



**Mentee: Victor - Mentor: Sophie**

**Amnon Shashua, 64-year-old founder & CEO of Mobileye, is a [world-class expert](#) in ADAS/AV**



*"It's not the money.  
What we want to do is  
change the world."*

 **Education**

- 1989-1993: PhD at MIT, USA
- 2017-now: Professor of Computer Science at The Hebrew University of Jerusalem, Israel

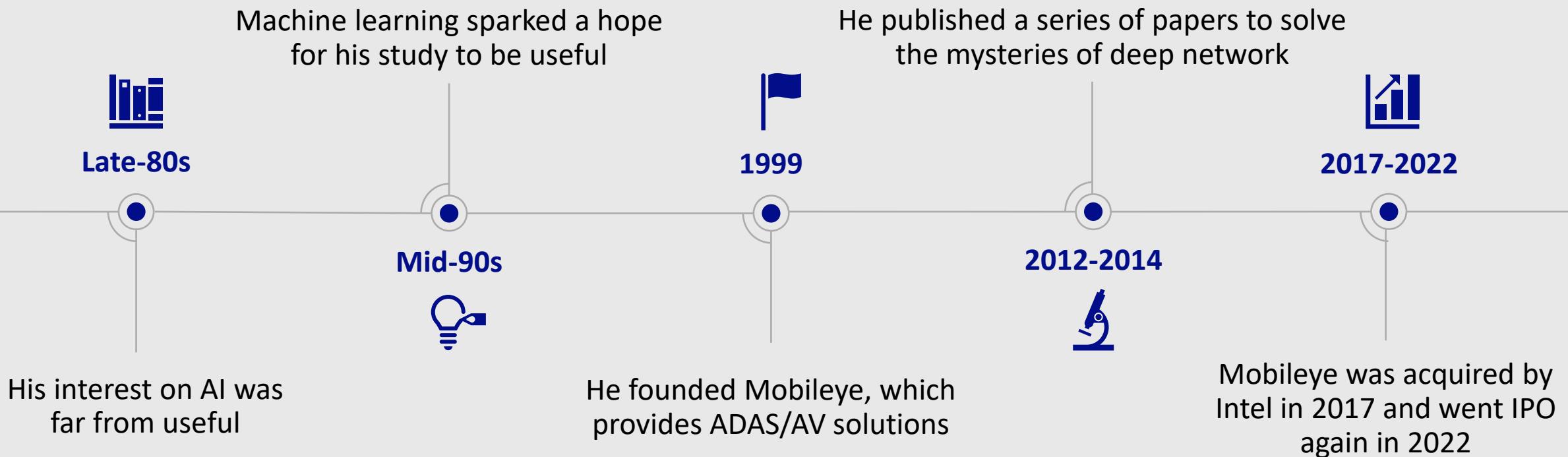
 **Business**

- Co-founder of 5 startups
- 2017-2022: Senior Vice President of Intel

 **Awards**

- 2023: Israel Prize for lifetime achievement and exceptional contribution to the nation

## Heart | The founder dedicated **43 years** to changing the way people drive



**Head | He looks far into the future...**



1980s, he speculated about putting collision-warning cameras in cars before other scientists thought this was possible



*“He is a very unique person in terms of imagining the future and then going ahead and doing it.”*

– Professor Advisor of Mr. Shashua on his master's thesis

**...and looks deep into the users**



**Problem-oriented solutions**

“Some of my initiatives come from my wife and she hates my driving.” He took inspirations for ADAS products



**Inter-complementary startups**

His start up OrCam helps those hard of hearing focus on specific voices in noisy environments, analogously as Mobileye helps cars classify objects on the roads

**Hand | He is a strong executor with 25-year experience and a fast learner starting up in new domains at his 60s**



1995-2007: Founder of CogniTens, which was acquired by Hexagon AB in 2007



1999 - Present: Founder & CEO of Mobileye



2010 - Present: Co-founder & Co-CEO of OrCam



2017 - Present: Chairman of AI21 Labs



2017 - 2022: Senior Vice President of Intel Corporation



2019 - Present: Founder & Owner of ONE ZERO, which was recognized among the top 100 most promising fintech startups of 2023 by CB insights

**Business Model | Placing a main focus on R&D to provide ADAS/AV solutions, Mobileye generates a vast majority of revenue from the sale of its semiconductor chips**



### Revenue

- ADAS/AV solutions: chips, mapping systems, radars/lidars, etc.
- EyeQ SoC sales represented 94% in 2021 and 93% in 2020 revenue



### Key Activities

- Collaborate with other companies in production: STMicroelectronics, Intel
- Focus on R&D:
  - 80% of employees
  - 2023 R&D: 889m (82% of total operating expenses)

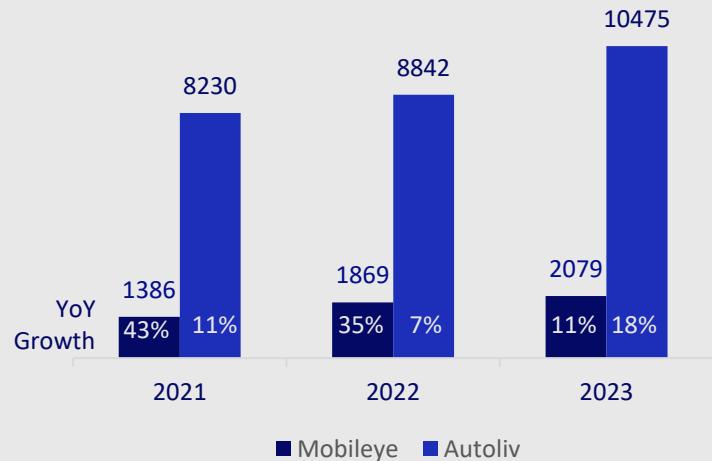


### Customers

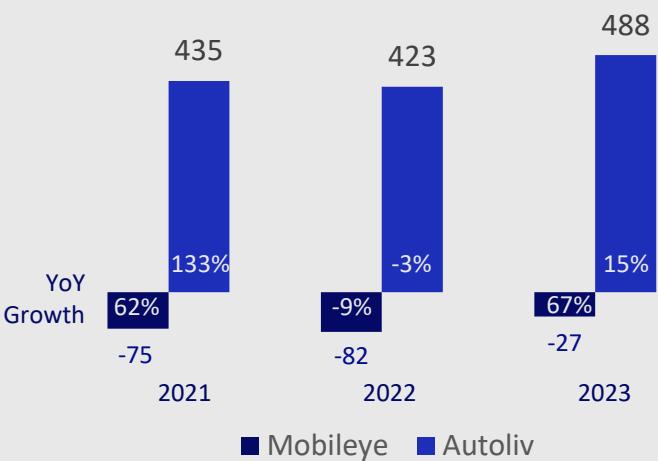
- 50+ OEMs: Audi, BMW, Ford, etc.
- Tier 1 suppliers: Aptiv, Valeo, ZF, etc.

## Key Metrics | Intensive strategic investment on R&D enables Mobileye to become profitable in 2024

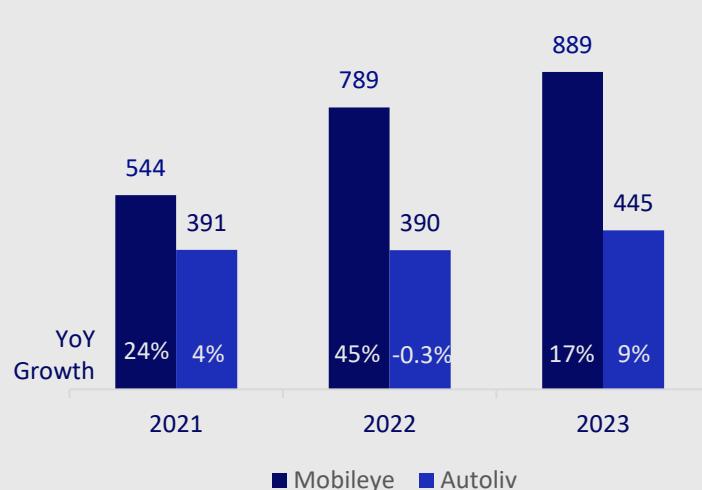
Revenue (\$M)



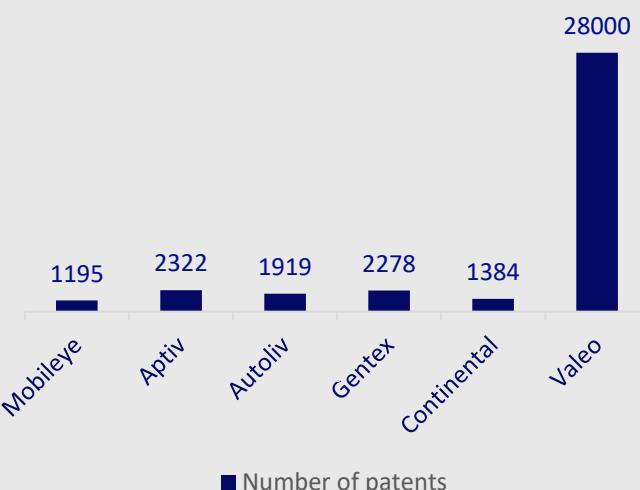
Net Profit (\$M)



R&D spending (\$M)



Number of patents



Although Mobileye's revenues are 5 times less than its peer Autoliv, which was founded 46 years earlier, it is expected to incur a final loss in 2023 and generate profits in 2024

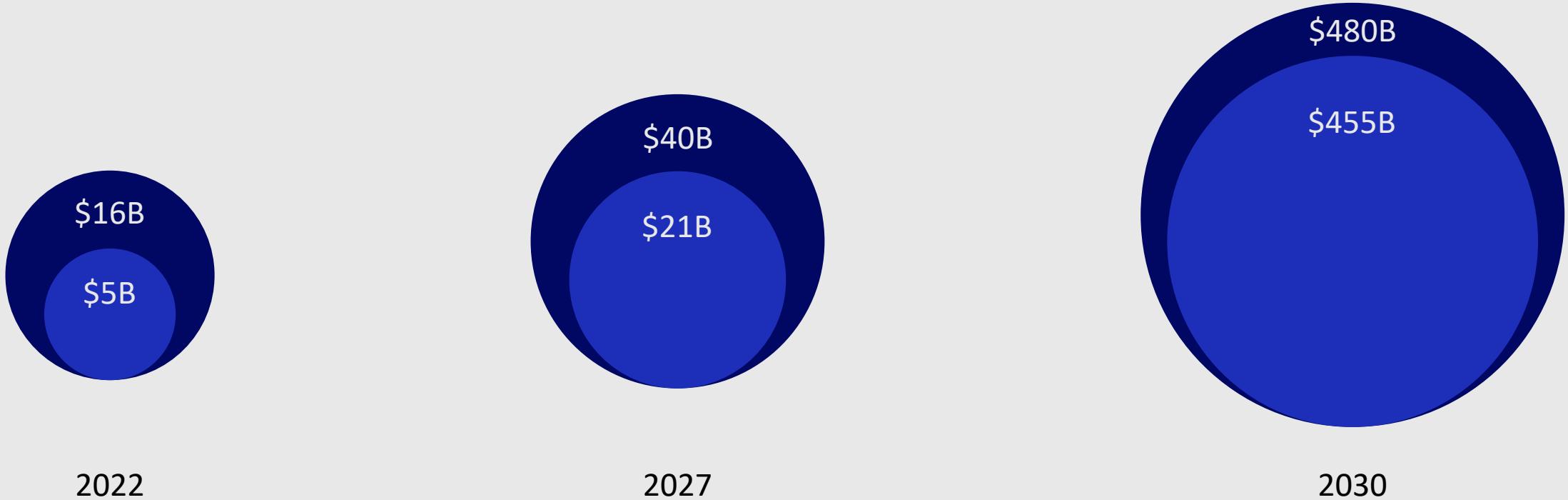


Mobileye's R&D intensity ratios over years are around 40%, while Autolive's are 4-5%, indicating its resilience in the automotive market and strategic focus on R&D as it entered the industry later

Main Drivers | Pioneering in scalable-by-design technologies allows Mobileye to sell at a cheaper and scalable price

	Common industry approach	Mobileye
Chip 	<b>General-purpose</b>	<b>EyeQ Ultra</b> <ul style="list-style-type: none"><li>• Most suitable for each task</li><li>• Consuming less power</li></ul>
Camera 	<b>2+ cameras</b>	<b>1 camera</b> <ul style="list-style-type: none"><li>• Camera and lidar/radar fusion</li></ul>
Mapping system 	<b>Mapping fleets</b> <ul style="list-style-type: none"><li>• Expensive sensors</li><li>• Manual process</li></ul>	<b>Crowdsourced mapping</b> <ul style="list-style-type: none"><li>• Cloud-based</li><li>• Vehicles integrated with Mobileye chips and camera</li></ul>

**Opportunities | In 2027, TAM of ADAS/AV is expected to increase to 40 billion US\$ while Mobileye's SAM is 21 billion US\$**



Mobileye's 2023 revenue of 2.079 billion US\$ could potentially increase 10.1 times to 21 billion US\$ after 4 years

**Risks | Primary risks to Mobileye's scalability, and even survival, include competition and in-house solutions, reliance on limited suppliers, and AV-related regulatory restrictions**



Competition and  
in-house solutions



Reliance on  
limited suppliers



AV-related regulatory  
restrictions

## Risks | Strong competition threatens Mobileye's leading position while car companies developing in-house solutions become indirect competitors

### Competition

Name	Founded	Country	Market Cap (US\$Bn)	FY23 Revenue (US\$Bn)	In-house
Mobileye	1999	Israel	\$25.560	\$2.07	
Gentex Corporation	1974	US	\$8.300	\$2.29	
Magna	1957	Canada	\$15.030	\$41.91	
Aptiv PLC	1994	UK	\$20.370	\$20.05	
Autoliv, Inc.	1953	Sweden	\$9.770	\$10.47	
Continental	1871	Germany	\$14.100	\$44.93	
Valeo SE	1923	France	\$3.110	\$24.37	
DENSO Corporation	1949	Japan	\$55.210	\$50.19	
Renesas Electronics	2002	Japan	\$32.360	\$10.76	
Hitachi	1910	Japan	\$84.310	\$70.51	
Hyundai Mobis Co.,Ltd	1977	Korea	\$16.540	\$45.03	
Hesai Group	2014	China	\$0.620	\$0.24	

- Customers who used to or currently employ Mobileye's solutions have decided to design in-house solutions
- Such as Tesla, Mercedes-Benz, General Motors, NIO, Volvo Cars, and Xpeng Motors



Mobileye struggles to meet the intensified demand for chips as car companies anticipate autonomous driving, thereby allowing NVIDIA to step in

## Risks | Reliance on limited suppliers... pose a threat to...

Cause:

Reliance on a single or limited suppliers

- Could services: Amazon Web Services
- Semiconductor: STMicroelectronics

Problem:

- Extended lead time
- Capacity constraints
- Supplies limit
- Quality issues
- Cybersecurity issues

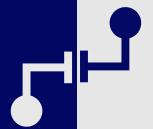
Solution:

Stricter regulations and sourcing practices

Externality:

Increased costs and product prices

... and regulatory restrictions on AVs  
... Mobileye's scalability



Autonomous vehicles raised negative externalities:

- Increased risk for pedestrians
- Data privacy and cybersecurity issues
- Responsibility and compensation for accidents



Despite sufficient regulations for robo-shuttle services, global standards regarding AD functions for use in private vehicles are lacking

**Valuation | Mobileye's P/S ratio is 12.35, which is 12.1 times higher than the average of its peers**

Name	P/S (x)	Gross Margin	
Mobileye	12.35	50.36%	
Gentex Corporation	3.62	33.16%	ADAS is a fast-growing market
Magna	0.36	13.11%	
Aptiv PLC	1.02	17.15%	
Autoliv, Inc.	0.93	17.39%	Mobileye's monopolistic crowdsourced mapping system covers 80-90% of Europe and America
Continental	0.31	21.26%	
Valeo SE	0.13	17.20%	
DENSO Corporation	1.10	15.17%	
Renesas Electronics	3.01	56.77%	Mobileye's balance sheet is healthy with \$1.2B of cash and 0 debt as of December 30, 2023
Hitachi	1.20	25.69%	
Hyundai Mobis Co.,Ltd	0.37	20.58%	
Hesai Group	2.58	32.00%	Mobileye's gross margin is 2.4 times as high as the average
Median	1.06	20.92%	
Average	1.02	20.58%	

**Valuation | Based on P/S ratio, Mobileye's 2027-to-2023 valuation multiples are from 0.02 to 33.8x, suggesting if Mobileye could relatively keep its place in the market, it is undervalued and should be invested now**

2023 Mobileye's Market Share (%)	70%	2023 Mobileye's P/S (x)	12.35x
2023 Mobileye's Market Cap (US\$Bn)	25.56	2027 SAM (US\$Bn)	40.00
<b>2027 TAM</b>			
Market Share (%)	10.00%	30.00%	50.00%
Revenue (US\$Bn)	4.0	12.0	20.0
0.1x	0.4	1.2	2.0
6.0x	24.0	72.0	120.0
P/S assumptions	12.35x	49.4	148.2
18.0x	72.0	216.0	360.0
24.0x	96.0	288.0	480.0
<b>Multiples to Mobileye's 2023 Valuation</b>			
0.02x	0.05x	0.08x	0.11x
0.94x	2.82x	4.69x	6.57x
1.93x	5.80x	9.66x	13.53x
2.82x	8.45x	14.08x	19.72x
3.76x	11.27x	18.78x	26.29x
			33.80x



Q & A