

ROBOTS, ARTIFICIAL INTELLIGENCE AND SERVICE AUTOMATION

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- Professor and Vice Rector (Research), *Varna University of Management*, Bulgaria (<http://www.vumk.eu>)
- Member of *AIEST* (<https://www.aiest.org>)
- Member of *IFITT* (<https://www.ifitt.org/>)



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Dr. Stanislav Ivanov



- Founder and Editor-in-chief of the *European Journal of Tourism Research* (<http://ejtr.vumk.eu>)
- Founder and Editor-in-chief of *ROBONOMICS: The Journal of the Automated Economy* (<https://journal.robonomics.science/>)
- Coordinating Editor (AI and Robotics) of *International Journal of Hospitality Management*



Content

- Overview of the application of robots, artificial intelligence and automation technologies (RAISA)
- Adoption of robots, artificial intelligence and automation technology by service companies: benefits and costs
- Striking the right balance
- Programme on the successful adoption of RAISA

Published in October 2019



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Robots have arrived ...



Source: <http://vignette4.wikia.nocookie.net/starwars/images/c/c8/Counterparts.jpg>



<https://en.wikipedia.org/wiki/BB-8>

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Source: <http://vignette2.wikia.nocookie.net/avp/images/4/49/Terminator.jpg>

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People with no idea about AI
saying it will take over the world:



My Neural Network:



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Source: <http://www.kurzweilai.net/images/robot-thinking-one.png>

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Application of robots, AI and automation technologies

Application of robots, AI and automation technologies:

- *Manufacturing*

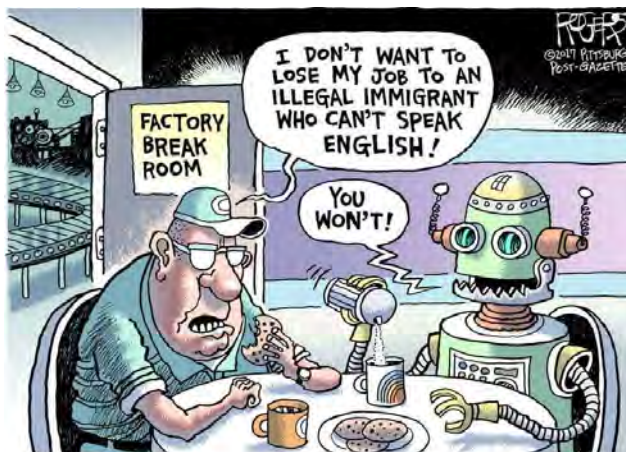


<http://www.businesskorea.co.kr/sites/default/files/field/image/Industrial-Robots-Hyundai-Heavy.jpg>

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Application of robots, AI and automation technologies:

- *Manufacturing*



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Application of robots, AI and automation technologies:

- *Warehousing, supply and logistics*



https://abm-website-assets.s3.amazonaws.com/inddist.com/s3fs-public/styles/hero/public/featured_image/2017/01/Amazon-Robots.jpg?itok=fhqW-IPW

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Application of robots, AI and automation technologies:

- *Agriculture*



<http://sparc-robotics.eu/wp-content/uploads/2014/05/polni-robot-amazone-bonirob-44e031.jpg>

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Application of robots, AI and automation technologies:

- *Transportation / Autonomous cars*



https://media.wired.com/photos/5a6fbe7d68851b1549e7d280/master/w_799,c_limit/Waymo-Minivan.jpg

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Application of robots, AI and automation technologies:

- *Medicine*



http://mediad.publicbroadcasting.net/p/wual/files/styles/x_large/public/201712/xi.jpg

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Application of robots, AI and automation technologies:

- *Warfare*



<https://media.defense.gov/2010/Feb/01/2000398487/1088/820/0/090609-F-0000M-777.JPG>

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Application of robots, AI and automation technologies:

- *Households*



<http://www.robotictrends.com/images/photos/xiaomi-mi-robot-vacuum.jpg>

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Application of robots, AI and automation technologies:

- *Swimming pools*
- *Gardens*

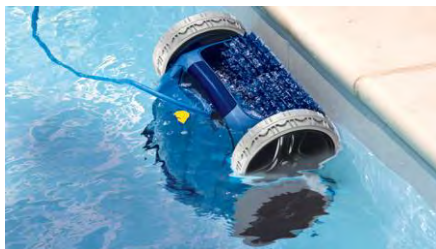


Photo credit: Stanislav Ivanov

<https://allpools.net/wp-content/uploads/2017/08/2-Various-Types-of-Pool-Cleaners.jpg>

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Application of robots, AI and automation technologies:

- *Guards*



<http://cdn.hiconsumption.com/wp-content/uploads/2014/11/K5-Security-Guard-Robot-3.jpg>

- *Parcel delivery*



https://media.wired.com/photos/5c48c3ab9fa6e032a790af23/master/w_799,c_limit/amazon-scout.jpg

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Application of robots, AI and automation technologies:

- *Education*



Source: <https://3e7e6c34hre53ebyeaa38hmr6-wpengine.netdna-ssl.com/wp-content/uploads/2017/09/nao.png>

- *Entertainment*



<https://robots.nu/img/uploads/2018/08/10/Vector%2C%20adorable%20robot%20from%20Anki.jpg>

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Application of robots, AI and automation technologies:

- *Information provision in service industries*



Source: Stanislav Ivanov

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Application of robots, AI and automation technologies:

- *Legal services*



<http://www.kurzweilai.net/will-ai-replace-judges-and-lawyers>

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Application of robots, AI and automation technologies:

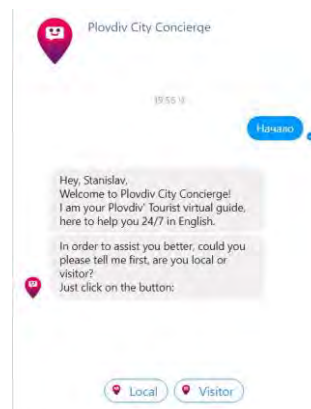
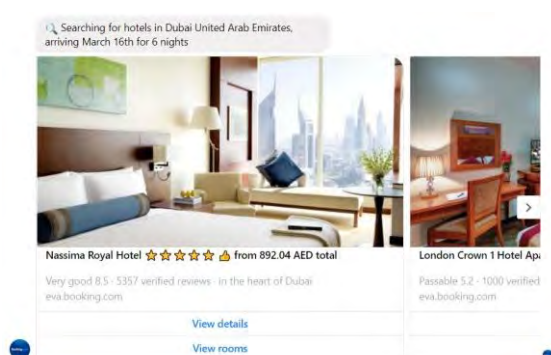
- *Search engines*
- *E-commerce*




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Application of robots, AI and automation technologies:

- *Chatbots*



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Application of robots, AI and automation technologies:

- *Virtual (artificial) humans*

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- Onboard instantly with your domain specific knowledge
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- No more clicks or forms, your business face-to-face
- "Hola" in the language your customer speaks
- Every customer is different, so are their needs
- Personalize. Present with your best customer experience

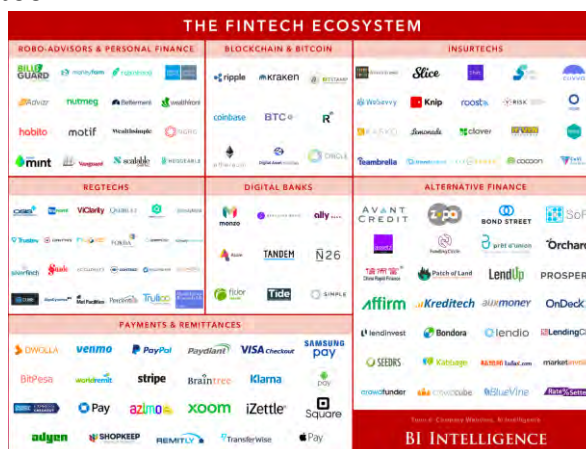
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- Available on any platform, highly scalable.
- Custom integration services, 24/7 support.
- Deploy with NEON Frame™ and NEON View™

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Application of robots, AI and automation technologies:

- *Finance*

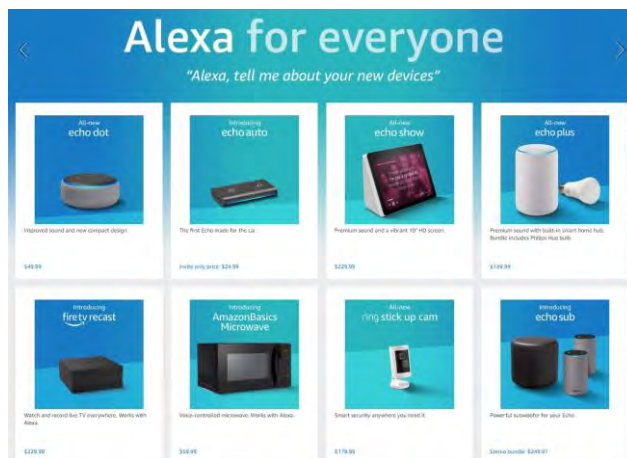


<http://static3.businessinsider.com/image/581cd80d46e27a2e008b4cf3-1920/fintech-ecosystem-diagram.png>

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Application of robots, AI and automation technologies:

- *Voice activated devices*



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Application of robots, AI and automation technologies:

- *Hotels*



https://www.regalhotel.com/uploads/ricwc/promotion/room/720x475/Mobile_key.jpg



<http://www.mirror.co.uk/news/uk-news/futuristic-hotel-thats-like-robotic-6449905>

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Application of robots, AI and automation technologies:

- *Hotels*



<http://digieva.net/#features>



<https://media-cdn.tripadvisor.com/media/photo-s/09/48/07/4f/premier-inn-london-hanger.jpg>

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Application of robots, AI and automation technologies:

- *Hotels*



Source: Best Western Premier Sofia Airport



Source: Craig Webster

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Application of robots, AI and automation technologies:

- *Hotels*



http://www.h-n-h.jp/assets/images/facility_img_01.jpg

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Application of robots, AI and automation technologies:

- *Hotels*

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Japanese hotel staffed by 243 robots fires more than half of the bots - because they kept malfunctioning and creating MORE work for the human employees

- The Henn na chain - whose name means 'weird' - bills itself as offering the world's first hotels with robot staff
- It operates sites south of Nagasaki and east of Tokyo where the receptions are staffed by robot dinosaurs
- Chain has now culled over half of its 243 robots, many because they created work rather than reduced it

By MARK PRIDD FOR DAILYMAIL.COM

INDEPENDENT

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JAPAN ROBOT HOTEL FIRES MOST OF ITS 'ANNOYING' ROBOTIC STAFF

VIDEOS • INDIA WORLD BUSINESS • ENTERTAINMENT • If scepticism, an automated gardener and a one-armed les left luggage

THE VERGE TL;DR

Japan's robot hotel lays off half the robots after they created more work for humans

If you're not even reading about things, they're worth it

By [Mark Pridd](#) on [Feb 19, 2019](#) at 10:00 AM

TIMESNOWNEWS.COM

World's first 'all robot hotel' fired half of its robotic staff after guests started 'missing' humans

By [Mark Pridd](#) on [Feb 19, 2019](#) at 10:00 AM

More on World is located in Regional Professions.

An 'all robot' hotel in Japan laid off more than half its robotic staff after guests complained the machines 'lacked human intelligence' and had various practical limitations. The Henn na Hotel, which translates to 'Weird hotel', previously had 243 robot employees. The most popular ones were a valet/corridor receptionist, an automated receptionist, and one-armed baggage handler, reported the independent.

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Application of robots, AI and automation technologies:

- *Restaurant*

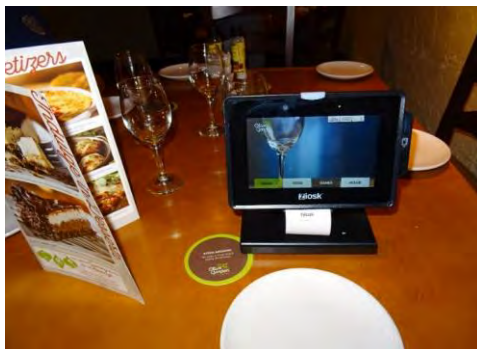


Photo credit: Stanislav Ivanov



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Application of robots, AI and automation technologies:

- *Restaurants*



Photo credit: Stanislav Ivanov



https://amazing.zone/fotosblog/max/drone_q_entrega_pizzas.jpg

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Application of robots, AI and automation technologies:

- *Restaurants*



https://www.youtube.com/watch?v=vvDLW5_ez8

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Application of robots, AI and automation technologies:

- *Restaurants*



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Application of RAISA technologies:

- *Restaurants*



Photo credit: Stanislav Ivanov



Source:
https://upload.wikimedia.org/wikipedia/commons/6/60/Food_delivery_bot_at_Pamir_Restaurant_Beijing_West_Railway_Station_Branch_%2820200120174123%29.jpg
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Application of robots, AI and automation technologies:

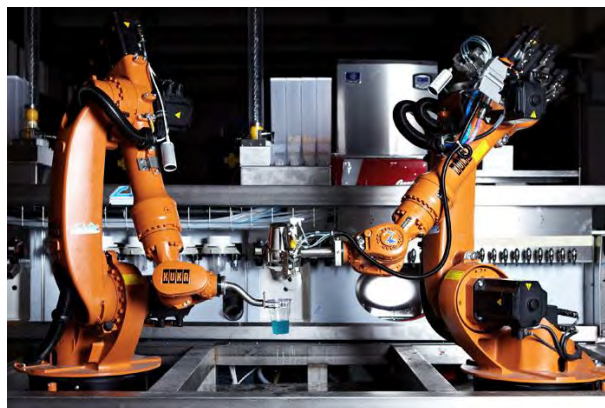
- *Restaurants*



https://cdn.winsightmedia.com/platform/files/public/2018-09/background/spyce-restaurant_1536600954.jpg stanislavivanov.com

Application of robots, AI and automation technologies:

- *Meetings and events / Bars*



<https://www.bizbash.com/bartender-makr-shakr-bartender-social-sharing-alcohol-consumption-monitor/gallery/123237>

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Application of robots, AI and automation technologies:

- *Meetings and events > Telepresence*



<https://www.bizbash.com/mobile-telepresence-new-systems-allow-users-participate-meetings-events-afar/gallery/123291>

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Application of robots, AI and automation technologies:

- *Airports and other transport stations*



Photo credit: Stanislav Ivanov

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Application of robots, AI and automation technologies:

- *Urban transport*



<https://www.qrcodepress.com/wp-content/uploads/2014/03/mobile-wallet-qr-codes-tickets.jpg>

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Application of robots, AI and automation technologies:

- *Travel agencies and Tourist information centres*



Photo credit: Stanislav Ivanov



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Application of robots, AI and automation technologies:

- *Museums and art galleries*



https://www.nytimes.com/2017/03/14/arts/design/museums-experiment-with-robots-as-guides.html?_r=0



https://www.vrlife.news/wp-content/uploads/2016/05/drawntothefuture_c_agnese_sanvito_1.jpg

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Application of robots, AI and automation technologies:

- *Religion*



HAIL SANTO

This Robot Reads the Bible to Old People in Nursing Homes

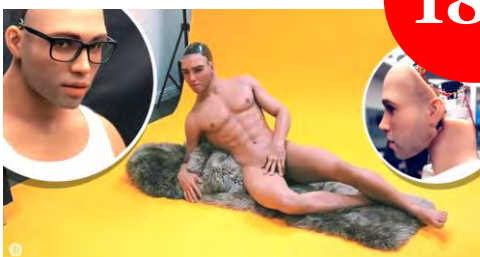
For now, the robots recite but don't interpret the biblical verses.

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Application of robots, AI and automation technologies:

- *Sex services*

18+



<https://surgefs.imgix.net/quality=v:80/K25JIHV0QUKIXCo9usIn?auto=fo rmat&ixlib=imgixjs-3.3.2&w=1000>



<https://www.vanguardngr.com/wp-content/uploads/2018/02/Sex-robot-2.png>

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