



**Name: Eliav Menachi**  
College of Management Academic Studies  
School of Computer Science

**Date: July 2016**

## **CURRICULUM VITAE**

### **1. Personal Details**

Permanent Home Address: Tel Hai 31/7 Ashdod

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Marital Status: Married +2

### **2. Higher Education**

#### **A. Undergraduate and Graduate Studies**

B.Sc. in Communication Systems Engineering, *Ben-Gurion University, Communication System Engineering.*

Summa cum laude, cumulative grade 95.

Graduation date 2000

M.Sc. in Information Systems Engineering, *Ben-Gurion University, Industrial Engineering and Management, Information Systems.*

Thesis: Service Layer Architecture for Ethernet-based Networks.

Supervisor: Prof. Ran Giladi, Dept. of Communication Systems Engineering

Graduation date 2009

#### **B. Doctoral Degree and Post-Doctoral Studies**

PhD. in Information Systems Engineering, *Ben-Gurion University, Industrial Engineering and Management, Information Systems Engineering.*

Research: Ethernet Transport Networks

Supervisor: Prof. Ran Giladi, Dept. of Communication Systems Eng.

Graduation date 2014

Post-Doctoral in Information Systems Engineering, *Ben-Gurion University, Industrial Engineering and Management, Information Systems Engineering.*

Research: Ethernet Transport Network

Supervisor: Prof. Ran Giladi, Dept. of Communication Systems Eng.

Graduation date 2015

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### **3. Academic Ranks and Tenure in Institutes of Higher Education**

| <b>Dates</b> | <b>Institution and Department</b>          | <b>Rank/Position</b>    |
|--------------|--|-------------------------|
| 2010-1014    | Communication System Engineering, BGU      | Junior Academic Staff   |
| 2010-1014    | Industrial Engineering and Management, BGU | Junior Academic Staff   |
| 2013-2016    | Computer Science, HIT                      | External Academic Staff |
| 2012-2013    | School of Computer Science, COLMAN         | External Academic Staff |
| 2014         | School of Computer Science, COLMAN         | Academic Staff          |
| 2015-2016    | School of Computer Science, COLMAN         | Research Academic Staff |

### **4. Offices in Academic Administration**

1. 2011, Organizing Mobile Application Contest sponsored by Google, *Department of Communication System Engineering, Ben-Gurion University of the Negev*
2. 2013 – 2016, Head of Mobile Systems Program, *School of Computer Science, College of Management Academic Studies*
3. 2015 – 2016, Head of Computer Communication Technologies, *School of Computer Science, College of Management Academic Studies*
4. 2015 – 2016, Member in the Teaching Committee, *School of Computer Science, College of Management Academic Studies*
5. 2014 – 2016 Member in the Unit Committee, *School of Computer Science, College of Management Academic Studies*
6. 2016 Member in the Steering Committee of the Center for Solving Major and Complex Problems, *College of Management Academic Studies*
7. 2016 Head of Industry Relations and Collaboration, *School of Computer Science, College of Management Academic Studies*
8. 2016 member of the Center of Career Management, *College of Management Academic Studies*

### **5. Scholarly Positions and Activities outside the Institution**

2008 – 2009 ETNA Project manager, *Communication System Engineering, Ben-Gurion University of the Negev*

Managing Research & Development of ETNA's (FP7 Future Ethernet) project at BGU. Coordinating consortium partners (BT, NSN, ETHOS and TKK). 2 years project funded by EU grant of 2MEuros.

- Managing a research team of 3 Ph.D's academic staff and 12 under graduate students.
  - Developing a generic forwarding element based on EZchip network processor
  - Implementing network protocols: IS-IS, RSTP, MSTP, 802.1D/Q/ad/ah
  - Developing proprietary network protocols over Ethernet
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## 6. Participation in Scholarly Conferences

### Active Participation

| Date | Name of Conference                                     | Place  | Subject of Lecture/Discussion  | Role           |
|------|--|--------|--|----------------|
| 2009 | IEEE GLOBECOM Workshop on Below IP Networking          | Hawaii | ETNA's Service Layer Architecture for Automatic Provisioning of Inter-Domain Ethernet Transport Services | Article writer |
| 2010 | Networking and Electronic Commerce Research Conference | Italy  | A Service Layer for Providing Inter-CSP Transport Services   | Presenter      |
| 2015 | Mobile 2015  | Israel | Selected Graduate mobile applications  | Presenter      |

## 6. Invited Lectures\ Colloquium Talks

| Date | Place of Lecture  | Name of Forum | Presentation/Comments      |
|------|---|---------------|----------------------------|
| 2014 | Department of Industrial Engineering and Management, Ben-Gurion University of the Negev | Colloquium    | Ethernet Transport Network |
| 2016 | School of Computer Science, College of Management Academic Studies                      | Colloquium    | Ethernet Transport Network |

## 7. Scholarships, Awards and Prizes

- 1997, Rector's Summa Cum Laude Awards, *Ben-Gurion University of the Negev*
  - 1998, Rector's Summa Cum Laude Awards, *Ben-Gurion University of the Negev*
  - 1999, Rector's Summa Cum Laude Awards, *Ben-Gurion University of the Negev*
  - 2000, Award for Excellence, *Communication Systems Engineering, Ben-Gurion University of the Negev*
  - 2010, Summa Cum Laude Award for Research, *Industrial Engineering and Management, Ben-Gurion University of the Negev*
  - 2011, Award for Excellence in Research, *Industrial Engineering and Management, Ben-Gurion University of the Negev*
  - 2012, Award for Excellence in Research, *Industrial Engineering and Management, Ben-Gurion University of the Negev*
  - 2014, Award for Excellence in Research, *Industrial Engineering and Management, Ben-Gurion University of the Negev*
  - 2014, Award for Excellence in Teaching, *School of Computer Science, College of Management Academic Studies*
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## 8. Teaching

### a. Courses Taught in Recent Years

| Year        | Course Name                          | Type: Lecture/Seminar/Workshop/<br>High Learn Course/Introduction | Degree | No. of Students |
|-------------|--------------------------------------|---|--------|-----------------|
| 2012-2016   | Mobile Operating Systems (iOS)       | Lecture   | B.Sc.  | 40              |
| 2012 - 2016 | Mobile Operating Systems Seminar     | Seminar   | B.Sc.  | 40              |
| 2012 - 2016 | Communication Networks               | Lecture   | B.Sc.  | 80              |
| 2012 - 2016 | Network Programming Lab              | Programming Lab   | B.Sc.  | 40              |
| 2012 - 2016 | Mobile System Programming (Android)  | Lecture   | B.Sc.  | 40              |
| 2014        | Object Oriented Software Engineering | Lecture   | B.Sc.  | 40              |
| 2014        | Object Oriented Programming          | Lecture   | B.Sc.  | 40              |

## 9. Professional Experience

2005 – 2006 Co-Founder, *SQLSwell*

SQLSwell, innovative startup in the database auditing solutions, was involved in the following activities:

- Developing real-time Intrusion detection application for Databases
- Developing auditing solution for Databases
- Reverse engineering of NET8 Protocols
- C++ on windows platform

2006 – 2008 Project manager , *SUNGARD*

Managing the design and development of banking communication systems.

- Managing large scale, core projects of SunGard
  - Managing a team of 7 developers
  - Managing offshore developers in Belgium and India
  - Developing in Java, C, C++, Corba, SQL, ORACLE
  - Platforms: Solaris, AIX, Windows
  - Integration with Legacy systems
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2008 – 2009 Consultant, *LiveU*

Designing and developing liveU's application.

- Architecture, Design & Implementation of LiveU application
- Cellular application for broadcasting live high quality video
- C++ on windows platform
- Designing proprietary communication protocol for high quality channel with low latency over multiple cellular channels using UDP and FEC mechanisms.

2014 – 2016 Co-Founder, *Sports Sidekick*

Sports fans social network platform which got 3MGBP first round funding.

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## **PUBLICATIONS**

### **A. Ph.D. Dissertation**

**Menachi E.**, “Ethernet Transport Networks”, PhD dissertation, Ben-Gurion University in the Negev, 2014, 112 pages, English, supervised by Prof. Ran Giladi.

### **B. Other Scientific Publications:**

#### **Published**

1. Berechya, D., Vershkof, I., Giladi, R., **Menachi, E.**, Avin, C., Porat, H., Kantola, R., Louma, M., Lamminen, O-P., 2008, “WP2 Network Architecture”, ICT-ETNA Report D2.1, European Community's 7th Framework Program [FP7/2007-2013] Ethernet Transport Network Architecture (ETNA) grant 215462, <http://www.ict-etna.eu/documents/ETNA%20WP2%20Network%20and%20Service%20Architecture%20-%20D2.1%20R2%20-%20Issue%202.pdf>
2. Giladi, R., **Menachi, E.**, 2008, “WP3 Simulation and Prototyping goals, requirements and models”, ICT-ETNA Report D3.1, European Community's 7th Framework Program [FP7/2007-2013] Ethernet Transport Network Architecture (ETNA) grant 215462, [http://www.ict-etna.eu/documents/ETNA\\_D3\\_2\\_simulation\\_package\\_v1\\_1.pdf](http://www.ict-etna.eu/documents/ETNA_D3_2_simulation_package_v1_1.pdf)
3. Giladi, R., **Menachi, E.**, 2009, “WP3 Simulation Package - Guidance”, ICT-ETNA Report D3.2, European Community's 7th Framework Program [FP7/2007-2013] Ethernet Transport Network Architecture (ETNA) grant 215462, [http://www.ict-etna.eu/documents/ETNA\\_D3\\_2\\_simulation\\_package\\_v1\\_1.pdf](http://www.ict-etna.eu/documents/ETNA_D3_2_simulation_package_v1_1.pdf)

### **C. Articles in Refereed Journals**

#### **Published**

1. **E. Menachi** and R. Giladi, “End-to-End Flexible Transport Service Provisioning in Inter-CSP Environment”, *IEEE Communication Magazine*, vol. 48, no. 8, August 2010, pp. 118-125 (I.F. 5.125).
  2. **E. Menachi**, C. Avin and R. Giladi, “Scalable, Hierarchical, Ethernet Transport Network Architecture (HETNA)”, *Journal of Telecommunication Systems*, Vol. 49, No. 3, pp. 299-312, 2012 (I.F 0.822).
  3. **E. Menachi** and R. Giladi, “Hierarchical Ethernet Transport Network Architecture for backhaul cellular networks”, *Wireless Networks Journal*, DOI 10.1007/s11276-013-0578-9, 2013 (I.F. 1.006).
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## **D. Articles in Conference Proceedings**

### **Published**

1. Giladi, R. and **Menachi, E.**, 2009, "ETNA's Service Layer Architecture for Automatic Provisioning of Inter-Domain Ethernet Transport Services", 2009 IEEE GLOBECOM workshop on Below IP Networking (BIPN2009), Honolulu, Hawaii
2. **Menachi, E.** and Giladi, R., 2010, "A Service Layer for Providing Inter-CSP Transport Services", Networking and Electronic Commerce Conference (NEAC2010), Riva-del-Garda, Italy

## **E. Other Publications**

1. 2001, Giladi, R., Shurman, M., Feldman, M., Gang, S., Kfir, Z., Turkel, I., **Menachi, E.**, Weinraub, Y., "Information Retrieval System", Israel Patent No. 141599
2. 2001, Giladi, R., Turkel, I., Kfir, Z., Gang, S., Moskovich, R., Levy, E., Shurman, M. **Menachi, E.**, "Tree Search Unit", Israel Patent No. 145040
3. 2002, Levy, E., Kfir, Z., Kaplan, Y., Ben-Eliahu, R., Turkel, I., Moskovich, R., **Menachi, E.**, Giladi, R., Gang, S., Shurman, M., "Dynamic Information Retrieval System", US Patent No. 60/359,247
4. 2002, Turkel, I., Moskovich, R., Levy, E., **Menachi, E.**, Kfir, Z., Giladi, R., Gang, S., Weinraub, Y., Shurman, M. "Information Retrieval System", World Patent No. PCT/WO 02/067145/A2
5. 2002, Turkel, I., Moskovich, R., Levy, E., **Menachi, E.**, Kfir, Z., Giladi, R., Gang, S., Weinraub, Y., Shurman, M., "Query Resolution System", World Patent No. PCT/WO 02/067146/A2

## **F. Summary of My Research Activities and Future Plans**

Ethernet technology is not inherently scalable, and yet Ethernet dominates LANs (Local Area Networks), and recently has diffused to access, aggregation networks, and MANs (Metro Area Networks). Ethernet is even considered for transport networks in the backbone. Many solutions from IEEE (the Institute of Electrical and Electronics Engineers, IETF (the Internet Engineering Task Force), and MEF (the Metro Ethernet Forum) are considered for enabling Ethernet beyond LANs and bridged LANs. However, Ethernet addressing and forwarding mechanisms restrict Ethernet from being fully scalable, and confine it mainly to home and enterprise networks. This is due to the use of "flat" Ethernet MAC (Media Access Control) addresses, which leads to the need to store and maintain all MAC addresses in every forwarding node, broadcasting frames with unknown addresses and flooding the network with ARP (Address Resolution Protocol) requests. Ethernet also lacks some basic networking capabilities that are required in contemporary networks, certainly in the aggregation, metro, and transport networks, e.g., mobility and



QoS (Quality of Service) support.

My research aimed to overcome the deficiencies of traditional Ethernet and complement Ethernet lack in functionality to enable the use of Ethernet in complex and demanding network infrastructures.

Specifically:

In large networks such as large organizations, data centers, wireless backhubs etc., we aim to overcome the scalability issues, while maintaining Ethernet simplicity and frame structure, without affecting the end point devices in the network.

In transport networks we complement Ethernet lack of QoS and OAM, and enable transport services while using standard Ethernet frames.

In high throughput networks such as Data centers we aim to provide Traffic Engineering which will increase the network throughput and better utilize the available network resources.

In my research I present a Hierarchical Ethernet Transport Network Architecture (HETNA). A network infrastructure that provides scalability, mobility, protection, and QoS support in an efficient forwarding manner. In addition, my research deals with data centers and cellular backhubs networks, adaptive routing for high throughput networks solutions and NFV and SDN infrastructures.

Recently I have started a joined research with Dr. Yehuda Elmaliyah regarding maintaining network connectivity for discovery robotic systems in confound places such as tunnels or urban places. The research is aiming to enable a continuous network link between an operator and a remote controlled robot in scenarios where there is no direct communication link between the two.

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