No.3, 1994;

OTHER NON-TECHNICAL PUBLICATIONS:

available at: *http://mbehar.natureavenue.com*

MAJOR RESEARCH WORKS:

- ***"Computation of Internal Forces in [RC & Prestressed Concrete] Structures subject to Thermal Influences"***, 1983 – my first research made as part of my Diploma-work towards the "Dipl.-Ing." Degree, related to item No.1 in the list of Technical publications;
- ***"Buried-in-the-Soil [RC] Abutments (Flexible Piling) for Motorway Bridges – Results of the Investigation & In-Situ Tests of series of Bridge Structures "***, 1983-1988, during my work as a Scientific Assistant in the Road Research Institute in Sofia, Bulgaria, related to item No.2 in the list of Technical publications;
- ***"THIN-WALLED CONCRETE BRIDGE PIERS – LOCAL AND OVERALL STABILITY"***, 1988-1990, the topic of my Graduate Research in Bulgaria, related to item No.3 in the list of Technical publications;
- ***"Reassessment of the Procedure for Loading Tests of Concrete Beams & Slabs"***, 1993-95, the topic of my M.Sc. Graduate Research, Thesis submitted & published in the Technion, Israel;

PROFESSIONAL MEMBERSHIPS

- Bulgarian Scientific & Technical Union (till the beginning of 1990s);
- American Society of Civil Engineers (**ASCE**), Memb. # 340194;
- American Concrete Inst. (**ACI**) – Memb. # 918770
- Structural Engineering Institute (**SEI**) – Charter Member
- Institute of Transportation Engineers (**ITE**) – Associate Member

WEB DESIGN & MAINTENANCE:

- **Design & Maintenance of Three Websites**

COMPUTER PROGRAMMING:

- **Creation of Computer Software**: Graphoanalytical programs made by me, like: *"Beams on elastic foundations ", "3D graphical presentation of Deformations & Internal forces"*, etc.
- **Programming languages** studied & used for *these* programs: FORTRAN, Algol, TurboBasic, Assembly
- **Other [newer] programming languages:** *Visual BASIC*, *HTML*, *Java* (partially), *C++* (partially) ...
- **Experience with Databases & other computer programs**: ***AutoCAD, Microstation,*** *dBase*, *DataEase SAP*, ***STAAD, LARSA, RISA,*** *MathCAD*, *BIPPI*, all components of *MSOffice* (incl. the database manager *MSAccess*), *Corel*, etc. …

LANGUAGES:

English, Spanish, Bulgarian, Hebrew, Russian ...
(*translations* made to & from all of the above languages)
using also: French, German, Italian ...
(*translations* made from all of the above languages)
reading: Portuguese, Serbian & other Slavic Languages.
(*translations* made from some of the above languages)

PATENTS:

- *Pat. #5957056* **U.S. Patent Office** in Washington, D.C. (1999), and *Pat. #113728* – **Israeli Patent Office** (2001) – for the same invention – concept & details for a **People Mover**.
- *Pat. #113729* – **Israeli Patent Office** (1999) – for another invention related to **Prestressed Concrete Walls.**

FILMMAKING:

- A ***13-hour 13-part Documentary*** on the **First World Summit of people with family names Behar, Bejar, Vejar, Bejarano, etc. in the City of Béjar in Spain (9/6--9/9/2004)**