**INNOVATION** 

Experimental Finns trialling basic income

#### **PEOPLE**

Why is life in Finland a great deal?

#### **TECHNOLOGY**

Finnish startups at the forefront of Al

#### **FUN**

Amazing hotels from south to north





**By** Tiia Rask **Photo** Vesa Tyni

# IMAGINATION GALLOPING WILD

Long walks in the forest, complicated dressage routines, jumping fences. A new phenomenon, born here in the land of quirky sports, is getting a growing number of young Finns to swing into the saddle. The secret: they are swapping live horses for intricate, hand-made hobbyhorses. And the world is following suit!

"I was out in Helsinki one day when I came upon a hobbyhorse lying discarded on the ground. I can't quite put it into words, but I immediately felt drawn to it. I saw no owner around so I took it home with me. That was 2008, and how hobbyhorses entered my life," says Mariam Nije, 18. Mariam is an active coach and organiser of hobbyhorsing camps and other activities.

"I have ridden real horses for over 10 years, so I find the world very familiar. When I ride dressage, I have a clear picture in my mind of the way a real horse moves, how it extends its legs, and I try to mimic the movements with the utmost accuracy."

"Initially, what attracted me to the 'sport' was that I like creating things with my hands. When I came across my first hobbyhorse, I tried to duplicate its simple sock-and-stick design. Later, I found the tight-knit hobbyhorse community and I joined in, coaching and organising camps. I love being a coach because I love to contribute and watch my students progress."

"I enjoy the creativity of hobbyhorsing. The sky is the limit! We share design tips with one another, in person and on Instagram, but everyone really can create whatever they want. Some say I have developed my own, recognisable style: my horses tend to be rather big, with long necks and short manes. I have a very special bond with my horses, and it would break my heart if something were to happen to them."

Mariam was photographed with her hand-made hobbyhorses at her home in Forssa, where she also organises hobbyhorsing camps.



#### Olli-Pekka Heinonei

Finnish National Agency for Education EDUFI

### EDUCATION SUPERPOWER **AT YOUR SERVICE**

Almost every day, we meet visitors from around the world who want to know how Finland, a small Nordic country, has become a leader in education. In fact, quite often they use the term 'education superpower' when describing how impressed they are with

the quality of our teachers and our wellfunctioning system.

The secret of Finnish excellence in education lies in scarcity. The ability to learn and innovate is almost the only natural resource we have. During the past century, our entire education system has been developed to ensure that all citizens have access to education – from early childhood to vocational and higher training as well as liberal adult education. Finland has become a 'learning nation'.

After our centenary celebrations last year, we are now looking forward to the next 100 years and beyond. This magazine features what that future might look like for many of us. We investigate innovations in artificial intelligence, including health care and education; hear from Linda Liukas, Finland's digital champion, about her pioneering work in computer programming; and see how basic income experiment has affected everyday life.

How do Finns make it all work? How can we have top-notch education, an extremely safe society, and enjoy a good balance between work and home life? It's thanks to our world-class education system that Finns can find solutions to challenges, both local and global. In this magazine, we examine the elements that make everyday life here great, and how it's all organised, as seen by Anu Partanen, the author of Nordic Theory of Everything, as well as ordinary people around the country.

The best solutions are developed in close collaboration. We are therefore at your service!

\*The Mai lounge chair was designed in Vietnam in 2013. "The inspiration for the shape came from the traditional Vietnamese nón lá hat. It's a tribute to the local weaving traditions," designer Aino Michelsen says. ainomichelsen.com

#### This is FINLAND Magazine

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#### SUOMI **FINLAND**



#### Stories illuminated

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#### FACTS ABOUT FINLAND

**POPULATION:** 5.5 million **TOTAL AREA:** 338,435 km<sup>2</sup>. of which 10% is fresh water

BIGGEST CITIES: Helsinki (capital), Espoo, Tampere, Vantaa, Oulu and Turku

**OFFICIAL LANGUAGES:** Finnish and Swedish **GOVERNMENT:** Independent republic since 1917 **CURRENCY**: Euro

**IOINED THE EU:** 1995

**GDP PER CAPITA:** €39,236 (2016) TOP SECTORS FOR FOREIGN INVESTMENT:

Business services, healthcare and wellbeing, ICT, retail, cleantech

TOP AREAS OF EMPLOYMENT: Services, financial and business services, trade and hotel, manufacturing, transport and communications

# **THIS IS FINLAND**

2018-2019

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# 6 | SOLUTIONS FOR **FUTURE LIFE**

**By** Leena Koskenlaakso **Photos** Ville Rinne, Samuli Skantsi, iStock and interviewed companies

# MAKING THE MOST OF AI

Finns are tapping into the vast opportunities provided by artificial intelligence (AI). Sooner or later, intelligent machines will think, learn and react like human beings.



rtificial intelligence, a branch of computer science, can already perform demanding tasks, if taught and trained by humans. In the future, intelligent machines will be able to learn like humans, act like

humans, and think like humans. They can free us from tedious routine work, and will enable us to concentrate on more creative tasks that add more value.

#### THREE WAVES OF AI

"The first wave of AI in the 1960s required coding and programming of rules, so that software and algorithms could solve specific problems," says Harri Valpola, an accomplished computer scientist and CEO of The Curious AI Company.

"This enabled creating of automated processes like route planning, which have become an integral part of today's technology," he continues.

"Today, when we talk about AI we refer to its second wave, which is based on supervised machine learning. Speech and image recognition, machine translation, data mining and other existing AI applications are all based on the second wave of AI."

Valpola says the third wave of AI, autonomous artificial intelligence, is emerging today. There are no third-wave technologies in current AI products anywhere yet, but research labs have shown working prototypes for some time now.

It may take several decades before the intelligence of machines surpasses that of human beings.

"But things like digital co-workers that utilise a simpler form of AI will be around much sooner," Valpola claims.

#### COMPLEX PROBLEM SOLVING

"AI systems that identify patterns in vast amounts of data enable complex problem solving. We are able to

**AI MILESTONES** 

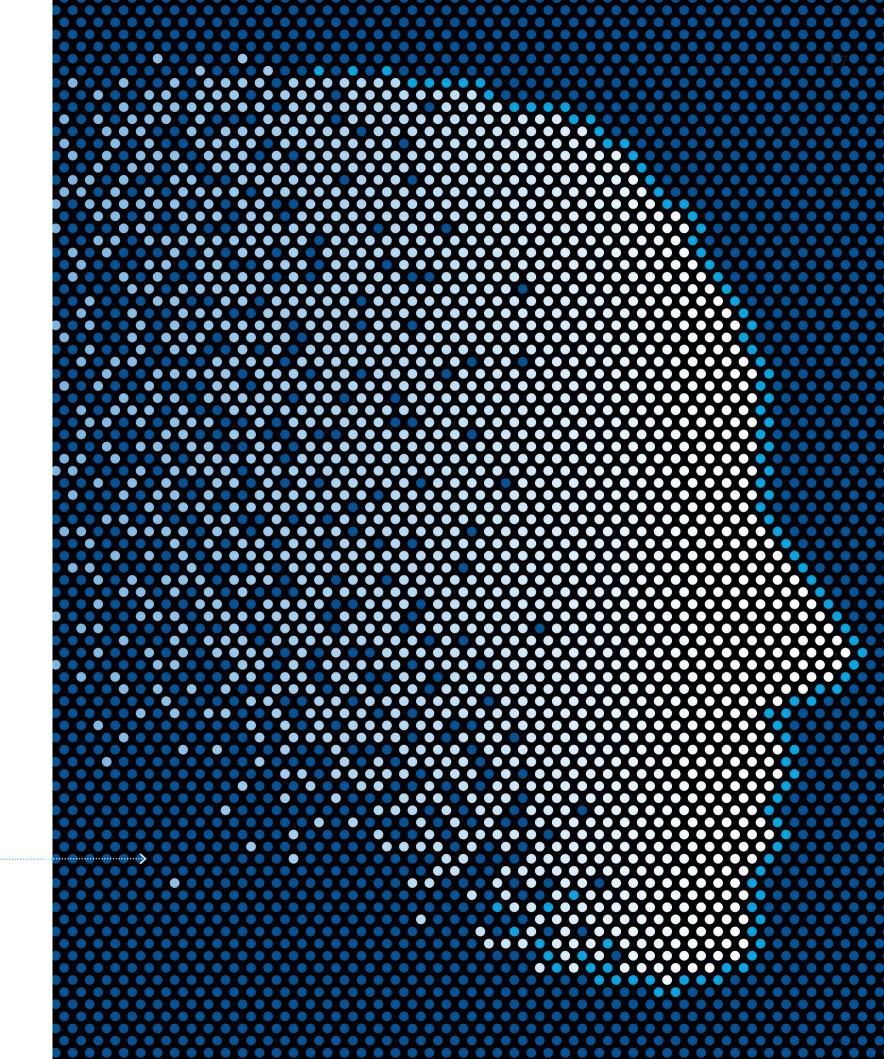


#### 1941

German engineer and inventor Konrad Zuse builds the world's first programmable and commercially available computer.



British mathematician and logician Alan Turing introduces the Turing test, which enables testing whether a machine can think. The machine is intelligent if you can talk to it without noticing it is a machine.



# 8 | SOLUTIONS FOR FUTURE LIFE

tap into knowledge that was never available to us before," says Maria Ritola, the Finnish co-founder and CMO of Iris AI, which recently closed a two-millioneuro funding round. The startup has launched an AI-powered science R&D assistant helping researchers track down relevant research papers without having to know the right keywords.

"But one of the risks of AI systems is that they learn human prejudices due to biases in the training data given to them, which is then used for decision making," she warns.

#### SOCIAL IMPACTS OF AI

"Another risk is that governments do not participate enough in developing AI systems," Ritola adds.

"As a result, we fail to understand the social impacts of the machines that get ever more intelligent. One of the areas to understand and manage is the big shift in job markets relating to automation," she says.

Finns see the big picture.

"The Finnish government is acutely aware that AI will change our jobs and careers, and wants to understand how it will affect individual people and our society," says Pekka Ala-Pietilä, who heads a steering group that carved out a plan for Finland's AI programme.

"Finland has huge potential to become one of the leading countries in exploiting the benefits of AI. The idea is to make it easy for businesses to utilise AI, and to support the public sector in building predictive, AI-powered digital services based on people's major life events. We want to keep our country wealthy, our businesses competitive, our public sector effective, and our society well-functioning," Ala-Pietilä lists.

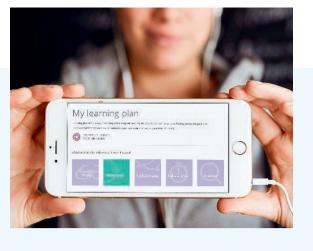


CASE

# NEXT LEVEL OF LEARNING

Claned Group is a startup that combines Al with Finnish educational expertise and data analytics to provide a personalised online learning platform tailored to each user's needs.





"Personalised learning is the next level of learning globally," says founder Vesa Perälä.

"Students have different ways to learn, and varying preferences. Online learning platforms based on a one-size-fits-all approach usually have a high drop-out rate, but we have included individual learning paths and social interaction with other students to ours. It keeps the students motivated, which makes all the difference," Perälä says.

The name Claned comes from the way the company clusters students to different clans based on their learning orientation, skills and preferences.

#### UNDERSTANDING THE STUDENTS' CHOICES

"Bit by bit, the machine learning system learns to understand each student's learning behaviour and the choices they make. Based on the accrued data, it gives the students recommendations for suitable study material and alternative learning paths. A learning tracker shows how much studying is still left, and can suggest next steps," Perälä describes.

The system analyses and measures learning results, allowing the teacher to follow each student's progress and intervene if necessary.

The global education market is growing rapidly. Claned Group, founded in 2013, sells its licence-based learning platform to universities, organisations and corporations worldwide. Its spearhead project is delivering continuing education in 21st century skills for all Finnish teachers and headmasters in cooperation with the Finnish National Agency for Education EDUFI.

AI MILESTONES

#### 1054

Researchers found a new academic discipline, Al research, at a workshop in Dartmouth College, United States.

#### 1961

The first industrial robot, Unimate, starts work at General Motors factory in New Jersey, United States.

#### 1982

Finnish neural network pioneer Teuvo Kohonen introduces the concept of self-organising maps.

#### 986

American researchers Rumelhart, Hinton and Williams publish an article on MLP network and back-propagation, a new learning procedure that constitutes the basis for today's deep learning Al.

#### 1997

Chess computer Deep Blue beats the world's best chess player Garry Kasparov.

#### 2000

Cynthia Breazeal, of Massachusetts Institute of Technology, United States, develops a robot called Kismet that can recognise and simulate emotions.

CASE

## TOWARDS BETTER PATIENT CARE

Fimmic develops intelligent, cloud-based software solutions for digital microscopy. Fast and accurate tissue sample analysis speeds up the workflow of pathologists and researchers and ensures better patient care.

> Analysing tissue samples the traditional way, that is slowly, strenuously and hunched over a microscope, can now be a thing of the past. Pathologists and researchers can accelerate and automate the analysis process by using WebMicroscope, a virtual microscopy software solution and cloud platform developed by Fimmic, a Finnish startup founded in 2013. Fimmic is a spin-off from the Finnish Institute for Molecular Medicine at the University of Helsinki.

> "Our deep learning Al image analysis technology enables fast and accurate automation of complex image analysis tasks not possible previously," says CEO Kaisa Helminen.

> "Our AI software is trained to detect and quantify objects, categorise cancer tumours based on progression, and identify rare targets such as malaria parasites," Helminen says. "For the first time, we are able to mimic a human observer in understanding the context in tissue," she explains.

"The solution acts as a tireless analysis support tool, or like a second opinion, for pathologists and researchers, speeding up the workflow and preventing human errors in interpretation. This way, it ensures better patient

#### RESULTS IN MINUTES

The on-demand process runs in a cloud computing environment. The platform operates on a Software as a Service basis, meaning customers do not need to buy local hardware or install any local software. All they have to do is upload their scanned tissue sample images to the service, and the results will arrive in minutes.

"In 2018, the WebMicroscope will be used for analysing clinical patient samples for the first time. There is also a big need for this type of software in the early pre-clinical phase of new drug development," Helminen says.

Investors agree, with the company closing a five-million-euro funding round in November





"WE ARE THE FIRST TO BRING A KEY **HUMAN LEARNING** MECHANISM TO COMPUTERS."

- HARRI VALPOLA

CASE

## RESEARCHING THE THIRD WAVE OF AI

The Curious AI Company is a Finnish deep tech startup building the autonomous AI of the future. The company has shown cutting-edge AI research results in for example human-like learning, human-like decision making and symbolic thinking.

Founded in 2015 and building on decades of previous research, Curious Al is researching, testing and developing the building blocks of the autonomous AI of the future – the one that will have a rich inner life, learn by trial and error, and behave in a human-like manner, exploring and making intuitive one-shot decisions.

Contributing to the birthing process of something still looming far ahead in the future calls for scientific curiosity and a bold explorer spirit. You have to know where you are going. And you have to have enough funding to carry you through the phase where you have not come up with a concrete product offering vet.

#### DIGITAL CO-WORKERS IN THE MAKING

"We are the first to bring a key human learning mechanism to computers," says founder and CEO Harri Valpola.

"We humans can solve many problematic tasks once we are given the correct answer a couple of times, for example when a mother tells a child what a dog looks like. To learn largely independently, we need plenty of real-life observations (raw data), a handful of correct examples (labelled data) and perhaps some corrections ('That's not a dog, that's a sheep')," he explains.

In machine learning, this is known as semi-supervised learning. In 2015, Curious Al published an Al system that can learn hand-written digits from just ten examples – for example, ten different renditions of the figure six.

"Now we have upgraded the AI system to tackle much more difficult problems. When scaled up, such a system may allow the automation of human knowledge work. The final product we are developing is called a digital co-worker."

→ AI MILESTONES



#### 2009

Google starts to secretly develop autonomous, self-driving cars.

#### 2011

Watson, a question-answering AI developed by IBM, understands natural language and competes against two former winners of quiz show Jeopardy!, winning them.

#### 2012

Deep learning technology beats all other computer vision methods in the ImageNet competition, where the goal is to recognise images in a vast set of approximately 1.2 million images.

#### 2012

A robot that had learned to pick objects on its own, developed by Finnish robotics firm ZenRobotics, starts to sort useful waste material from industrial waste.

#### 2016

AlphaGo, Al developed by Google, beats professional player and 18-time world champion Lee Sedol at Go, a complex game that requires creativity and is more difficult for a machine than chess.

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By Sami J. Anteroinen
Illustration Susanna Tuononen

FINNISH FOOTPRINTS

The blue-and-white impact can be spotted in places near and far. You might be surprised how often.

#### HERE COMES THE SUN

Finland placed second on the Global Cleantech Innovation Index 2017. This means that it is a very likely country for new **cleantech companies** to emerge and thrive. And don't forget exports, either: for example, the Finnish solar energy company Savo-Solar just entered the **Latin American** market.

#### WINNING TEAM

When 20-year-old Lauri Markkanen signed a contract with the legendary Chicago Bulls, the whole of Finland was abuzz. Similarly, when young sharpshooter Patrik Laine of the Winnipeg Jets put on a show in the NHL, the Finns were overjoyed. Then F1 speed demon Valtteri Bottas won the Russian Grand Prix at Sochi... Life is good!

#### FACE THE MUSIC

Finnish conductors – Sakari Oramo, Jukka-Pekka Saraste, Susanna Mälkki – to name but three – have taken the world by storm. The MVP of the bunch is Esa-Pekka Salonen, who single-handedly revolutionised the L.A. musical scene during his stint (1992-2009) as the top dog of the Los Angeles Philharmonic.

#### GIVE PEACE A CHANCE

All of Finland celebrated in 2017 as one of the premier global peace makers, ex-president and Nobel laureate **Martti Ahtisaari**, turned 80. Carrying on Ahtisaari's legacy, the Crisis Management Initiative (CMI) is active in places such as the **Middle East** and **Ukraine**, living up to Ahtisaari's credo: there is no conflict that cannot be solved.

#### LIGHT AND SHADOW

The Museum of the History of Polish Jews in Warsaw is a serious place – but not without hope and light. Its postmodern structure of glass, copper, and concrete, designed by Finnish architect Rainer Mahlamäki, celebrates life and human triumph over adversity and earned the title of the European Museum of the Year in 2016.

#### MAKE IT CLEAN

Finland has been building water systems in Vietnam for over 30 years. Presently, the focus is on towns with 4,000-50,000 people, where key infra like sewers and water purification plants are being built. During the joint project, sanitation, hygiene and water quality have been improved in over 20 Vietnamese cities.

#### TAKING CARE OF BABIES

The Finnish neuvola is a tremendous concept: providing **all the child care required**, from pregnancy to age 6, in the same place, free of charge. The **Japanese**, while facing dropping birth rates, decided to borrow a page from Finland's book and came up with neubora.

#### WALK LIKE A NORDIC

Nordic walking is catching on – with as many as 15 million people getting in on the act. Finland is the forewalker here, with half a million Finns swinging away. Not to be outdone, the Germans, Italians and Chinese are also going Nordic in record numbers.

# THE TRAVELLING MOOMINS

The first **Mumin Kaffe** abroad opened its doors in Gamla Stan, **Stockholm**, and another will soon open in **Tallinn**, Estonia. It's a decidedly child-friendly place where adults can have their cup of coffee while the kids enjoy a true Moomin adventure.

#### HEI HEI, MY MY!

The Finnish education system is a winner – as countries around the world are discovering. A Finnish preschool concept, HEI Schools, launched its first kindergarten in **Baotou**, **China** in September 2017. Founded in partnership with the University of Helsinki, HEI embraces the Nordic values of accessibility and openness – and is one more example of Finnish educational prowess.

#### 14 WE MAKE IT WORK

By Anu Partanen Photo Trevor Corson

#### **COLUMN**

# THE LUXURY OF ENJOYING LIFE



hen an American friend of mine moved from New York City to Helsinki. he knew what to expect. He had visited Finland often,

he enjoyed Helsinki's manageable size, and he knew that the winters can be tough. Yet there was one thing that worried him: the low level of Finnish salaries. The annual median wage for full-time workers in Finland is only 36,000 euros, about 43,000 dollars. This might not seem low in many places in the world, but for an educated professional hailing from one of the world's big financial centres, it means a serious pay cut. My friend was used to salaries in New York City, and while New York certainly has its share of minimumwage workers earning much less, corporate professionals such as lawyers, financiers and sales executives usually make at least 100,000 dollars a year. Finnish salaries can't really compete. Yet my friend from New York soon discovered that the income loss was less dire than he'd expected. The reason was simple: in Finland, he didn't spend any money.

He laughed as he said this. Of course, he did have to spend some money. Housing in Helsinki can be absurdly expensive, and food is costly compared to many other places. But there was a deeper truth to what he was saying.

For example, in New York City the average annual cost of childcare for an infant is 16,000 dollars. That's aboveaverage for the United States but, in more than half of American states, the cost still tops 10,000 dollars, and in Washington D.C. it's even higher, at 22,000 dollars. In Finland, every child in the entire country

is guaranteed a spot in a high-quality, public day care centre, where children play outside most of the day supervised by expertly-trained and well-educated staff. Families pay for this service on a sliding scale according to their income. The maximum amount anyone – no matter how wealthy - has to pay comes to 3,480 euros, or 4,100 dollars per year.

In the United States, new parents must not only pay for expensive day care but must also start saving for the future education of their child. Average tuition fees plus room and board at a private non-

#### "NORDIC SOCIETIES HAVE CHOSEN TO PROVIDE SOME OF THE MORE COMPLICATED AND ESSENTIAL NEEDS OF LIFE AS UNIVERSAL GOODS."

profit four-year college in the United States will come to about 45,000 dollars a year. In Finland, a university education is free of charge for all Finnish and EU citizens, and the government adds in a monthly stipend to help with living costs.

In the United States, health care is one of the biggest expenses for families. In Finland, health care is funded through taxes, with patients paying only small contributions. Care for children and pregnant women is mostly free. Annual out-of-pocket costs are capped at 690 euros or 815 dollars per year. Once a patient reaches that limit, most care is free.

What my friend was discovering was that, while educated Americans may earn salaries that appear high at first glance, securing these basic services can cost an American family tens, if not hundreds, of thousands of extra dollars per year in after-tax money. In a country like Finland such services are just like the fire department; you pay your taxes and you're done. Finnish taxes are proportional to income, and income tax also tends to be lower than most outsiders assume. (A Finnish median wage earner can expect to pay about a quarter of their income in taxes.) As a result, even a seemingly small salary in Finland will take you far.

People around the world have fallen in love lately with a Nordic ideal that is often referred to by the Danish term hygge – spending cosy time with family and friends, and not working yourself to death in pursuit of higher salaries. What's not often said is that Nordic people can afford to enjoy their lives this way because their societies have chosen to provide some of the more complicated, expensive, and essential needs of life day care, education, health care, and the like - as universal goods. This means that people don't have to spend their own time researching and securing such services, and everyone can receive these basic goods regardless of their income level. It also means the same services are used by the wealthy and the middle-class alike, which helps keep quality high.

Now that my friend is settled in Finland with a job and a new-born child, he considers it a great deal. It's not about how much money you make. It's about what that money will buy you.



#### **TOP THREE THINGS** THAT WORK GREAT IN FINLAND

#### 1. BIKING

"In Finland bike lanes are usually separated from cars and often run along waterways or through patches of woods, even in cities. Commuting doesn't get much better than riding your bike along the seashore."

#### 2. DAY CARE

"Finns are known to be quick to complain if public services don't live up to their standards, but most praise their children's joyful, activity-filled days in public day care centres as sources of true happiness."

#### 3. WINTER TRAFFIC

"Driving in sleet, hail, and snow is difficult everywhere and Finns suffer accidents and delays under such conditions like everyone, but returning to Finland after years abroad, I'm always amazed by how well Finns handle winter traffic. Life goes on just like it does in the summer."



# Journalist and author Tuomas Muraja was one of the randomly selected participants in the Finnish basic income experiment. We asked Tuomas to share his experiences of the trial.

# LIBERTY, EQUALITY, ABASIC INCOME

Finland wants to know if finding a job is easier when unemployment benefit is replaced by a basic income. The system will be trialled for two years. The idea is to test whether people are motivated to accept work when extra income does not reduce the social benefits received.

I wond of the second of the se

won the lottery organised by the Social Insurance Institution; in other words, I was selected to participate in the basic income

experiment. I am one of those rare freelancers who alternate between short job stints and periods of unemployment and who were given this opportunity.

The purpose of the experiment is to simplify social security and eliminate unemployment traps, where people cannot accept work for fear of losing their benefits. In the experiment, 2,000 adults are being paid a basic income of 560 euros per month for two years, without any conditions. Lots were drawn to select the participants from among unemployed people aged 25–58 who were recipients

of basic unemployment benefits, socalled labour market subsidy or basic unemployment allowance, in November 2016

The launch of the basic income experiment in January 2017 was noted all over the world and many foreign newspapers covered it. To date, I have been interviewed by BBC, Rai Uno, Tageszeitung and several others.

The most common question I have been asked has been, "How has the basic income experiment changed your life?"

The simple answer is: financially, it has not. The international press seem surprised to learn that Finland already has a system that provides basic financial security to citizens in various life situations. This is not the case in most parts of the world.

#### SAYING 'YES' TO SMALL JOBS

However, for me, being included in this experiment has had very positive psychological effects. I much prefer receiving basic income, rather than dealing with the old system and filling in its complicated forms.

Earlier, I didn't accept all small jobs for fear of losing my benefits and having to reapply for them. Because of the bureaucracy, it was not financially worthwhile to accept all those tiny jobs. I feel much more secure now that short-term jobs no longer reduce my benefits or delay their payment.

Thanks to the experiment, I have been able to attend events to promote my books, for example. Fees from such events are often very low. Previously, it made no sense to attend library or school seminars. The experiment has lowered my tax rate considerably. Now I say 'yes' to all invitations.

At the beginning of 2017, I received a grant from the Finnish Cultural Foundation for finalising a non-fiction book, and the book was published in the spring 2017. Currently, I am working on new book projects, but so far, I have not received any new grants. I've submitted a few articles to publishers but I can't invoice them until the articles have come out. In addition, I have sent dozens of applications in the communications and journalism sector, but not been invited to interviews.

A basic income alone is not enough to live on. My living expenses alone are nearly 2,000 euros per month. That is the amount I need to earn regularly through writing. Usually, an unemployed person can earn 300 euros without losing any unemployment benefits. Once that limit is reached, the take-home pay is 50% of the additional income.

Applying for the adjusted unemployment benefit requires that the applicant reports each and every wage received, which can delay the payment of benefits due to long processing times.

In the new arrangement, no reporting is required. I can focus on writing and job searches. It feels like the basic income gives you increased freedom and makes society more equal.





THIS IS HOW WE DO IT

Two-year experiment



2,000
participants

Randomly selected sample of adults aged 25-58 receiving unemployment benefits in November 2016.



€560/month

Amount of basic income



# Purpose

To discover whether a basic income can boost employment and simplify the social security system.

The amount of basic income is not reduced by any other income the participant may have. Participants who find work during the experiment continue to be paid a basic income.

Source: Kela



# IN A DREAM JOB

and services in order to

and empowerment. This

experimental culture is

developed especially in

the fields of employment

being one good example),

the circular economy and

artificial intelligence. By

a forerunner in creating

new solutions through

experimentation.

2025, Finland wants to be

(with the basic income trial

encourage both efficiency

Another participant in the basic income experiment is Sini Marttinen, who has a master's degree in social sciences. She found a job with a foundation providing funding in the disaster aid and logistics sector.

"This is a dream job," she says.

"Working part-time, I can also continue doing voluntary work among low-income families, inmates and asylum seekers."

She is a board member of the Kallio-Käpylä chapter of the Finnish Red Cross in Helsinki and also volunteers as their campaign manager.

The basic income experiment has motivated her to start her own business again. Previously, becoming an entrepreneur could have ended all social allowances.

"Earlier I declared that I would never become an entrepreneur again, but here I am! The basic income helps me pay the mandatory pension contributions, even if I have months with no orders or assignments. For me, this arrangement is perfect; it's like winning the lottery."

"It is very common in Finland to blame the unemployed for their own predicament. I wish people would realise that anyone can lose their job, for reasons beyond their own control," Marttinen says.

She believes that paying a basic income to everyone would help erase the stigma associated with being unemployed. It would be similar to the child allowance, which is paid to families with children automatically once per month.

"No amount of money alone is going to help those in the weakest position, but a basic income system might leave social workers with more time to care of those who really need help. For example, the biggest problem for someone in and out of prison is not money but finding a new way of life, a place to call home, education, work and means to fight addiction, and settling debts."

BOOSTING MOTIVATION

Markus Kanerva at the political analysis unit of the Prime Minister's Office says that the purpose of the basic income experiment is to pragmatically test whether people are motivated to accept work when extra income does not reduce the social benefits received.

"During the trial period, the unemployed person gets to keep their basic income in full, even if they find a job. It is believed this will motivate the unemployed to accept work even if the pay is not high or the job does not last long."

A basic income is not a cure-for-all, but for 30–40-somethings who have short-term employment contracts, it seems to be a perfect fit. Miska Simanainen, a researcher at the Social Insurance Institution, points out that the proponents of basic income often claim that it would fit to the needs of various self-employed persons, such as freelancers

Preventing poverty is not a goal of the experiment.

"The basic income in itself does not necessarily reduce poverty as much as expected. Reducing poverty depends on the level of the basic income and how other elements of social security are arranged," Simanainen says.

#### TOWARDS A BASIC INCOME-LIKE POLICY?

Kanerva explains that social benefits are already underutilised in the current system, because people do not know they are available.

"However, the experiment could result in a basic incomelike policy. This could include an automatic basic level of support, which would reduce bureaucracy and the intermittent nature of benefits. In other words, the system would combine various benefits, such as business start-up allowances and social security funds."

The experiment is unrealistic in the sense that the participant gets to keep the entire income even if they find a full-time job. If the basic income was implemented more widely, it would probably be recovered through taxation after a certain salary threshold is reached.

Because the basic income mainly replaces existing benefits, the experiment is not very expensive. It is calculated that it will cost an extra 7.5 million euros over two years. The first results of the experiment will be available at the beginning of 2019.

"During the experiment, not even the preliminary results can be published to ensure they do not affect the study subjects' behaviour," Kanerva points out.

#### 20 WE MAKE IT WORK

By Päivi Leinonen, Marjo Linnasalmi, Kati Valjus and Taru Virtanen Photos Päivi Leinonen, Pekka Nieminen, Tommi Tuomi and Kati Valius

# ON THE STREETS OF FINLAND

What does easy living mean to you? What makes everyday life in Finland good? We asked people in three cities what they liked about Finland.



#### TEUVO TIKKANEN, MEDIA ADVISOR, 70, TURKU

"Life is well organised and safe. The police and the army are decent. There are lots of good things in our culture, but it's melancholic. I wish people would notice the good things more often."

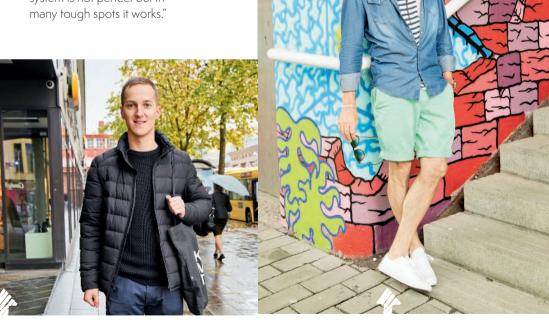
#### KATRI NIETOSJÄRVI, GRAPHIC DESIGNER, 38, WITH VALLE, 1, HELSINKI

"This year with my baby boy has been the best year of my life. The long maternity leave has given me more time with loved ones and friends."



#### SANNA TARVAINEN, **JOURNALIST, 42, OULU**

"Public health care has saved the lives of many people I love, and my own when I had cancer. The health care system is not perfect but in many tough spots it works."



#### LEEVI MÄKIKALLI, **CONSCRIPT, 20, TURKU**

"It's great that everyone has the same opportunities for education and it doesn't depend on money or family background."

#### **RUBEN MARTINEZ, RETAIL SUPERVISOR, 40,** HELSINKI

JAANA HEISKANEN,

products."

**ALEKSI MIKKOLA,** 

**SUPERVISOR, 40, TURKU** 

"City culture is experimental and full of

the laws, although some of them are a

bit funny, like not being allowed to carry

a beer from a bar to its terrace across the

life. It's safe here because people respect

"I moved from Spain eight years ago. I love how everything just works here, things like the education and health care systems. It's the same with small everyday things: you can trust public transport to be on time."

#### **DEBESAY OKBASAMIEL.** STUDENT, 22, OULU

"I came here from Eritrea a year ago. Finland is a safe country and when you are a permanent resident, you get money for studying. I study to be a carer and I have applied for nursing programme."

#### AIRA DAVIDSSON, PENSIONER, 65, HELSINKI

"It is easy and cheap to keep fit here. I cycle a lot, and there is an open-air public fitness park close to where I live. Swimming doesn't cost much either."

#### **ENTREPRENEUR, 49, OULU NIINA BERGIUS,** "The food is clean; we take it for granted. If I can, I always choose PRODUCER, 34, **HELSINKI** Finnish food over exported

"Finland is a naturelover's paradise. I live in Helsinki, which is full of green areas, parks and forests. We have also wonderful national parks and

#### **VILLE POHJONEN. CREATIVE DIRECTOR,** 29. OULU

co-operation possible in

bold and innovative ways."

"People trust each other here. At work, that makes archipelagos." **Illustrations** thisisfinland.fi/emoji and iStock

# ONLY IN FINLAND

Working in Finland can be a memorable experience for a newcomer. We asked impressions of Finnish working life via our social media – you answered.

What is the most unique aspect of working life in Finland? Extent of gender equality Generous Informality/lack holidays of hierarchy Conducting business in the sauna Silence Taking coffee 24% breaks 23% 19% 18% 11% 5%

Experiences of Finnish working life in your own words

"Doing business with Finnish people is the best! The rule of handshaking works. You can always trust a Finn's word. Finns are very helpful and honest."

"WORK-LIFE BALANCE IS FABULOUS. SO MUCH FLEXIBILITY."

"The environment is supporting developing ideas rather than preventing their realisation."

"The lack of hierarchy is refreshing because people earn their authority on the strength of their expertise, which also grants a balance between female and male employees."

#### "THE SENSE OF SAFETY IS UNIQUE."

"I know a couple of Finnish mothers who have pretty big jobs but they are not pulling out their hair like working mothers in other countries do. They seem more calm and enjoy both work and motherhood. It's super!"

"Sometimes I have lunch with my CEO and I don't have a high-level position. This would not happen in other countries. I greatly appreciate his humility and being down to earth."

"Observing my colleagues, I noticed their coffee and laughter breaks where they laughed together for ten minutes and continued work refreshed."

"I WOULDN'T TRADE THE FINNISH WORKING ENVIRONMENT FOR ANYWHERE ELSE IN THE WORLD!"



# 24 | KNOWLEDGE DRIVEN

"There is very little empowering material out there to help people to master technology. If you buy a book like Technology for Dummies, it makes you feel like a dummy, which isn't

very uplifting," says Linda Liukas.

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By Silja Kudel Photos Vesa Tyni

# THE WHIMSICAL CODE OF LINDA

Helping kids to bravely embrace technology is the mission of Finland's pioneering edutech guru Linda Liukas. She is a 21st century Ada Lovelace, who teaches the poetry of coding through fairy tales.

W

ith her ginger ponytail, freckles and disarming laugh, it's easy to see why Linda Liukas, 31, is described as a "geeky Pippi Longstocking". Just like the feisty red-headed heroine of the children's books of Astrid Lindgren, Liukas is fearless, inspiring and fiercely intelligent.

When it comes to empowering kids, she does the equivalent of lifting horses one-handed.

Dressed in skin-tight leatherette pants and sneakers, she turns heads as she breezes into Löyly, Helsinki's hip new seaside sauna bar. Bursting into a cascade of chatter, she pulls the reason for her excitement from her bulging bag: Liukas is arriving from the launch of her latest book, *Hello Ruby: Expedition to the Internet* (2017).

The book is the third in her award-winning Hello Ruby series, which demystifies coding and teaches children the basics of computational thinking. The series recently won China's top

design prize, the Design Intelligence Gold Award, worth 130,000 euros.

#### 21ST CENTURY LITERACY

But to describe Liukas as a "successful children's author" is like saying Steve Jobs "sold computers". She is a multitalented pioneer on a mission to inspire children to express themselves through technology.

"I wish there had been a book like Hello Ruby when I was growing up. Code is the 21st century literacy, and a growing number of world problems are starting to look like software problems – but software designers alone can't solve them. We need diverse input from all sorts of people, starting with kids," she asserts.

"Back in my childhood you had to choose between arts and maths. But why not choose both? Computers are meant for solving all sorts of problems. I see myself as equipping kids with creative thinking tools, not just teaching them to code."

#### FOR THE LOVE OF AL GORE

Her journey from geek to world-famous writer has been "a serendipitous adventure" fuelled by a childhood passion for reading, drawing, and computing.

"In hindsight it seems obvious how these strands came together in my current work."

While other girls were pinning up posters of rock stars, Liukas had a "safe crush" on Al Gore.

"I was a little eccentric. I taught myself coding so that I could create Gore's Finnish fan site when I was only 13," she recalls with a laugh.

Her passion for technology became a fullblown love affair after she and her brothers took apart the family laptop in the early 1990s.

"By fiddling with computers I learned that coding can be a creative tool for building worlds. My fearless curiosity about technology came from home."

#### 26 WE MAKE IT **WORK**



LINDA-SPIRATIONAL **QUOTES** 

"Imagine a world where the Ada Lovelaces of tomorrow grow up to be optimistic and brave about technology and use it to create a new world that is wonderful, whimsical, and a tiny bit weird."

"We all ought to get used to falling forward. Everyone takes a tumble – everyone trips sooner or later. Coding teaches you to tolerate mistakes."

"The most scalable change happens in childhood. The world changes when children change it."

"If coding is the new lingua franca, then instead of taking grammar classes, we should all be learning poetry."

#### RAILS GIRLS GO GLOBAL

With her voracious appetite for learning, Liukas pursued a diverse course of studies including philosophy, business, French and visual journalism. After studying at Stanford, she experienced a Eureka

"In the United States I saw how people were truly using technology to change the world. That's what inspired the launch of Rails Girls, as a way of getting more women involved in IT."

Rails Girls is now a global initiative active in 227 countries, teaching women the basics of coding. This non-profit community organises workshops and provides women with access to technology as a platform for unleashing their creativity.

#### **RUBY EXPLAINS ALL**

After Rails Girls came Hello Ruby, a concept born when Liukas was learning the Ruby open-source programming language. Whenever she had difficulty understanding a principle, she drew

Linda's TEDx talk on children and computing has been watched over 1.5 million times. ted.com, search "Linda Liukas"

pictures of a red-haired girl called Ruby and asked herself: "How would Ruby explain this?"

The first book raised 380,000 dollars on Kickstarter, becoming the platform's most highly funded children's book. Hello Ruby: Adventures in Coding (2015) has now been published in at least 22 languages.

The third book in the series is a pioneering attempt to make the web approachable to kids.

"The pessimistic way the internet is presented makes it seem like a dark, scary place. My book shows that it's simply about communication," explains Liukas.

"I portray it as a snow castle – a metaphor that makes it more relatable. I never outgrew fairy tales, so I teach kids through story-telling."

#### ADA LOVELACE MEETS LITTLE MY

When asked what personal qualities have made her such an inspiration to kids around the world, Liukas fires off a spirited reply:

"I'm curious! And when I stumble upon something interesting, I get very enthusiastic," she says with broad smile, as if to illustrate her point.

"My third strength is confidence. I have a strong sense of 'Yes, I can'. It's the legacy of my childhood. I grew up reading books by Tove Jansson and Astrid Lindgren. Little My and Pippi Longstocking are my mentors. We have always had a great diversity of role models in Scandinavia."

Liukas is often described as a champion of female empowerment, but she insists that her core message is not just about feminism, but diversity.

"I love it when little boys in Japan tell me that their favourite character is Ruby, not the male character, Django. It's great that boys accept a girl as their hero. I want to bring girls into the world of technology, but I equally want to help boys accept different identities – to become nurses if they want to."

#### YOGA AND UNICORNS

An incurable bookworm, Liukas reads at least one book a week, devouring titles from Harry Potter to Hemingway. Her sources of inspiration are eclectic, from yoga and Friday-night pizza to sparkling decorative unicorns.

When not working, she enjoys the life of a newlywed in her rooftop apartment at Helsinki's Cable Factory, where she unwinds by cooking and growing

"I spend so much time at the computer I like to connect with simple, earthy activities that ground me. Otherwise my work and personal life are very much intermixed. I try to emulate Tove Jansson, who saw art and life as one and the same thing."

#### EDUTECH AMBASSADOR

Liukas played an instrumental role in making coding part of the Finnish school curriculum. She now provides consultancy services around the world, collaborating actively with US educators in a New York City education program and also with teachers in Japan.

Other projects in the pipeline include the forthcoming Chinese launch of Hello Ruby. Work on the fourth instalment – which tackles the theme of artificial intelligence – is also in full swing.

One thing, at least, seems certain: nothing will stop Liukas on her quest to make the world better through technology, whether as an author, illustrator, coder or

"My professional identity is very flexible. We humans aren't binary like computers. As Walt Whitman said, we all contain multitudes."

"I SEE MYSELF AS **EQUIPPING KIDS WITH** CREATIVE THINKING TOOLS, NOT JUST TEACHING THEM TO CODE."

## MORE FINNISH **TECH SUPERWOMEN**



#### Pia Henrietta Kekäläinen

Co-founder of Carbo Culture, a company making high-end carbon products from biomass. Also co-

founder of Mehackit, which empowers youth and teachers through creative technology courses.



#### Nelli Lähteenmäki

CEO & co-founder of Fifth Corner Inc., creators of the YOU-app, a science-based self-improvement

platform empowering people to make positive change happen, one small micro-action at a time. Fifth Corner Inc. serves the health care sector. insurance companies, businesses and consumers.



#### Maria Ritola

Co-founder of Iris.ai, a company that has built an AI science assistant to speed up the research process

of corporations and universities. Currently. Iris.ai semi-automates literature mappings, i.e. the drudgery part of the research process. The company's long-term goal is to build an Al scientist. Read more on page 6!



#### **Jenny Wolfram**

CEO & founder of BrandBastion, providing the fastest and most accurate automated solution for

protecting advertising investments on social media in real time, 24/7.



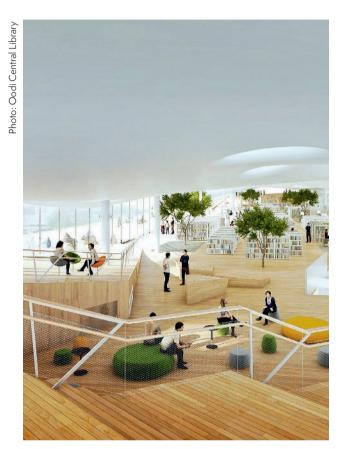
#### Mari Lättilä & Marjo Sjöberg

Co-founders of Qentinel, independent providers of software quality assurance services and consultancy, offering services to companies that rely on high-quality IT systems and software.

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# KEEP IT SHORT

By Sami J. Anteroinen





#### **ODE TO BOOKS**

Helsinki is about to have a new landmark building

– the Oodi Central Library is nearing completion.

Opening its doors in December 2018, Oodi (meaning Ode) will offer a public space open to all in the heart of the city

Oodi promises to upgrade the concept of the traditional library, adding community-orientation, diversity and joy of discovery into the mix. Hot on the heels of Finland's centennial year, the Central Library is also a birthday present of sorts.

#### **ALL IN THE TUBE**

Finnish Tubecon, the largest manifestation of YouTube culture in Europe, is spreading around the continent. Already active in Sweden and Spain, Tubecon has made licensing agreements in six new countries: Switzerland, Austria, Italy, Estonia, Latvia and Romania. In addition, Germany, Denmark and Norway are likely to join the Tubecon family quite soon.

The first-ever Tubecon was hosted in Helsinki in 2014 with 5,000 visitors participating. Currently, the Helsinki event attracts about 18,000 visitors.

tubecon.fi





#### PATH TO A CIRCULAR ECONOMY

Finland has composed the world's first national road map to a circular economy. The road map defines the steps required for a systemic change in the economy.

The government aims to make Finland a forerunner in the bioeconomy and circular economy by 2025, championing the cause of sustainable well-being. The road map is aimed at creating a shared mindset among companies, politicians, scientists and organisations.

∰ sitra.fi/en

#### **STARTING A COMPANY?**

When starting a business in Finland, there is practically no language barrier because almost all formalities can be conducted in English – and online. According to studies, you can cut through the red tape faster here than just about anywhere else and get up and running.

For those with the entrepreneurial mindset, there is guidance and support available during all phases of the company creation process, and plenty of brochures and courses, too. In addition, would-be entrepreneurs may want to consider applying for a startup grant, available also to non-Finns.

Planning to establish a business in Helsinki? Check:

mewcohelsinki.fi/en



#### ON THE MOVE

The Nordic region's biggest financial group, Nordea, is moving its headquarters from Stockholm to Helsinki. It seems the main deciding factor was that Finland is part of the euro area and the European Union's banking supervision system. Finland is the only Nordic country that uses the euro.

The relocation plan still needs approval from authorities as well as shareholders at Nordea's Annual General Meeting in the spring 2018.

#### **EYE ON THE PRIZE**

The Millennium Technology Prize is Finland's tribute to innovation. The prize is worth one million euros and is awarded every second year, next on May 22, 2018. The Prize highlights the extensive impacts of science and innovation on society, even on humanity at large.

To date, the Millennium Technology Prize has been awarded to 12 remarkable innovations, ranging from the World Wide Web and open source software to breakthroughs in stem cell research and cost-efficient solar energy. The latest winner is biochemist Frances Arnold, awarded for her discoveries that launched the field of 'directed evolution'.

taf.fi/en/millennium-technology-prize



#### **BRING YOUR BRAIN**

What do you get when great game designers team up with scientists from CERN and Oxford? Big Bang Legends, the first game by Finnish learning game studio Lightneer, is aiming to be the best science game on the planet. Launched in 2018, the game integrates fun gameplay with educational content about particle physics. We reckon it could well be the runaway hit of the year.

lightneer.com



# MUSIC TO YOUR EARS



Did you know that Finland has more music events per capita than any other country? During the summer months, you can visit a different festival almost every day. Five famous Finns reveal their festival gems.



# ROSA LIKSOM Author, artist

"My favourite festival is Silence, organised in Lapland in the small village of Kaukonen in June. It's a multidisciplinary programme – contemporary classical music and contemporary circus – that brings together people interested in art and local culture. They have workshops and high-quality performances in a beautiful, peaceful setting."

hiljaisuusfestivaali.fi/about



# PAOLA SUHONEN Designer, artist, film maker

"Superwood is a unique boutique festival that brings the best of Finnish electro and pop music, academic talks, film and art & design under the same roof. It's held to the east of Helsinki by the sea, in the middle of a dark forest. The first Superwood was in 2017 and this was the first time a Scandinavian fashion brand organised its own festival. This is the best reason to come to dark Helsinki in October."





# PEKKA KUUSISTO Violinist, composer

"If you're into chamber music, it's more or less impossible not to know about the avalanche of sound that is the Kuhmo Chamber Music Festival. Two weeks of nearly constant daylight and joyous music-making in a tiny little town far away from the larger blobs on the map. If you need to be nearer to Helsinki, come to Our Festival. I'd recommend it even if I wasn't the artistic director. It lasts a week and has roughly 20 events of very varied programming, featuring concerts in the living room of the Sibelius family."

kuhmofestival.fi/english
ourfestival.fi/eng



# RIKU RANTALA Writer, TV personality

"I'd recommend Viapori Jazz, a small but top class jazz festival that is held every August on the Suomenlinna fortress island, overlooking Helsinki. It combines Finland's best sounds and musicians, picturesque venues and dark and warm late summer nights."

wiaporijazz.fi

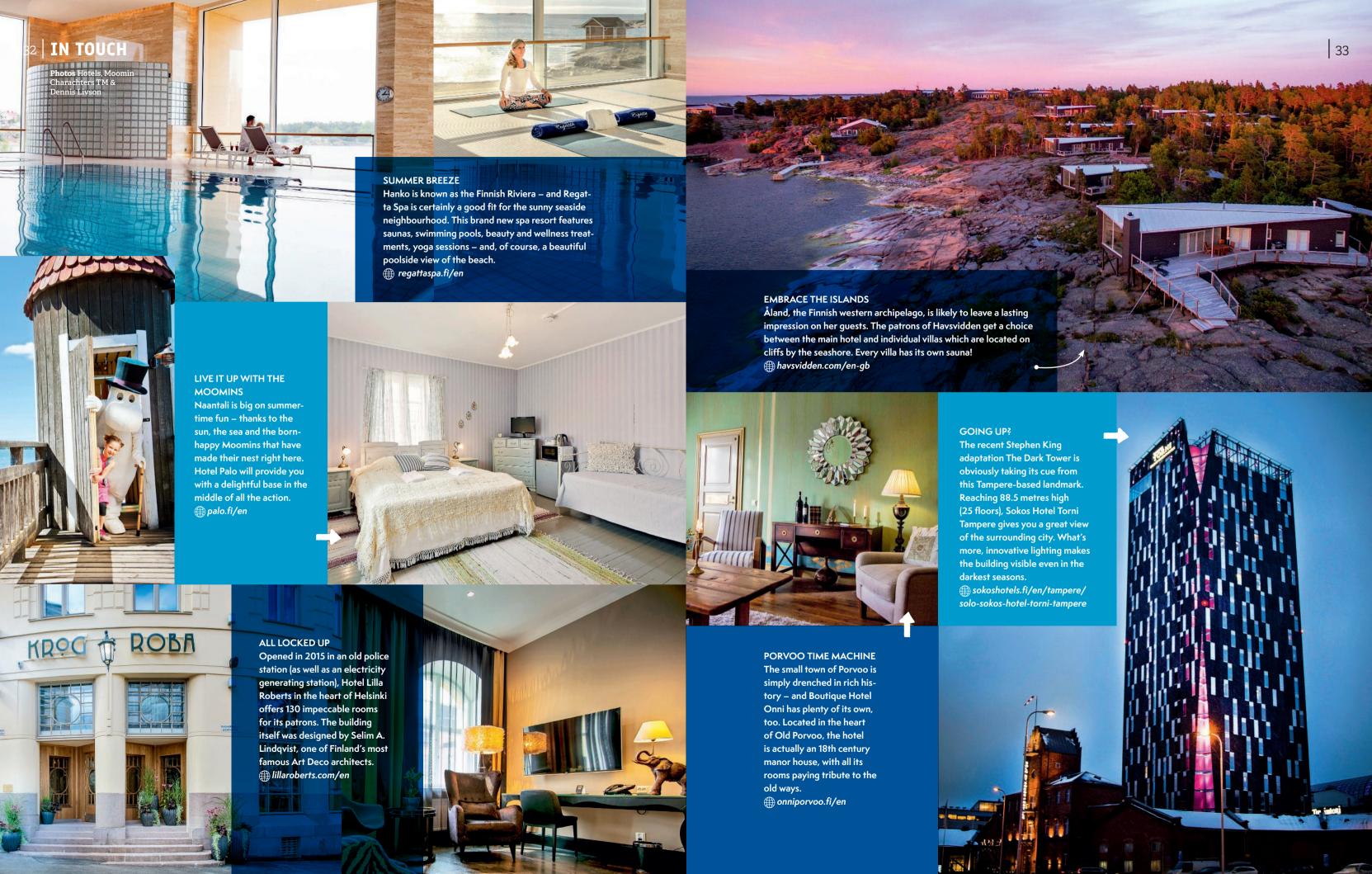


# ISAC ELLIOT **Pop artist**

"My favourite festival is Ruisrock, a huge three-day festival in the archipelago of Turku. It has always been a dream of mine to perform there. Any stage would have been nice but I got to play on the main stage. I'm always going to remember the warm and sunny day when my dream became true at the age of 16. The surroundings are amazing with boats and ships cruising next to the area – it is just very special."

mruisrock.fi/en











01. Kyrö Distillery Company, award-winning rye gins. kyrodistillery.com / 02. Eero Aarnio, Cognac XO chair €4,550. designeeroaarnio.com / 03. Finsk by Julia Lundsten. finsk.com / 04. Haikara smartwatch. haikara.co / 05. SarpanevaUhrenFabrik is a watch brand that is Finland, through and through, S.U.F Vetehinen. sufhelsinki.com / 06. Hálo, RUSKA shirt €240, pants €310. halofromnorth.com / 07. Lovia, Kaski recycled leather tote bag €925. loviacollection.com / 08. Lapponia Jewelry, Winter Pearl necklace €3,100. lapponia.com / 09. Ruokangas Guitars, Unicorn Classic €9,500. ruokangas.com / 10. Finnviini, Sametti bilberry dessert wine. finnviini.fi





More things
you should and
shouldn't know:
thisisfinland.fi

# WHO'S WHO?

Test your knowledge of Finnish characters to see if you are a true fan of Finland.

1-4 correct answers: Close, but not quite. Take a trip to Finland to brush up your knowledge!
5-7: Good effort. Keep it up and you'll soon be calling yourself a pro Finn.
8-10: OK, are you sure you're not a Finn in disguise? You're a true Finland fan. Onnea!

#### Answers



J. Santa Claus Δ. Moomintroll 3. Red from Angry Birds 4. Snake from Mokia Snake game 5. Newton Bill from Hill Climb Racing 6. Barbarian King from Clash of Clans Ω. The Dudesons 8. Tatu & Patu 9. Gigglebug 10. Kake by Tom of Finland