



NAME: **AVIHU HIRAM**



Process Design and Process control Engineer

DATE OF BIRTH : 1948

EDUCATION : Technion - Israel institute of technology.
QUALIFICATIONS M.Sc. Chemical Engineering-1977.
B.Sc. Chemical Engineering-1974.

LANGUAGES : Hebrew, English and Spanish - speaking, reading & writing.
Knowledge of Arabic.

SPECIAL AREAS : Advanced Process Control and Instrumentation.
OF INTEREST Process Information Systems.
PID Tuning,
Process Control Training
Process and Process Control engineers Apprenticeship,
Energy Management
Refineries Operations.
Natural Gas Processing.
Process and Anti Corrosion Additives.
Expert Systems.



1989 - Present

Consultant Engineer, owner and manager of "HIRAM Process Control Engineering."

Energy survey – (4/2015) “**John Deere BH ltd.**”

Servo Systems – Process and Control modifications – (1/2015 – cont.)

“**BL – Advanced Ground Support Systems ltd.**”

Effluent Treatment Plant – Stage 1 (12/2014)

“**Periclase**”

Polpan

- Process Control Design implementation (12/2014)

Merpan

- Process Control Design implementation (6/2014)

Merpan/ Polpan

- Process control Design (4/2014)

“**Machteshim**” **Chemical Works ltd.**

Process Engineers Apprenticeship Phase B (4/2014):

- Hot Crystallization KCl Production – whole train application
- KCl Dryer furnace Fuel Oil to Fuel gas replacement – additional furnaces.
- KCl filtration process design and process control
- Silvenit – KCl extraction process design and process Control
- “**Dead Sea Works**”, Potash Production section.

Process and Energy Survey – “**Ahva ltd.**” (3/2014)

“Steam System Pressure Adjustment to Reduce Steam Blow-Off”

- “**Rotem Amphert Fertilizers Ltd**”, Mishor Rotem, Israel (2/2014)

Azeotrope Distillation – **Dor Chemicals ltd.** (1/2014)

Energy Survey – **F. C. Galil Herbs ltd.** (12/2013)

Energy Survey – **Starkist ltd.** (10/2013)

Energy Survey – **Dor Chemicals ltd.** (1/2013)

Process Engineers Apprenticeship Phase A (11/2012):

- Hot Crystallization KCl Production
- KCl Dryer furnace Fuel Oil to Fuel gas replacement
- Scrubber pH control
- KCl Palletizing plant process streams control
- KCl Palletizing plant color dosing and control
- KCl Crystallizer density control

“**Dead Sea Works**”, Potash Production section.

- Sulfuric acid Process Improvements. (8/2010)



- White Phosphoric Acid Process Improvements. (6/2010)
- Phosphor salts plant process improvements. (4/2010)
- Phosphate fertilizers Palletizing plant process improvements. (5/2010)
- Process design and control loops tuning, Green phosphoric acid plant – "**Rotem Amphert Fertilizers Ltd**", Mishor Rotem, Israel (8/2010)

Process engineering

- Process and control loops tuning for the Steam system (11/2009)
 - MA Drying plant process modifications design (6/2010)
- "Bromine Compounds Ltd."**, Ramat Hovav, Israel.

Process engineering, control upgrade and control loops tuning

- Gasoline HDS (9/2008)
 - Kerosene HDS (12/2009)
 - Fuel gas HDS (3/2009)
- "Oil Refineries Ltd."**, Haifa, Israel.

Controllers tuning in the Juice concentrate plant "**PriGat Ltd.**" (4/2008)

Steam System Optimization, "**Carmel Chemicals Ltd.**", Atlit, Israel. (1/2007)

Process and Process Control modifications in an Ethylene plant,

- Polypropylene expansion (1/2006)
- Controllers tuning – Hot area (3/2007)
- Controllers tuning new METHATESIS area (4/2007)
- DePropanizer column controllers tuning (6/2007)
- Process engineering and controllers tuning – Cold Area (7/2007)
- Process engineering and controllers tuning – Ethylene furnace (7/2007)

"Carmel Olefins Ltd.", Haifa, Israel.

CCR Process and Process Control trouble shooting, "**Oil Refineries Ltd.**", Haifa, Israel. (11/2006)

Statistical Methods for Process Control Applications, **Gadiv**, "**Oil Refineries Ltd.**", Haifa, Israel (10/2006)

Steam System Optimization, "**Dor Chemicals Ltd.**", Haifa, Israel. (2/2006)

NIR Analyzer startup for a CCR plant, VALCOR, "**Puerto la Cruz refinery**" – Puerto la Cruz, Venezuela. (6/2004)

Heat Exchangers performance Monitoring System, – "**Oil Refineries Ltd.**", Haifa, Israel. (4/2003)



Integration of Oil-Water emulsion in furnace systems – **“Fuel Technologies Blue and White Ltd”**, Ariel, Israel. (6/2001)

Pulse Nickel Extraction columns - Overhead Tanks Volume – Configuration and Control –**“GORO Nickel S.A.”** New Caledonia, for **“Bateman Engineering Ltd”**, Yokneam, Israel. (3/2001)

NIR Analyzer for a gasoline blender in **“Puerto la Cruz refinery”** – Puerto la Cruz, Venezuela. (6/2000)

Gasoline blending design and vendor selection for **“Gulf – Caribbean Petroleum refining Limited Partnership”**, San Juan – Puerto Rico.

Process Control Improvements Design of VCM Plant -for **“Electrochemical Industries (Frutarum)”** - Acco.

Process Design & Implementation of **NIR** Analysis Technology - for **“Petrometrix”** - Migdal HaEmeq.

Process Control Design & Implementation -Orto Xylene Splitter - Trays addition and Replacement- for **“Gadiv”** - Haifa.

Technical representative of **“NALCO/EXXON Energy Chemicals Ltd.”** in Israel. (1992-1997)

Project Engineering of a Central Information System based on **‘Oil Systems’ PI** - for Haifa Plant of **ORL**

Visbreaker #4 - Process operation, Control and optimization. for **ORL** - Haifa

TDC 2000 - TDC 3000 Control System Upgrading -for **HBO** - Haifa.

Process Control for **HBO** Production Units:

- DAO Unit
- Furfural Extraction

Project Management of Central Control Room Architectural Face Lifting and Rearrangement for **ORL** - Haifa.

Project Management of Yogurt Production Unit Upgrading -for Naharia Dairy - **Strauss**.

Central Process and Production Information System -TDC 2000 - TDC 3000 / PMX - VAX - ACS for **ORL** Haifa.



Process Control Design & Implementation -
De-Heptanizer
Orto Xylene Splitter
Xylene - C₉ Separation
- for **Gadot Petrochemicals** - Haifa.

Caramel Extract Production Improvement - study for Naharia Diary -
Strauss.

Lube Oil MIBK De waxing & Furfural Extraction Process Control
Design and Process Improvements - for **HBO**.

Stabilizer / Splitter Process Control Design and Implementation - for
ORL.

Catalyst Production Pilot Plant Start Up for **MoD**

1984 - 1989

Ludan Engineering Co. Ltd. - Haifa, Israel

Senior process design and process control engineer.

Haifa and north area office manager (1986 - 1988).

Advance process control applications in Crude Unit- for **ORL**.

Topping products quality control.
Stripper operations control.
Heat management optimization.
Statistical Process Control.
Control system updating.
Advance control application on TDC 2000.
Visbreaking operation Control and optimization.
Stabilizer operation control.
Splitter operation control.

Detailed Process and Mechanical design for catalyst production pilot
plant - for **MoD**.

Feasibility study for the computerization of a Dairy- for **Strauss**,
Naharia.

Connection of a new Crude Unit to the main Information and Control
System including responsibility for : Graphics, Reports, Data Processing
and Control System start-up (TDC 2000) -for **ORL** – Haifa.



Preparation to connect an Ethylene plant to the main Information and Control System and replacement of a Data Acquisition Computer - for **ORL** – Haifa.

1982 - 1984

Foster Wheeler Energy Ltd. Reading, U.K

Senior Process Design Engineer.

Participated in the proposals and design of **gas Processing** units - mainly **Ammonia** and **Methanol** Production units.

Gold Ore Processing Process Design - Proposal for **Petromin**, Saudi Arabia

Power Co-Generation in Urea / Ammonia plants.

Oil Wash unit proposal for **British Gas**.

Proposal for Hydrogen Plant for **IOCL** - India.○

Process Design of a Coal Gasification Plant (U - Gas) for **RSA**.

Process and Economic Study for a Nitrogen Fertilizer Complex in Mozambique.

Fire main, Water System, Steady State study for **Scanraff** Refinery in Sweden.

Heat Integration Optimization Studies for Ammonia and Methanol plants using "Linhoff" technique.

Proposals for Various Fertilizers Plants.

1978 - 1982

Fertilizers and Chemicals Ltd., Haifa, Israel.

Process and Process Control Engineer Pre Engineering of new Nitric Acid Plant and participation in the Cost Estimation.

Responsible for Modifications to Ammonia plant.

Participated in the Specification, Design, Purchase, Installation and Start Up of a Computer Control System for an existing Ammonia plant. (Fisher Controls AC² - DC²)

Supervising Shift Engineer.

1974 - 1977

IBM - Israel Scientific Center



Junior Research Engineer.

Participated in research projects on:

File Management Routines (for Medical Applications).

Cardiac Output Estimation from Respiratory Data.

Teaching Experience

- 2010-2012 "Practical Process Control" course – chemical Engineering department, the academic college in Jerusalem.
- 2006 - Workshops on Practical Process control for engineers and key personnel in Process Design and Process Control areas in the industry.
- 1979 - 1980 Adjunct Lecturer - Process Control Laboratory, Chemical Engineering Department, Technion - Israel Institute of Technology, Haifa.
- 1974 - 1977 Graduate Assistant - Process Control Laboratory, Chemical Engineering Department, Technion - Israel Institute of Technology, Haifa.

Professional Affiliations:

- Member of the Israel Institute of Chemical Engineering (IICHE).
- 1993-1994 Nominated Secretary of IICHE.
- Senior Member of the Instrument Society of America (ISA).
- Member of the Israel Association for Automatic Control (IAAC)

Publications and Professional Presentations :o

- M. Sc. Thesis **"Application of Small Computers in Process Control - Liquid - Liquid Extraction."** (Supervisors: Prof. R. Lavie, Prof. W. Resnick). M. Sc. dissertation, Technion - Israel Institute of Technology, 1977.

Voluntary contributor to

"Refining Online Q&A"

(<http://www.refiningonline.com/qaBrowse.asp>)

"Eng-Tips" (<http://www.eng-tips.com/>)

"The significance of NIR Analysis to Process Control" NIR Seminar, May 1997, Tel Aviv.



"Use telecommunications for real-time process control",
Hydrocarbon Processing, May 1996 (With I. Zilberman, J. Bigman, I. Sela and D. Haviv)

"Process Plant Bottleneck Identification with Process Information System - Visibility Proof." - Annual meeting of IICHE, Haifa, April 1995 (With E. Rosenblat.)

"Corrosion Monitoring in the Oil Refinery" - NACE International Conference - Grado, Italy - May, 1995. (With Dr. A. Groisman.)

"The Development of Statistical Model for Process Control." - ISRACHEM Tel Aviv -, April 1991. (With Dr. D. Farhi.)

"Advanced Control in the Control of a Crude Unit -The Atmospheric Topping Section." - The Journal of the Israel Institute of Chemical Engineering, No. 17, March 1989. (With R. Shimron.)

"Application of Adaptive Methods to the Control of a Crude Distillation column." - ICON - IEEE Conference on Control, Jerusalem, April 1989. (with G. Mendelson.)

"Advance Process Control Application in New Crude Unit." - Annual meeting of IICHE, Be'er Sheva, April 1987. (With E. Bilik.)

"Application of Advanced Process Control System In a Chemical Plant." - Annual meeting of IICHE, Shefaim, April 1985.

"Advanced Process Control System for a Chemical Plant - From Definition to Operation." -International PROMECON Control and Instrumentation Conference and Exhibition, The Institute of Measurement and Control, London, June 1984.

"A Computer for Ammonia Production Control." - ICAC, Tel Aviv, 1979.

"Selection of Small Computer for Process Control."- Israel section of ISA, Tel Aviv, 1979.

"Application of Small Computer in the Control of an Industrial Process." - Annual meeting of IICHE, Be'er Sheva, April 1977.

Internal Publications



"The NIR role in today's refineries' activities" – Internal report for "GULF – Caribbean Petroleum Corporation", San Jose, Puerto Rico, April 2000.

"Advanced Process Control System Selection for Crude Unit #4"
Final report on Comparison of three systems (DMC, Star and Treiber) for ORL - 1993.

"File Management Routines for Computer Assisted Medical Diagnosis system." With B. Gavish and W. Schild, IBM Scientific - 1974 -Research Center

"Feasibility of Cardiac Output Estimation from Respiratory Data." - With I. Berger and S. Burshtein, IBM Scientific Research Center - 1975.

Selected questions answered by A. Hiram on [Refining On Line](#) (in the order of its appearance).

[Q 322-OnLine NIR for Gasoline Blending](#)

[Q 656-HSD On-Line Analyzer](#)

[Q 704-Draft furnace which fired by both fuel gas and fuel oil.](#)

[Q 980-Control of Losses of Dispatching and Receiving of Oil Refined Goods.](#)

[Q 981-Control strategies for a Delayed Coker plant in a refinery.](#)

[Q 987-Gasoline Blending](#)

[Q 991-Benefits from Traditional Advanced Control](#)

[Q1001-Give-Away Calculation](#)

[Q1023-Effect on the yield of petroleum if the compositions of the product mix are changed.](#)

[Q1032-Alternatives to Management/Disposal of Sludges from Bottoms of Hydrocarbon Tanks](#)

[Q1034-Number of on line analyzers required to have an efficient process plant operation and the places to locate these.](#)

[Q1060-Calculating diameter, choosing the trays, calculating temperature & control it, and calculating the material & heat balance.](#)

[Q1194-Control of Pump House](#)

[Q1280-Crude Distillation Products Control](#)

[Q1292-Steam cracker process, feed and products and its integration to oil refinery.](#)

[Q1296-The orientation of reactors/columns/vessels/towers in a process plant](#)

[Q1297-Visbreaking](#)

[Q1310-Corrosion in cooling water](#)

[Q1314-Visbreaker and Vacuum Units Monitoring](#)



[Q1346-Corrosion Monitoring Software for Refinery](#)

[Q1347-Limit of Asphalt Content in the Feed Stock to Visbreaker Unit](#)

[Q1462-Information Technology in the Operations of a Refinery](#)

[Q1686-Distillation column Overhead Differential Pressure Control](#)

[Q1716-Viscosity Mixture Calculations](#)

[Q1838-Which operating variables in CDU should be adjusted to keep products on specs?](#)

[Q1949-Naphtha Stripper Reboiler Operation](#)

[Q2076-Distillation and Diffusion Coefficient](#)

[Q2079-I-C5 Separation from Naphtha Petrochemical Feed](#)

[Q2370-Bromine number and its impact on desulphurization in hydrotreaters.](#)